

COMPUTING RESEARCH NEWS

A Publication of the Computing Research Association

January 2004

Vol. 16/No. 1

House Approves Modest Increases for IT R&D, NSF in FY 2004; Senate Still to Act

By Peter Harsha

The House wrapped up its FY 2004 appropriations process after returning from its Thanksgiving recess by approving a modest increase in funding for information technology research and development and the National Science Foundation, as part of a gargantuan 700-plus-page omnibus appropriations bill for FY 2004.

Under the agreement, NSF's budget would grow to \$5.57 billion in FY 2004, an increase of \$268 million (5 percent) over FY 2003. The appropriation, the largest NSF budget in history, would still fall well short of the 15 percent increase approved by Congress and the President last year in the NSF authorization bill, a rate of increase that would double the agency's budget in five years.

Also slated for an increase is NSF's Computer and Information Science and Engineering (CISE) directorate, which would grow to \$606 million for FY 2004, an increase of \$24 million over FY 2003, or just over 4 percent. The increase includes \$225 million for NSF's Information

Technology Research program (ITR) and "not less than \$20 million" for the agency's cyberinfrastructure initiatives in FY 2004.

The omnibus legislation (HR 2673)—a combination of seven of the thirteen appropriations bills Congress is required to pass annually to fund all activities of the federal government—passed the House well after the official start of the 2004 fiscal year, which began October 1, 2003. Lack of agreement with the Bush Administration over a final overall spending number had hindered progress on the seven outstanding bills. Unwilling to prolong the congressional session any longer, Congressional leaders agreed to package the seven outstanding bills—Agriculture, Commerce/State/Justice, District of Columbia, Foreign Operations, Labor/HHS/Education, Transportation/Treasury, and VA/ HUD/Independent Agencies (which includes NSF)—into one omnibus bill and make a 0.59 percent cut in

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Table 1. FY 2004 National Science Foundation Appropriations
(in millions of dollars)

	FY 2003 Current Plan	FY 2004 Appropriated	Percent Change (FY03-FY04)
Research and Related Activities	\$4,056.46	\$4,251.37	4.8
Biological Science	\$570.68	\$588.51	3.1
Computer and Information Science and Engineering	\$581.89	\$606.00	4.1
Engineering	\$540.51	\$557.69	3.2
Geoscience	\$692.21	\$714.76	3.3
Mathematics and Physical Sciences	\$1,041.02	\$1,093.51	5.0
Social, Behavioral, and Economic Sciences	\$167.52	\$173.97	3.9
International	\$26.82	\$29.82	11.2
Polar Programs	\$319.07	\$342.96	7.5
Integrated Activities	\$116.74	\$144.14	23.5
Major Research Equipment	\$148.54	\$154.98	4.3
Education and Human Resources	\$903.17	\$938.98	4.0
Salaries and Expenses	\$189.11	\$218.70	15.6
Inspector General	\$9.19	\$9.94	8.2
National Science Board	\$3.48	\$3.88	11.5
NSF Total	\$5,309.95	\$5,577.85	5.0

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Accenture Technology Labs: Creating Business Opportunities from Technology Innovations

By Anatole Gershman

Accenture is not a product company—it does not develop either hardware or software products. If it were, describing the role of R&D in Accenture would be easy. Instead, Accenture is one of the world's largest consulting and outsourcing companies that helps its clients achieve high business performance by deploying leading edge IT systems and reorganizing client processes around innovative technologies. In a product company R&D is intended to make a better product that will be competitive in coming years. But what does it mean to do R&D for a company intended to help clients "achieve high performance?"

Accenture's clients are in practically every business, from banks and telecommunications to health-care and municipal services. They utilize every conceivable kind of information technology in a very broad range of business applications,

from supply chain to customer service. While the systems we install are fairly standard vendor offerings, each installation is a unique combination of multiple products achieving highly customized and innovative business results. It follows, then, that the primary role of our R&D labs is to help our practice apply emerging technologies to achieve higher business results for our clients. For example, it would be typical of our research to take the features likely to be found in the next generation of products (such as cell phones or industrial sensors), and figure out and demonstrate how they might be used in a variety of industries and the impact they will have for clients in those industries.

The challenges that we face are twofold: determining what the focus of our R&D activities should be and how we should achieve an impact on the firm's business. Given our relatively small size, we have to focus on



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technologies that we believe will achieve a significant business impact within the next four to six years. Within this timeframe, information technologies that are driven primarily by Moore's Law will typically achieve an order-of-magnitude improvement in their price/performance. When something becomes 10 times cheaper or 10 times more powerful, radically new applications become possible. This

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Expanding the Pipeline

Waterloo Offers CS Seminar for High School Girls

By Sandy Graham

Introduction

The declining enrollment of female students in high school and post-secondary computer science programs is well documented. Many papers have been written and many programs have been implemented to address this alarming trend.[1] If we are able to increase the numbers of female students studying computer science at the high school level, this may increase the numbers of female undergraduate computer science students. In turn, an increase in female undergraduate students may reach a critical mass that will help retain a higher percentage of female graduate students.

The Centre for Education in Mathematics and Computing (CEMC) at the University of Waterloo has developed a weeklong seminar for girls in grades nine and ten. The seminar is designed to address two major factors that deter female students from studying computer science. The first is that girls are turned off by the stereotypical image of a computer scientist. The second is that female students tend to have less experience working with computers on their own, which makes them feel less confident in the classroom than their male peers. The first seminar was held in May 2002, and it was so successful that two seminars were held in 2003: one in May and one in July. The CEMC has acquired funding to hold two seminars each year for at least the next four years.

Background

The Faculty of Mathematics at the University of Waterloo has been involved in high school mathematics and computer science education for several decades. One of the most enduring connections with high school teachers and students has been the annual mathematics contests, such as the Pascal, Cayley, Fermat, and Euclid. Over the past 39 years, the top performers in Canada in these contests have been invited to a weeklong math seminar, which includes problem-solving sessions and lectures designed to challenge these very bright mathematical minds. In 1996, the CEMC introduced the Canadian Computing Competition (CCC), an algorithm programming contest. The CCC was designed to challenge high school students and help identify the Canadian team for the International Olympiad in Informatics (IOI). The twenty top performers in the CCC have been invited for the Stage II competition at the University of Waterloo. Over the past four years, there have been no female competitors at Stage II.

The CEMC wanted to create a seminar in computer science modeled after the long-running mathematics seminar. However, we recognized that trying to get a group of participants

that was reasonably balanced with respect to gender was not going to be possible if we used the results from our competition as the basis for invitations. After some debate, it was suggested that we tackle the problem of declining female interest in computer science directly. The problems of losing female students should be addressed at as early an age as possible, even before high school. However, since we were expecting our participants to fly on their own and stay by themselves on campus for a week, the youngest students we thought we could accommodate would come from grades nine and ten. So, the *J.W. Graham Seminar* was born, which became the *Imperial Oil Seminar in Computer Science for Young Women*[2] the following year.

Finding the Participants

We sent invitations to high school mathematics departments across Canada asking high school teachers to encourage bright female mathematics students to apply to attend the seminar. The intent was that we would take these students, who probably had little or no experience in computer science, and spark their interest in computer science. Each student provided a transcript, a teacher's recommendation, and a one-page hand-written or typed statement about why she would make a good participant in the seminar. The cost to the student would be \$100; the rest of the costs—airfare, accommodation, and meals—would be covered.

We received more than 900 applications for 40 positions for the first seminar. Two faculty members had a difficult task choosing the final set of participants. They used a minimum mark average to eliminate some of the applicants, but it was difficult to distinguish among the remaining students. One of the goals was to have a relatively even geographic representation. In the end, we had at least two students from every province and territory except Nunavut (where we did not receive any applications). In some ways the final participant list was generated randomly, since there were so many talented young women from which to choose. The following year we more than doubled participation by offering two seminars to 48 girls each.

The Seminar Programme

The program for the girls was a combination of lectures, hands-on activities, and labs. The core sessions for the week were designed to introduce programming and digital hardware concepts. On the first day, participants learned basic programming concepts using a scripting language called Tcl/Tk, and they learned simple digital hardware concepts using breadboards and simple electronic components. After

that, a lab session was scheduled each day where the girls could choose to continue to learn more about programming or more about digital hardware. The material for these sessions was presented in a modular format that would allow the girls to move back and forth between the sessions from one day to the next if they wished. Most girls chose to stay with either programming or digital hardware for the entire week. In each of the three seminars, between 25 percent and 30 percent of the girls chose the digital hardware sessions.

The programming modules introduced basic concepts such as variables, selection structures, and repetition structures. These modules had the students add features to a simple drawing program written in Tcl/Tk. Using a language such as Tcl/Tk allowed the participants to create a graphical program with real functionality. We also chose this language because it is freely available on multiple platforms. Ideally, the girls could continue to work with the language when they returned home.

The digital hardware sessions had the students work on a series of experiments. The first session introduced concepts such as binary numbers and simple circuits. By the last experiment, the girls were creating more complex circuits using multiple logic gates, and they were introduced to simple circuit design. Ideally these core sessions will provide a realistic foundation in computer science and computer engineering for the girls. Unfortunately, since some provinces do not provide computer science courses in high school, the follow-up opportunities may be limited. This concern is even greater because taking computer science courses in high school is more of a determining factor for girls who choose to major in computer science than for boys.[3]

The main criterion for selecting lecture topics and hands-on sessions was to find a dynamic speaker who was able to relate to a high school audience. The lecture topics ranged from the History of Computer Science to Finite State Machines (FSM). The girls learned about Bioinformatics, Information Retrieval (IR), Artificial Intelligence and Software Engineering. The hands-on and lab sessions ranged from using animation software to disassembling and re-assembling a personal computer.

These sessions were intended to inform the students about different aspects of the area of computer science; we wanted to show them that the study of computer science was more than just sitting at a computer, programming all day and night. We did not want to underestimate the potential of these girls, keeping in mind their high school mathematical

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Computing Research Association

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CRA Outstanding Undergraduate Award Winners Announced

The Computing Research Association honors the recipients of the CRA Outstanding Undergraduate Awards competition for 2004, sponsored this year by Mitsubishi Electric Research Labs.

Thuc Vu, Carnegie Mellon University, received the Outstanding Male Undergraduate award. **Anna Cavender**, from the University of Oregon, received the Outstanding Female Undergraduate award. **Ethan Eade**, Duke University, was named Runner-Up for the male award; and **Heather Wake**, University of South Carolina, was the Runner-Up for the female award.

About the Winners

Thuc Vu is in his third year of studies at Carnegie Mellon University.

He will receive his Bachelor's degree in



Computer Science in May 2004.

Thuc has done significant research in artificial intelligence, contributing to two major projects. In one project, he developed a novel set of techniques that enable a designer of a multi-agent system to specify team behaviors for autonomous agents. This work included a new approach that introduced structural constraints, thus ensuring designs that would be more efficient at run-time. With his teammates, he then created an experimental test-bed for evaluating team-behavior specifications in complex and dynamic virtual worlds. In another project, Thuc single-handedly developed a simulator and optimizer for difficult logistics optimization problems. He continued to work on the core optimizer, combining a constraint-based method followed by multi-phase simulated annealing in the convex-hull of constraints to minimize costs and maximize a satisfaction function.

Thuc is also currently working on a method of automatically generating C code from specifications of agent behavior. He was the first author and presenter of a paper at AAMAS-2003, co-author of a paper at the Third ACG Workshop in 2003, and is the principal author of a paper that he and his research advisor plan to submit to AAMAS-2004. A senior faculty member describes Thuc as "simply off the scale, far off the scale."

Thuc maintains a 4.0 average in his course work, majoring in Computer Science with a minor in Mathematics. He was selected for the Dean's List from 2001 to 2003, and was recently initiated into the Phi Beta Kappa Society. He has been a tutor for many students in several classes, including a challenging Discrete Math class for CS majors; he is also the founder and co-president

of the Vietnamese Student Association at CMU. He has been a summer intern at VT Tech Company, eMed Technologies, and Bosch Research Technology Center. Thuc won the 2001 USACO International Spring Contest in Programming and the 2001 USACO American National Olympiad in Programming, and was named to the 2001 All-American Programming Team.

Anna Cavender is a senior at the University of Oregon. She will receive her Bachelor's degree in Computer and Information Science in June 2004.



Anna's research is in human-computer interaction. Her research combines intellectual challenge with an extraordinary commitment to public service. Her time and efforts have been dedicated to research that opens up the creative and scientific world for those who are currently locked out through gender inequality or physical impairments. Anna first contributed to a project on computer games aimed at countering the social pressures that turn middle-school girls away from mathematics and computers. She was the primary programmer with a group of eight art students.

She is now taking a leading role in a life-changing project to enable profoundly paralyzed children to draw pictures with their eyes. Anna's leadership in the project has involved not only the technical work, such as recognizing "pen up" and "pen down" gestures with only eye motion as input, but also in integrating research on the role and progression of artistic expression in children's development. One paper on this project has already been submitted and two more are in preparation, and the research results will be the subject of a patent application.

Anna was awarded the Erwin and Gertrude Juilfs Academic Scholarship, a CSEM scholarship, and a research assistantship. She currently works as a database administrator for the Department of Computer and Information Science.

Ethan Eade is a senior at Duke University. He will receive a Bachelor's degree with majors in both Computer Science and



Mathematics in spring 2004. As a 2003 Marshall Scholar, he will attend the University of Cambridge in fall 2004 where he will study robotics and distributed systems.

Ethan is interested in multiple areas of computer science and has contributed foundational research to

several projects. For the ModelNet project, a large-scale wide-area network emulation system built on commodity hardware, he researched the application of graph partitioning to the assignment of network links to multiple computers. Ethan was co-author of a paper resulting from ModelNet published at MASCOTS '03, lead author of a paper on peer-to-peer networks and distributed event notification at ICTSM11, co-author of a paper on navigation algorithms at ICRA 2003, and will co-author a paper on developing a programming environment for beginning students.

Ethan maintains a 4.0 grade point average in Computer Science and is currently ranked seventh in his class at Duke. He has been named to the Dean's List every semester and has received numerous scholarships and awards, including the Angier B. Duke Memorial Scholarship and the Barry Goldwater Scholarship. He served for two summers as an undergraduate research assistant and served as a summer intern at Cape Computing, Inc. Ethan is president of the Duke Robotics Team and is an avid musician, playing in the Duke Symphony Orchestra as principal trumpet, in student musical productions as trumpeter and orchestral director, and in various other musical groups.



Heather Wake is a senior at the University of South Carolina. She will receive her Bachelor's degree in Computer

Engineering with a minor in Business Administration in May 2004.

Heather's research centers on high-performance computing, particularly the use of reconfigurable computers. Among her accomplishments are multiple hardware implementations of a Lehmer sieve application, which were synthesized for a Star Bridge Systems Hypercomputer platform. More recently, she has been the principal integrator of VHDL for hardware programming with EDIF specifications for applications. Heather has co-authored papers published at MAPLD 2003 and in the Proceedings of the Lectures in Honour of the Sixtieth Birthday of Hugh Cowie Williams, to be published by the Fields Institute, Toronto, Canada, and was the lead author and presenter of a paper at the 2003 IEEE FCCM Symposium.

Heather serves as a research fellow while also working as a television technician for the University of South Carolina. Before that, she worked as an administrative assistant and as a sales associate at area businesses. While working, she has maintained a 3.97 GPA, has repeatedly been named to the President's List, and has received numerous other academic honors and scholarships.

She was inducted into Phi Beta Kappa and serves as the Executive Council Student Member for the USC chapter, and serves as Web Coordinator for Tau Beta Pi, the national engineering honor society. She has also served as head diving coach for the Five Oaks Swim Club and as a multi-sport coach for the Champions All Sports School.

Finalists

Katie Messerly, University of Texas at Austin; **Margaret Yau**, University of California, Berkeley; **Meng Yu**, University of California, Berkeley; **Abhinav Agrawal**, Princeton University; **Gautam Altekar**, University of Rochester; **Bogdan Caprita**, Columbia University; **Ankur Datta**, University of Central Florida; **Daniel Licata**, Brown University; and **Stefan Schoenmackers**, University of California, San Diego.

Honorable Mention

A number of students were cited for Honorable Mention by the committee. For a list, see: <http://www.cra.org/Activities/awards/undergrad/2004.html>.

This year's selection committee included David Novick, University of Texas at El Paso (Chair); Ran Libeskind-Hadas, Harvey Mudd College; Kathleen McKeown, Columbia University; and Frank Tompa, University of Waterloo. ■

Call for Participation

GRACE HOPPER CELEBRATION OF WOMEN IN COMPUTING 2004

The fifth Grace Hopper Celebration of Women in Computing conference (October 6-9, 2004—Chicago, IL) is seeking presenters from the industrial, academic, and government communities.

The Grace Hopper Celebration is the largest gathering of women in computing in the world, and the theme for the 2004 conference is "Making History." It celebrates the impact of women—past, present, and future—on computing.

The Grace Hopper Celebration is a technical conference featuring invited keynote and technical speakers, panels, workshops, new investigator technical papers, Ph.D. forums, technical posters, and birds-of-a-feather sessions (BOFs).

Submissions on both technical and professional topics are welcomed. The Grace Hopper Program Committee is especially encouraging technical submissions that cross disciplines and other boundaries. Deadlines vary by type of submission, with the first occurring on March 15, 2004. Additional information, requirements, and deadlines for submission can be found at: <http://www.gracehopper.org/cfp.html>.

CRA is a founding sponsor of the Grace Hopper Celebrations. ■

Science of Design

By Peter A. Freeman, NSF

Efforts have been underway for many years to enable the creation of complex systems in a scientifically based manner. As we move forward into a world in which the number of devices, amount of software, and degree of connectivity in complex systems will all increase by orders of magnitude, it is essential that we have a "science of design" on which to base our efforts at building such systems. CISE is engaged in spurring the innovation and scientific development necessary to achieving this goal.

It is not news to readers of CRN that systems are difficult to create, most especially those that involve software! As the PITAC noted in its 1999 report: ". . . We have become dangerously dependent on large software systems whose behavior is not well understood and which often fail in unpredicted ways." Likewise, it is well understood that there have been many efforts over a number of years to improve this situation. For example, thirty-five years ago at the original NATO Software Engineering conference, there were strong calls to build a foundation for the systematic creation of software-intensive systems. Yet today, in spite of these efforts, we still do not have what could be called a solid scientific basis for building systems that include software elements.

Other disciplines have been working on issues of design for even longer—architecture and engineering immediately come to mind. There are

areas of overlap between these other disciplines and computing, and certainly things we can learn from them. In general, however, these other disciplines do have more of a scientific basis. The design of a large building is based on many scientifically discovered and validated facts, as well as a plethora of codified experience. A similar basis exists for many engineered artifacts—chips and airplanes, for example. While not complete, these scientific bases certainly permit a degree of regularity in the process of creating them and modifying them over time that does not exist where software is involved.

Our intention at NSF is to change this situation.

It won't happen overnight. It won't happen before many of us have retired, but we cannot wait another thirty-five years to start to build a solid, scientific base on which complex systems involving software can be built. In this short article, I want to outline some aspects of this effort. As someone said at a recent workshop sponsored by NSF on the Science of Design, I want to talk to you about three facets: about "science," about "of," and about "design."

Let's start with "design." We are really concerned with all the stages of activity involved in conceptualizing, framing, implementing, commissioning, and ultimately modifying a complex system involving software—not just the stage following specification and preceding programming that

might be described in an overly stylized software engineering process. "Design" is often used to designate that particular stage and that is fine, but we are using the term both more broadly and in a figurative sense. On the one hand, we are not particularly concerned with any or with all of the stages, but with the principles underlying them. On the other, and really this is the point, design is the central issue when it comes to dealing with artificial artifacts (those created by people, not naturally occurring).

The design of an artifact is the one factor or dimension that is involved, no matter what you are trying to do with or to the artifact. If you are specifying an artifact, you are shaping the design and guiding the designer to make choices that will meet the requirements for the artifact. If you are trying to build or implement an artifact, the design is your guide. If you are trying to modify an artifact, you must deal with the existing design at multiple levels. And so on.

What do we mean by "science?" A dictionary definition usually goes something like "the observation, identification, description, experimental investigation, and theoretical explanation of natural phenomena." Of course, in talking about design, we must expand this to artificial phenomena, but that is something that (at least in computer science) we have long since come to terms with. The term "science" is used commonly to refer to a body of knowledge that

is intellectually rigorous, analytic, formalized where appropriate, based on empirical studies where possible, and, above all, teachable.

In this instance, the meaning of "science" should be clear. We need to have a teachable body of knowledge with the properties noted above about complex, software-intensive systems and the processes used to create them. We have made a good start at this for some classes of algorithms, for determining how many servers may be needed to handle a given workload, and so on. But this is needed for all aspects of systems, not just isolated pieces.

Our first assertion—the centrality of design—argues for focusing there in the belief that many of the other needed principles will become easier to obtain if we have a solid basis for design. The scope of design must be much broader than the design of algorithms.

I should note explicitly that we are interested in complex systems composed of computers, software, people, and other devices. At that level, there is nothing different from the general studies of design that have been undertaken for years by other disciplines (and that are still being vigorously pursued). Yet, those other approaches to systematizing design have not solved the "software problem," and I do not believe they will until we understand scientifically

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Bayh-Dole Act Bad for Computing Research?

By Jim Foley, CRA Board Chair

The Bayh-Dole Act of 1980 assigns to the university ownership of intellectual property resulting from federally funded research. The act is widely credited with increasing university IP revenues, which have risen dramatically since 1980, mostly in the life sciences.

At the same time, the pressure on university licensing offices to create still more revenues can have a chilling effect on industry-university cooperation in computing research, even as it reinforces cooperation in the life sciences. This effect, now widely acknowledged, comes at the same time as calls for increased research productivity to bolster North American competitiveness in the world. There is a disconnect here.

Three recent reports highlight the issues involved:

1. A recommendation from the President's Council of Advisors on Science and Technology report *Technology Transfer* (<http://www.ostp.gov/PCAST/pcast2003rpt.html>) acknowledges that licensing practices and expectations in the life sciences are not appropriate in other fields: "Industry differences need to

be recognized and practiced by institutions licensing government-sponsored technology, but made consistent with individual disciplines . . . The value of intellectual property in . . . software, communications, semiconductors . . . is highly variable, ranging from entirely unimportant to moderately important. In these cases, the time to market is much shorter (measured in months to years, rather than many years as in pharmaceuticals), and the international competition for manufacturing, as well as other factors, are much more important drivers of commercial success than for life sciences transactions."

2. Our CRA *Best Practices Memo, University-Industry Sponsored Research Agreements* (<http://www.cra.org/reports/ip/bestpractices.html>), observes: "Mindful that some IP such as gene splicing and human growth hormone have produced 'IP goldmines,' many university administrators (and some students and faculty) are eager to establish strong safeguards to protect their rights to intellectual property. While such safeguards are perhaps essential in biomedical, pharmaceutical, and agricultural research, they

are not appropriate in Information Technology (IT). They can be difficult and time-consuming to negotiate, and because considerations such as time-to-market are so important in IT, the delay can frustrate beneficial cooperation. Moreover, patent safeguards are unnecessary because of the role of IP in IT products and the complications involved in deploying IT IP."

3. At the first Industry-University Congress in August, a disturbing observation was made: US companies sometimes support research at overseas universities simply because of faster and more flexible IP negotiations. CRA submitted our *Best Practices Memo* for consideration, and CRA board member, Jim Horning, attended the meeting. It was sponsored by the National Council of University Research Administrators (NCURA), the National Academy of Sciences, and the Industrial Research Institute.

So what to do? The Bayh-Dole Act is not likely to change. The PCAST report is generally supportive, while acknowledging the need for discipline-specific practices—even as it

acknowledges that other factors have played an important role in the increased licensing activities.

If you are at a university and are experiencing slow or burdensome IP negotiations, meet with your IP licensing director to understand their philosophies, and review with them the CRA *Best Practices Memo* and the PCAST *Technology Transfer* report.

If you are at an industry lab, you too can help with this educational process. At the same time, consider the IP alternative a very large corporation used in supporting some of my own work: we put the work in the public domain. The reasoning was simple—the company was working closely with us, and decided that their competitive edge would come from the time-to-market advantage of being able to quickly move research results into their products, not from patent protection. By having the results in the public domain, they would be able to better defend against IP claims from others working in the same general area at the same time. Not a bad strategy when the

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CRA-W Cohort of Associate Professors Project

CRA-W announces the Cohort of Associate Professors Project (CAPP), sponsored by an ADVANCE grant from NSF.

The goal of this project is to increase the percentage of Computer Science and Engineering women faculty with the rank of full professor by forming and mentoring a cohort of women from the associate professor ranks. The project will feature the appointment of 15 senior Distinguished Professors—chosen for an outstanding record of excellence in research and a demonstrated commitment to mentoring—who will participate as role models, mentors, and advisers.

CAPP will begin with a two-day Professional Development Seminar, attended by both the Cohort Professors and the Distinguished Professors, to be held April 30-May 1, 2004 in Denver, Colorado. Critical career information will be discussed, along with workshops on building strategic leadership skills. The format will be highly interactive, including time for discussions and social interactions along with presentations and panels.

Women who have been promoted to the Associate Professor rank in the last two years are invited to participate in the cohort. Travel support is available. See <http://www.cra.org/craw/capp> for more details. ■

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experience. We challenged them with topics that are normally taught after first-year university, such as finite state machines and information retrieval. Overall, the sessions were very well received.

Beyond the actual programme offered to the girls, there were several reasons why the seminar was so successful. The girls encountered positive role models, both male and female, throughout the week. In addition to the presenters and organizers who were faculty members and graduate students, we had three “houseparents” who chaperoned the participants while they stayed on campus. The “houseparents” were female undergraduate students in computer science, and they stayed with the girls in residence and participated in many of the social activities throughout the week. Many of the participants commented that they enjoyed the chance to visit a university campus. As well, the seminar was a unique opportunity to interact with peers from across Canada. We also planned several social activities, such as rock-climbing and a Shakespearean play, which provided very positive associations with the entire seminar. We knew we had presented a successful seminar when we saw the tears at the end of the week as the girls said goodbye to each other.

Conclusions

There is obviously a need for programs that will encourage female

students to study computer science; since we have received more than 1,700 applications in the past two years for our seminar, there are obviously many high school girls who are willing to learn more about this area of study. Ideally, we would like to serve more of them.

Anyone wanting to re-create the seminar in some form should find local experts who can present topics that will help debunk the stereotypical image of computer science. We are happy to share the material we created for the core sessions in programming and digital hardware with anyone who is interested. If the results of the *Imperial Oil Seminar in Computer Science for Young Women* are an indication, any efforts to reach female students in high school or elementary school would be equally rewarding for the participants and for the presenters and organizers.

Sandy Graham (slgraham@uwaterloo.ca) is the *Computer Science High School Liaison at the University of Waterloo*.

References:

- ¹ *inroads (SIGCSE Bulletin) Special Issue: Women and Computing* (June 2002), ACM Press.
- ² http://www.cs.uwaterloo.ca/High_School_Liaison/girls/girls_overview.shtml
- ³ Margolis, Jane, and Fisher, Allan. *Unlocking the Clubhouse: Women in Computing* (2002), Cambridge, MA: MIT Press. ■

CRA Welcomes New Academic Members

Tulane University (EECS)
University of New Mexico (ECE)

NRC Assesses Doctoral Programs at Research Universities

The National Research Council has embarked on an effort to assess doctoral programs at research universities. The results of the last such assessment were published in 1995 (<http://bob.nap.edu/html/researchdoc/>).

Commonly known as the “NRC rankings,” these assessments are somewhat controversial but widely influential within and outside of higher education. For example, they are the rankings that CRA uses in its annual Taulbee Survey of Ph.D.-granting institutions in CS and CE.

Early in 2002, the NRC appointed a committee to ask if another assessment should be undertaken and, if so, what the methodology of such a study should be. Not surprisingly, the answer to the first question was “Yes,” and the committee has just published its proposed field taxonomy (<http://books.nap.edu/books/030909058X/html/7.html#pagetop>) and study methodology

(<http://books.nap.edu/catalog/10859.html>).

The committee has separated the computing disciplines into two distinct fields in the proposed taxonomy (both fall under the major heading of Physical Sciences, Mathematics, and Engineering): Electrical and Computer Engineering, and Computer and Information Science. As well, Information Science is separately listed under “Emerging Fields.” CRA is working to clarify the study committee’s understanding of the computing disciplines and how they are structured within institutions.

The NRC is currently raising funds to pay for the study. The study is currently scheduled to begin in July 2004, with questionnaires being sent to institutions. Questionnaires to programs will follow. If fund-raising takes longer than anticipated, the schedule will slip by a year to July 2005. ■

CRA Hosts Second Grand Research Challenges Conference

More than 50 attendees participated in CRA’s “Conference on Grand Research Challenges in Information Security and Assurance” at the Airlie Center in Warrenton, Virginia, November 16-19, 2003.

Supported by the National Science Foundation, this was the second in a series of invitation-only conferences hosted by CRA to address grand research challenges in computer science and engineering. The conference was organized by a committee of fourteen distinguished researchers, co-chaired by Gene Spafford (Purdue University) and Rich DeMillo (Georgia Institute of Technology).

The attendees were selected by the organizing committee based on responses to a Call for Submissions for research topics related to security and assurance. The committee sought to convene a diverse group from a variety of fields and at all career stages. Participants came from Australia, Brazil, Canada, India, Japan, the United Kingdom, and the United States.

Following the conference, with support from ACM, a panel of conference participants presented the four grand challenges selected at a press briefing held at the National Press Club. This was followed by a briefing session in the House Rayburn Building, hosted by the House Science Committee.

Details are available on the Web at <http://www.cra.org/grand.challenges>. A report of the conference will be published by CRA in spring 2004. The report of the first conference (on Information Systems) held in June 2002 is available at: <http://www.cra.org/reports/gc.systems.pdf> (hard copies may be requested by contacting info@cra.org).

House Approves Modest Increases from Page 1

every program across the board to make the Administration’s spending target. At press time, the Senate still had not passed the bill.

Overall, IT R&D spending will likely increase in FY 2004. In September, Congress approved increases to IT R&D spending in the Department of Defense (DOD), the Defense Advanced Research Projects Agency, and the new Department of Homeland Security. While the defense-related share of basic research will increase only slightly—to \$1.418 billion in FY 2004 from \$1.416 billion in FY 2003—overall science and technology spending at DOD will rise to \$12.2 billion in FY 04, up from \$10.4 billion in FY 03.

Before adjourning, Congress also passed authorization for a federal initiative in nanotechnology research and development. The bill, S.189, authorizes \$3.7 billion in R&D funding over the next four years for the National Nanotechnology Initiative, a coordinated, multi-agency research program modeled after the highly successful National Information Technology Research and Development (NITRD) initiative. As with NITRD, the NSF will take the lead role in running the initiative. The program is likely to have a significant information technology research component, something the Computing Research Association noted in supporting the bill when it was introduced.

(For updates on government affairs issues, see the CRA Government Affairs web page at: <http://www.cra.org/govaffairs>) ■

Accenture Technology Labs from Page 1

is especially significant when a new technology is likely to become embedded in the common infrastructure.

For example, about 6 years ago, we started looking at RFID tags. At that time, they were relatively expensive objects of curiosity with very few business applications. We had no doubts that the prices for the tags and the readers would eventually fall and that common standards would emerge. We believed that once this occurred, RFID tags would become a ubiquitous part of the physical commerce infrastructure with profound consequences for many business applications. Our R&D labs explored many potential applications, building numerous prototypes and demonstrations, and engaged our clients and practitioners in hundreds of workshops and discussions. As a result, Accenture is now in the forefront of the emerging market for RFID applications.

RFID is one example of a broader vision that guides our research—we call it Reality Online. At its core is the observation that ubiquitous sensors and actuators combined with pervasive communications will provide information systems with “eyes, ears, and fingers.” Such systems will become a real-time reflection of the physical world, capable of affecting it in real time as well. Combined with the increasing availability of vast computing and storage resources, this capability will enable intelligent “sense and respond” business strategies that are not economical today. Our current research program covers the following themes and topics.

Silent Commerce

This area encompasses applications of sensing and tracking of physical objects and their conditions. While the simpler inventory control applications of RFID technologies have moved from R&D into our practice, we are exploring more complex sensory networks that enable real-time detection of various business events, such as agricultural crop conditions or unauthorized removal of objects. Tracking people and their activities with video cameras and other sensors is of particular importance because it has many applications, ranging from law enforcement to in-home care for the elderly.

Information Insight

As sensory networks, from cash registers and tag readers to electronic noses and security cameras, produce an avalanche of information, we need to deploy considerable intelligence to transform these data into useful and timely business insights. Suppose you are a retailer and your customers allowed you to follow them all day long and know exactly what they do. Suppose also that you could whisper your promotional messages into your customer's ear at any time of your choosing. What would you say to them and when? How much effect will this capability have on your business? Advances in ubiquitous computing infrastructure will create this problem for tomorrow's retailers.

The public and private Web provides access to an enormous variety

of information from scientific data to personal opinions in news groups. In bioinformatics alone there are many dozens of sources of scientific data and publications. Bio-medical and pharmaceutical researchers spend many hours sifting through this information to find the nuggets they need. The problem is complex because each source is owned by a different organization with its own access method, organization, and search engine. As a result, it is difficult to answer even simple questions such as: “Which genes and proteins are related to lung and airway diseases?” or “Which drugs may affect psoriasis?” Similar situations can be observed in many other areas of applications, from environmental control to law enforcement. Our research in this area is focused on automatic and semi-automatic creation of semantic indices for large knowledge domains based on domain knowledge models.

Human Performance

Despite all the advances in automation, most business processes require human teamwork and decision making. With the spread of globalization and business process outsourcing, work teams are often geographically dispersed and belong to different organizations and companies. In these situations, effective collaboration and efficient knowledge transfer and management become business critical. At the same time, the tools for collaboration and knowledge sharing, such as instant messaging, web logs, application sharing, etc., are becoming more sophisticated and reliable. Our research is focused on utilization of these tools in support of specific business processes.

Clearly, there is a great overlap between human decision-making performance and information insight. We explore how simulation, optimization, and visualization techniques can be used to help people make better decisions, increasing their efficiency and reducing the risk.

Media-Rich Services

Continuing advances in communications, proliferation of digital cameras (still and video), and the decline of the flat-panel display prices have the potential of changing the competitive landscape for many industries. Cell phone manufacturers are now putting more cameras in the hands of users than traditional camera manufacturers. The amount of media produced by individuals is already dwarfing professionally produced content. Yet, we do not see many examples of innovative services that take advantage of these new capabilities. A couple of examples can illustrate the problem.

Today, consumers use telephones to tell businesses about their problems. With the proliferation of camera phones, they will want to show businesses their problems (a broken faucet or a shirt they want to match). What will this do to customer services based on call centers and automated voice response systems? Today's digital cameras represent the 21st century's way of capturing personal media. Printing pictures and putting them in a photo album takes us back to the 19th century. What services can media companies offer

that will create personal (or small group) experiences combining personal and professional media?

Privacy and Rights Management

These are services that help people and organizations take full advantage of the new technological capabilities, while protecting their privacy and intellectual property rights.

Achieving Business Impact

Selecting the right areas for research does not by itself guarantee relevance to the firm's business. Given our relatively small size—about 140 people—we need to be especially creative in trying to influence the firm of 85,000 practitioners. Over the years we experimented with several models of innovation pipelines. In the current model, Accenture Technology Labs operate in three locations with about half of the personnel in Chicago and one quarter each in Palo Alto and Sophia Antipolis (France). This geographical distribution is necessary to remain close to our practice. All three labs perform the same four functions: research, development, client workshops, and innovation networking.

Researchers constitute about one quarter of the Labs' personnel. They are fully funded internally and the majority come from an academic background having Ph.D.s in Computer Science or related fields. Researchers are focused on tomorrow's problems four to five years ahead of the market.

Developers constitute about two-thirds of the Labs' personnel. They have to spend 50 percent of their time on client-related projects and

generally have backgrounds similar to our line practitioners. They focus on commercialization of innovation through first-of-a-kind client engagements. They also work closely with researchers to identify the commercial potential of new technologies.

Client workshops are pivotal to the success of the Labs. Typically a client comes for a full day of demonstrations and discussions tailored to their needs. This is where our researchers meet clients and get exposed to real problems. They get an opportunity to try out their ideas and to get real-life feedback. Our developers get a chance to test their commercialization ideas. We run about 150 such workshops per year. Most of the Labs' practical engagements originate with a client workshop.

Everybody in our practice is very busy with client work. At the Labs, we cannot simply sit and wait until the phone rings with someone looking for innovation. We spend a great deal of energy and resources proactively looking for innovation opportunities. We have senior managers dedicated to specific market units organizing client workshops, educating our practice leaders and our R&D people, and connecting the Labs with potential opportunities.

This model has been working fairly well, but we are continuously looking for further improvements. Accenture Technology Labs has been an exciting place for researchers who are interested in broad business problems and for developers interested in commercialization of emerging technologies.

Anatole Gershman (*anatole.v.gershman@accenture.com*) is Accenture's Director of Research. ■

President's IT Advisory Committee Has First Meeting

After a long period of inactivity, the current President's Information Technology Advisory Committee (PITAC) met for the first time in a public session on November 12, 2003, to lay out its plan of action and focus areas for the coming months. The committee, chaired by University of Washington professor Edward Lazowska and Salesforce.com Chairman and CEO Marc Benioff, provides advice to the President about the federal government's NITRD efforts.

The committee, comprised of 25 representatives from academia and industry, will focus on three main topic areas for IT research in the coming year: homeland security, advancing the sciences, and the American health care system and medical science. The November meeting focused exclusively on IT issues in the nation's health care system. The committee took testimony from Elias Zerhouni, Director of NIH; Mark McClellan, Director of

the Food and Drug Administration; and Jonathan Perlin, Deputy Undersecretary for Health, Veterans' Health Administration.

The public meeting marked the first activity for the PITAC committee since September 2001. President Bush allowed the PITAC committee membership—appointed by former President Clinton in 1997—to lapse in December 2001. The President named his own appointments to the committee in June 2003 (see: http://www.nitrd.gov/pitac/members_nominees.html).

PITAC members include several current and former CRA board members. In addition to PITAC Co-Chair Ed Lazowska, a current member and former chair of the CRA board, it includes Dave Patterson (UC Berkeley), former member and board chair, and current members Eugene Spafford (Purdue) and Dan Reed (UNC Chapel Hill).

PITAC will hold its next meeting in early 2004. ■

Transitions and Awards

Congratulations to three of CRA's board members who have recently been elected ACM Fellows—**Barbara Grosz**, Harvard University; **Kathleen McKeown**, Columbia University; and **Dan Reed**, University of North Carolina, Chapel Hill.

Elisa Bertino has joined the CS Department at Purdue University as a Professor and Director of Research for the Center for Education and Research in Information Assurance and Security (CERIAS). Former research director, **Gene Spafford**, has been promoted to the position of Executive Director of CERIAS.

Erik Demaine (MIT) received one of the prestigious MacArthur Fellowships in October 2003. Demaine, now 22, was admitted to Dalhousie University in Halifax at the age of 12 and the University of Waterloo at 14. After earning his Ph.D. in Computer Science at Waterloo in 2001, he became an assistant professor in the Department of Electrical Engineering and Computer Science and in the Laboratory for Computer Science at MIT at the age of 20. Demaine is noted for his research in computational geometry.

Laura K. Dillon has recently been appointed acting chair of the Department of Computer Science and Engineering at Michigan State University.

J. N. Patterson Hume, professor emeritus in the Department of Computer Science at the University of Toronto, was named a member of the Order of Canada. Professor Hume pioneered the development of software for the first electronic computer in 1952, and his teaching and mentorship have inspired several generations of students.

Leah Jamieson has been appointed Associate Dean of Engineering for Undergraduate Education at Purdue University, effective January 2004.

Sergei Nirenburg has joined the Computer Science and Electrical Engineering department of the University of Maryland, Baltimore County where he has established the Institute for Language and Information Technology (<http://ilit.umbc.edu/>). ILIT combines basic research in computational linguistics with development of practical information technology applications and knowledge acquisition tools.

Effective January 2004, **Daniel A. Reed** will become founding director of a new interdisciplinary computing institute based at the University of North Carolina at Chapel Hill. Duke and North Carolina State universities are partnering with UNC on the institute. During 20 years at the University of Illinois-Urbana Champaign, Reed has served as Chair of the Department of Computer Science and more recently as director of the National Center for Supercomputing Applications (NCSA).

Alfred Spector, Vice President of Services and Software for IBM Research and a member of CRA's board, has been named an IEEE Fellow for leadership in reliable, scalable distributed computer systems.

David L. Tennenhouse, Vice President, Corporate Technology Group and Director of Research at Intel Corp., was named an IEEE Fellow for leadership in the development of active networks.

Congratulations to **Elaine Weyuker**, a Technology Leader at AT&T Labs - Research and a CRA board member, who was awarded the Rutgers University 50th Anniversary Distinguished Alumni Award for outstanding accomplishments and for leadership in mentoring of women and minorities. This was the first such award given by Rutgers, and Weyuker was selected from among all those who received a graduate degree from Rutgers in any field during the past 50 years. ■

CRA Service Awards

Distinguished Service and
A. Nico Habermann Awards

Nominations Due: **February 13, 2004**

For nomination details, see: <http://www.cra.org>

CRA-W Distributed Mentor Program 2004

Deadline for Applications: **Feb. 16, 2004**

For details, see: <http://www.cra.org/Activities/craw/dmp/>

Science of Design from Page 4

the nature of software design (both senses). Thus, we are focusing on what are sometimes called "software-intensive systems." Such systems may very well include elements of hardware and people, and the connections to them and how to include consideration of them in the overall design of the system is, of course, critical. But the core consideration must be the software aspect.

So, we are starting from the assumption that the core issue is design in both senses of the word—(as a verb) an activity that creates a plan for an artifact and (as a noun) a plan for an artifact. "Of" then means that we are seeking a "science" that will provide a foundation for "design" in both meanings of the word.

What might a "Science of Design" include? We hope to discover the answer to this question over the next several years by supporting a wide variety of research and other activities aimed at producing a body of knowledge that is intellectually rigorous, analytic, formalized where appropriate, based on empirical studies where possible, and, above all, teachable as I noted above. Several recent workshops have already begun to shed some light on this.

Based on the thinking of the late Herb Simon as spelled out in his classic *Sciences of the Artificial* (MIT Press), one can imagine a science of design that includes knowledge about the generation and selection of design alternatives, design representations, solution procedures for design problems, how people design, and design structures. To elaborate only on the first of these categories, one model of the design process is that it is a process of choosing among

alternative structures that go to make up the design. So, some of the questions to be answered include: How can alternative structures be generated for consideration? How can their properties be accurately described? How can we order the process of making decisions so as to minimize the time needed to obtain a satisfactory design that maximizes desired criteria?

It should be noted that this is only one model of the design process.

There are others that may lead to other sets of questions. Ultimately, having a true science of design will mean that we know what those different models are and have information about the validity of each, as well as about the questions that flow from each.

I hope this short article will at least pique your interest in what we mean by "science of design." As noted, we have already held some workshops investigating a few aspects of this extremely important topic, and you will see a program announcement very soon soliciting proposals for activities aimed at both developing a science of design and helping to frame the overall effort.

This will not be a quick process. It will require people to think about things differently and to do some new things. But without a science of design, it is very likely that we will be unable to deal with the opportunities before us.

Peter Freeman (pfreeman@nsf.gov) is the Assistant Director of Computer and Information Science and Engineering at the National Science Foundation. ■

Bayh-Dole Act from Page 4

first-mover advantage of fast time-to-market is the key.

But what of the broader issue—how to increase North American competitiveness in the face of high-tech knowledge work out-sourcing to China and India? Many steps are needed, going beyond that of IP relations between industry and academia. The percentage of US GNP invested in R&D is lower than in 1990. The support is again on the uptick, but mostly in life sciences via NIH and not very much in NSF-sponsored areas. Congress has authorized an NSF five-year doubling bill, and did exceed the administration's recommendation in this year's appropriation, but the level is nowhere near what is needed to achieve the doubling.

At the same time, three factors are working against us: 1) increased overseas IT R&D opportunities may

draw more of our international workforce back to their native country, 2) homeland security issues make it more difficult for international students to study in the United States, and 3) the number of US citizens and permanent residents earning the Ph.D. is lower than in 1993 and has been decreasing since 1995.

We all have our work cut out for us—with streamlining industry-university collaborations and tech transfer, and with these broader issues. CRA is actively working on these issues, and invites your ideas and participation. Contact me—foley@cc.gatech.edu.

Jim Foley is Professor and Stephen Fleming Chair in Telecommunications at Georgia Tech, and chair of CRA's board of directors. ■

Professional Opportunities

CRN Advertising Policy

See <http://www.cra.org/main/cra.jobshow.html>
Argonne National Laboratory
 Mathematics and Computer Science
 (MCS) Division
Summer Givens Associates Appointments
 Argonne, Illinois

The appointments are open to Ph.D. students at U.S. universities beginning careers in numerical analysis or computational mathematics. See: http://www.mcs.anl.gov/info/open_positions/givens03.html.

Contact:

Jan Griffin
 MCS Division
 Argonne National Lab.
 9700 S. Cass Ave.
 Argonne, IL 60439
griffin@mcs.anl.gov
 630-252-7271; fax 630-252-5676
 Deadline: February 9, 2004.

Argonne is an Equal Opportunity Employer

Arizona State University
 Arts, Media & Engineering Program
Tenure-Track Engineering Faculty Position in Virtual Reality

The Department of Computer Science and Engineering (CSE) and the Arts, Media, and Engineering (AME) Program are announcing a joint position for a tenure-track assistant or associate professor in virtual reality and related areas.

The Computer Science and Engineering Department (<http://cse.asu.edu>) provides a stimulating and fast-growing environment of research and teaching with emphasis on quality, leading-edge graduate and undergraduate education. Arts, Media, and Engineering (AME), (<http://ame.asu.edu>) is a joint Program between the Fulton School of Engineering and the Herberger College of Fine Arts. The goal of AME is to facilitate the parallel, integrated development of media hardware, software, content and theory. AME research covers distributed, context-aware sensing and modeling, information representation, retrieval and feedback, and experiential construction.

The successful candidate will spearhead research in cutting-edge areas such as believable agents, immersive/semi-immersive environments, human avatars, kinematics, and/or graphics aspects of virtual reality research and teaching. Efforts of the virtual reality group are expected to merge with the efforts of the other CSE and AME groups for the creation of electronic and/or enhanced reality experiences. For more information about this position, write to virtualreality_search@asu.edu. Please send a letter of interest, CV, representative publications or other multi-media material and names/contact information for four references to:

Chair
 Faculty Search Committee
 CSE/AME
 P.O. Box 878709
 Tempe, Arizona 85287-8709

Applications received by January 15th, 2004 will receive full consideration; if not filled applications will be reviewed bi-monthly until the search is closed. The anticipated start date is August 16th 2004.

The required qualifications are: a Ph.D. in Computer Science and Engineering or in a closely related field; a scholarly record in virtual reality appropriate to the rank; and previous experience working in or with fine arts, appropriate to rank. For applicants at the associate professor level, interdisciplinary experience in research spanning media, arts, and engineering, teaching experience at the University/College level, leadership experience, and evidence of funded research spanning engineering and the arts are desired.

ASU is an Equal Opportunity/Affirmative Action Employer.

Arizona State University
 Arts, Media & Engineering Program
Tenure-Track Engineering Faculty Position in Sound Analysis and 3D Audio Applications

The Department of Electrical Engineering (EE) (<http://www.eas.asu.edu/~eee>) and the Program of Arts, Media and Engineering (AME) (<http://ame.asu.edu>) are announcing an opening for a tenure-track assistant or associate professor in audio/sound analysis.

The goal of AME is to facilitate the parallel, integrated development of media hardware, software, content and theory. The program has established its own graduate

interdisciplinary curriculum which includes AME concentrations in Electrical Engineering, Computer Science and Engineering, Dance, Music, Theater and Visual Arts.

The successful candidate will take a leadership role in the sound analysis group of AME and contribute significantly to the development of the education and research mission of AME. The appointee will spearhead research in cutting-edge areas such as modeling of sound, sound localization, surround-sound processing, head-related transfer functions, virtual loudspeakers, spatial audio for moving listeners, multichannel sound acquisition, microphone arrays, streaming of multichannel audio, and feature extraction for audio. Efforts of the AME digital audio group are expected to merge with the efforts of the other AME groups for the creation of electronic and/or enhanced reality experiences.

For more information, write to sound_analysis_search@asu.edu. Please send a letter of interest, CV, representative publications or other multi-media material and names/contact information for three references to the:

Chair
 Sound Analysis Search Committee
 AME/EE
 P.O. Box 878709
 Tempe, Arizona 85287-8709

Applications received by January 20th, 2004 will receive full consideration; if not filled, applications will be reviewed monthly until the search is closed. The anticipated start date is August 16th 2004.

Minimum qualifications: Ph.D. in Engineering or closely related field and a scholarly record in digital audio, with emphasis on 3D applications and/or media and arts, appropriate to rank. Desired Qualifications: Interdisciplinary experience in research spanning Media, Arts and Engineering, teaching experience at the University level, leadership experience, evidence of funded research spanning the sciences and the arts appropriate to rank, and demonstrated communication skills.

ASU is an Equal Opportunity/Affirmative Action Employer.

Arizona State University
 Ira A. Fulton School of Engineering
Senior Faculty Position in Information Assurance and Security

The Ira A. Fulton School of Engineering at Arizona State University seeks to fill a position in the Area of Information Assurance and Security at the rank of full professor or associate professor. The expected starting date for this position is August 16, 2004. The appointment of the successful candidate may be in the Department of Computer Science and Engineering, the Department of Industry Engineering, or both. Nominations and applications for this position are invited.

Applicants for this position are required to have a Ph.D. in computer science, industrial engineering, information systems, systems engineering or a related field. The applicant must have ability and/or accomplishment in establishing or leading research and teaching activities in the area of Information Assurance and Security (IAS), addressing prevention, detection and/or reaction mechanisms to assure trustworthy computers and networks and Quality of Service. Excellence in research and scholarly activity, teaching, and service in the area of computer science and engineering or industrial engineering appropriate to rank is required. Evidence of scientific, academic and organizational leadership, educational innovation, and demonstrative effectiveness in establishing industry partnerships are desired.

ASU is a major research university widely recognized as a rapidly emerging educational institution in the US. The main campus is located in the city of Tempe, in the metropolitan Phoenix area. This year the Fulton School of Engineering received a \$50 million gift, which will provide funding for scholarships, fellowships, and research programs. Both the Department of Computer Science and Engineering and the Department of Industrial Engineering provide a stimulating and fast-growing environment of research and teaching, with ample opportunities for partnerships with high-technology industry and with emphasis on quality, leading-edge graduate and undergraduate education.

For more information about the Arizona State University, you are invited to visit the website <http://www.asu.edu>.

Initial closing date for applications is February 10, 2004; if not filled, applications will be reviewed on a bi-weekly basis thereafter until the search is closed.

Application packages must include a cover letter, curriculum vitae, research and teaching statements, copies of the most important publications, and the names and addresses of four references. These packages must be sent by post to:

IAS Faculty Search Committee Chair
 P.O. Box 878809
 Fulton School of Engineering
 Tempe, AZ 85287-8809

Arizona State University is an Affirmative Action/Equal Opportunity Employer.

Brown University
 Center of Computational Molecular Biology
Faculty Positions: Assistant, Associate or Full Professor

Brown University seeks highly qualified candidates for tenure-track or tenured faculty positions over the next few years, as part of a new interdisciplinary initiative—the Center of Computational Molecular Biology—with a focus on computational approaches in molecular sequence analysis, functional and comparative genomics, structural proteomics including protein folding, phylogenomics, and other contemporary biological problems. Applicants are expected to have a demonstrated record of excellence in research and to pursue independent externally funded research programs; tenure applicants must have already established such a program and have achieved international recognition for significant contributions in their specialty. Senior applicants should be leading figures in their area of scholarship, should be prepared to assume a leadership role in computational biology at Brown, and will be given the option of assuming the directorship of the Center.

Appointees will have the opportunity to foster collaborations with, and participate in, several NIH or NSF funded interdisciplinary programs, such as the new initiative in Genetics, Genomics and Proteomics. They will be expected to have good communication and teaching skills, and participate in the design of the planned graduate program in computational molecular biology. Depending on research interests, successful candidates will have faculty appointment (or joint appointment) in the Division of Applied Mathematics, Department of Computer Science, or one of the participating departments in the Division of Biology and Medicine.

Applicants should submit curriculum vitae, representative preprints or reprints, and a concise description of research interests and goals. Additionally, candidates for Assistant Professorship should arrange to have at least three letters of recommendation sent directly to the contact address. Candidates for Associate or Full Professor should provide names and contact information for at least five references; the references will be contacted by the search committee at an appropriate time. The anticipated start date is July 1, 2004. Priority will be given to applications received by January 15, 2004. Contact address:

ATTN: CCMB Search
 c/o Ms. Fran Palazzo
 Department of Computer Science
 Brown University
 Box 1910
 Providence, R.I. 02912

Brown University is an affirmative action/equal opportunity employer. Women and minorities are encouraged to apply.

Bucknell University
 Computer Science
Tenure-Track Assistant/Associate Professor

Applications are invited for a tenure-track assistant/associate professor position beginning mid-August, 2004. A Ph.D. in computer science or computer engineering and a commitment to excellence in teaching and research are required. Position requires ongoing participation in the offering and development of the required programming languages course. Excellent salary and fringe benefits.

Bucknell is a highly selective private undergraduate institution. The B.S. programs are EAC and CAC accredited. The department currently has nine full-time faculty positions. The computing environment is based on 70 SUN workstations. More information about the program is found at <http://www.eg.bucknell.edu/csci>.

Applications will be considered as received and recruiting will continue until the position is filled. Please send a resume, graduate transcript (photocopy acceptable), and the name of three references to:

Gary Haggard, Chair
 Dept. of Computer Science
 Bucknell University
 Lewisburg, PA 17837
 Bucknell encourages applications from women and members of minority groups (EEO/AA).

California Institute of Technology
 Computer Science Department

A position may be available for an instructorship with a light teaching load, for candidates interested in combining teaching with postdoctoral research and training. (Appointments are conditional on completion of the Ph.D.) The position is also suitable for more senior researchers interested in a visiting (e.g. sabbatical) position. Candidates interested in the position should visit www.cs.caltech.edu/search/instructorship for instructions on the application procedure. Initial appointments are for one year and are renewable for an additional year.

Caltech is an Equal-Opportunity/Affirmative-Action Employer. Women, minorities, veterans, and disabled persons are encouraged to apply.

Caltech Center
 Center for the Mathematics of Information

Caltech's Center for the Mathematics of Information (CMI) announces the CMI Postdoctoral Fellowship Program, to begin in the fall of 2004.

The CMI, part of Caltech's new Information Sciences and Technology initiative, is dedicated to fundamental mathematical research with an eye to the roles of information and computation as resources throughout science and engineering. Areas of interest include algorithms, complexity, applied combinatorics, applied probability, statistics, information and coding theory, geometry processing, multiresolution methods, control and optimization. A CV, research statement, and three letters of recommendation should be sent by February 1, 2004 to:

Prof. Leonard Schulman (CMI)
 Caltech
 1200 E. California Blvd.
 MC256-80
 Pasadena CA 91125
 or to: mlopez@cs.caltech.edu (subject CMI)

Positions are contingent upon completion of the Ph.D.

Caltech is an affirmative action/equal opportunity employer; women, minorities, veterans, and disabled persons are encouraged to apply.

Carnegie Mellon University
 School of Computer Science
Assistant Professor / Research Scientist / Lecturer

The School of Computer Science at Carnegie Mellon University spans a wide range of topics in computer science and the application of computers to real-world systems. It houses the Center for Automated Learning and Discovery; Computer Science Department; Human Computer Interaction Institute; Institute for Software Research, International; Language Technologies Institute; and the Robotics Institute, with tenure, research and lecturer-track faculty in all of these organizations. The highly selective undergraduate and graduate programs in the School of Computer Science draw top students from around the world. Further information about the School of Computer Science and its programs may be found on the SCS home page at <http://www.scs.cmu.edu/>.

The School of Computer Science seeks applicants for junior level tenure-, research- and lecturer-track faculty positions. We are especially interested in those whose research activities lie in the areas of Artificial Intelligence, Computer Systems, Human Computer Interaction, Language Technologies, Robotics, and Software Engineering, but we will consider outstanding candidates in other areas.

Tenure- and research-track candidates are expected to have a strong interest in research, outstanding academic credentials, and an earned Ph.D.; candidates for tenure-track appointments should also have a strong interest in graduate and undergraduate education. Lecturer-track candidates should have a strong interest and background in undergraduate education.

Review of faculty applications will begin on December 1, 2003. To ensure full consideration, applications should be received by January 15, 2004, but will be accepted until all positions are filled.

Each application should include curriculum vitae, statement of research and teaching interests, copies of 1-3 representative papers, and the names and email addresses of three or more individuals who have been asked to provide letters of reference. Applicants should

Professional Opportunities

arrange for reference letters to be sent directly to the Faculty Search Committee (hard copy or email), to arrive before January 15, 2004. Letters will not be requested directly by the Search Committee. All applications should indicate citizenship and, in the case of non-US citizens, describe current visa status.

Faculty Search Committee
Attention: Sharon Burks
School of Computer Science
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA 15213-3891
Applications and reference letters may also be submitted via email (postscript or .pdf format) to faculty-search@cs.cmu.edu.

Carnegie Mellon is an affirmative action/equal opportunity employer and we invite and encourage applications from women and minorities.

Case Western Reserve University, Cleveland, Ohio Department of Electrical Engineering and Computer Science Division of Computer Science Faculty Positions in Computer Science

The Division of Computer Science (CS) of the Department of Electrical Engineering and Computer Science (EECS) at Case Western Reserve University (CWRU) invites applications for several faculty positions. Appointments at all ranks, including an endowed professorship, are of interest and will be considered. All applicants must either hold great promise for or have a significant track record of research leadership and grant funding, as well as teaching excellence and service contributions. All applicants must have a Ph.D. in Computer Science or a closely related field. Appointments will be made until the positions are filled, beginning as early as Fall 2003.

The department is pursuing the development of leading academic programs and research thrusts influenced by the Bio-Micro/Nano-Info theme. Bioinformatics, including computational genomics and neurosciences, is a designated growth area of the CS division, with world-class opportunities for impact through collaboration with the School of Medicine at CWRU. Two other designated growth areas are data mining and visualization, and pervasive networks and distributed systems. There are exceptional opportunities for impact in these areas through exciting collaborations with a wide range of initiatives in the department (i.e., the ECE division) and on campus. Accordingly, special attention will be given to candidates with strong background in: computer algorithms; networks and distributed computing; data and knowledge management; software engineering; human-computer interaction; graphics, visualization and multimedia; and computer architecture. Further information about the positions and the department is available at <http://www.eecs.cwr.edu/>.

Application packages must include: (i) a current curriculum vitae; (ii) statement of research and teaching interests; and (iii) biographies of the references providing letters of recommendation. Applicants must arrange for at least three letters of recommendation to be submitted directly. All applications and nominations should be sent to:

Faculty Search Committee Division of Computer Science
Department of Electrical Engineering and Computer Science
Case Western Reserve University
10900 Euclid Avenue
Cleveland, OH 44106-7071

In employment as in education, CWRU is committed to affirmative action and equal opportunity. Women and minorities are encouraged to apply.

City College School of Engineering, Department of Computer Sciences Assistant Professor of Bioinformatics (Tenure-Track)

CUNY Personnel Vacancy Notice No (PVN#): FY 88-12
Closing Date: February 15, 2004

The Department of Computer Sciences emphasizes the following research concentrations: computational geometry and vision, speech recognition, scientific computation, data systems and information retrieval, distributed computing, information security and assurance, combinatorial mathematics, web-based human-computer interaction, information management and E-commerce, multimedia networks and digital libraries, computational methods for image and speech processing, remote sensing, and computational algebra.

Both the Computer Science and Biomedical Engineering reside within City College's School of Engineering. Further information on the Departments can be obtained from the following web sites:

Computer Science Department—
<http://www-cs.engr.cuny.cuny.edu>;
Department of Biomedical Engineering—
<http://www.cuny.cuny.edu/nycbe>.

The Computer Science Department offers: the BS and MS in Computer Science, the BE in Computer Engineering jointly with the Department of Electrical Engineering, and the PhD in collaboration with the Graduate School of the City University of New York. Further information on the City University PhD program in Computer Science can be obtained at <http://web.gc.cuny.edu/Computerscience>.

Duties:

In active collaboration with researchers and faculty in City College's Biomedical Engineering Department, develop both a strong research program in biologically, chemically or medically oriented computer science, as well as, strong ties with the local pharmaceutical and medical industries. Teach undergraduate and graduate courses in the areas of specialization and in the core curriculum. Academic advising, curriculum development, and committee work required.

Qualifications:

Ph.D. in Computer Science or an allied field, a demonstrated record of publication, and a commitment to research excellence. Applicants with an active research profile in biologically, chemically or medically oriented computer science preferred.

Salary:

\$35,031 - \$65,388 commensurate with qualifications and experience.

To Apply:

Please submit curriculum vitae, letter of application, and the names, addresses, and telephone numbers for three (3) professional references by the closing date to:

Professor Douglas Troeger, Chair (PVN# 88-12)
Bioinformatics Faculty Search
Computer Sciences Department
The City College of New York
Convent Ave @ 138th St.
New York, NY 10031

The City University of New York an Equal Employment Opportunity/Affirmative Action/Immigration Reform and Control Act/ Americans with Disabilities Act Employer.

Colby College Department of Computer Science

Department of Computer Science
One-year replacement position Full-time temporary position starting September 2004. Review of applications will begin February 1, 2004. For more information, see <http://www.cs.colby.edu/jobs/>.

Colgate University Department of Computer Science

Colgate University invites applications for a tenure stream position in Computer Science at the rank of Assistant Professor starting in July 2004. A Ph.D. or equivalent with strong interest in both teaching and research are expected. Area of specialty open, but the department is especially interested in candidates with a specialization in Operating Systems or Databases. The successful applicant will help staff other department courses and will be expected to participate in all-university programs, including the Liberal Arts Core Curriculum. The department has excellent facilities and new faculty receive generous start-up support. Student participation in faculty research programs is encouraged and supported, including student stipends for summer research.

Colgate University is a highly competitive liberal arts college situated in upstate New York. The university is committed to promoting excellence in both teaching and research. See more information on the university at www.colgate.edu and on the department at cs.colgate.edu.

Review of applications will begin January 15 and will continue until the position is filled. Resumes and three letters of recommendation should be sent to:

Chris Nevison, Chair
Department of Computer Science
Colgate University
13 Oak Drive
Hamilton, NY 13346

Colgate University is an Equal Opportunity/Affirmative Action employer. Developing and maintaining a diverse faculty and staff further the University's academic mission.

Colorado School of Mines Department of Mathematical and Computer Sciences Assistant Professor of Computer Science

Applications are invited for an anticipated tenure-track faculty position, beginning in August 2004, in the Department of Mathematical and Computer Sciences at the Assistant Professor level.

The Department of Mathematical and Computer Sciences offers B.S., M.S., and Ph.D. degrees. The computer science program within the department is experiencing a period of strong growth in both research and teaching; research interests include mobile computing and networking, databases, graphics, logarithms, machine learning, and parallel and distributed computing. Applicants in all areas of Computer Science consistent with the research interests of the department are encouraged to apply.

Responsibilities include teaching at the undergraduate and graduate levels, directing graduate research, and developing a strong, externally funded research program. An earned Ph.D. in Computer Science or a closely related field by the time of appointment is required. Evidence of interest or successful involvement in interdisciplinary collaborative research projects is desirable. Candidates must provide evidence of research accomplishments and teaching competencies.

The Colorado School of Mines, Colorado's oldest public university is located in Golden, Colorado, in the foothills of the Rockies, 13 miles west of downtown Denver and 21 miles south of Boulder. The school has an enrollment of approximately 2700 undergraduates and 750 graduate students in a broad range of applied science and engineering disciplines. Research funding is approximately \$30 million annually.

The School's proximity to Denver and Boulder provides opportunities for significant collaboration with both industry and other universities. More information about the department can be obtained from the department's home page at <http://www.mines.edu/Academic/mac>.

Applicants must submit (a) a curriculum vita, (b) names and contact information of four references, at least one of whom can address teaching ability, (c) a statement of teaching experience and philosophy, and

(d) a statement of research interests and aspirations to:

Colorado School of Mines
Office of Human Resources
Search # 03-081620
1500 Illinois Street
Golden, CO 80401
fax: (303) 384-2025

Review of applications will begin on January 16, 2004.

CSM is an EEO/AA employer and is committed to enhancing the diversity of its campus community. Women, minorities, veterans, and individuals with disabilities are encouraged to apply.

Columbia University Department of Computer Science Expanded Search

The Department of Computer Science has recently expanded its faculty search. We are seeking applicants for tenure-track positions at all levels in the areas of computer graphics, computational geometry, software systems, computer engineering and bioinformatics. Applicants should have a Ph.D. in a relevant field, and have demonstrated excellence in research.

Our department of 28 tenure-track faculty and 4 lecturers emphasizes excellence in research and teaching and attracts excellent Ph.D. students, virtually all of whom are fully supported by research grants. We have close ties to the nearby research laboratories of AT&T, IBM, Lucent, Siemens, Verizon, Telcordia Technologies, NEC, and the financial companies of Wall Street. Columbia University is one of the leading research universities in the United States, and New York City is one of the cultural, financial, and communications capitals of the world. Columbia's enclosed campus of tree-lined walks is located in Morningside Heights on the Upper West Side.

Applicants may apply online at the website: <http://www.cs.columbia.edu/recruit>.

Review of applications will begin immediately.

Columbia University is an Equal Opportunity/Affirmative Action Employer. We encourage applications from women and minorities.

Department of Computer Science

TENURE-TRACK POSITIONS, all levels (Ref: AP#1)

Applications are invited for tenure-track positions. Depending on experience, available positions are at the assistant, associate, or full professor level. Applicants must possess a Ph.D. in computer science or in a closely related field. The department requires demonstrated research accomplishment at the highest level as well as outstanding teaching ability and leadership qualities. We are part of a new administrative structure on campus that promotes interdisciplinary research and teaching in the computing and information sciences. Candidates must be enthusiastic about the central role that computer science can play on the campus of a large research university.

The Department of Computer Science at Cornell University encompasses a wide range of research areas, including artificial intelligence, concurrency and distributed computing, databases, algorithms, information organization and retrieval, applied logic and semantics, numerical analysis and scientific computing, theory of computation, programming languages and methodology, computer vision, computational biology, graphics, theory, networks, operating systems, and natural language processing.

Although we are especially interested in programming languages and theory of computation, outstanding applicants in all areas of computer science will be considered.

RESEARCH (Ref: RES#3)

Also available: research associate positions.

The Department is administered by the Office of Computing and Information Science, a larger unit that can co-sponsor faculty positions in the Faculty of Computing and Information Science (FCIS) with any department on campus. Applications that are not appropriate for the Department of Computer Science will automatically be evaluated in this larger context by the CIS. In particular, there is a campus-wide initiative in information science that involves the Departments of Communication, Economics, Science & Technology Studies, and the School of Operations Research & Industrial Engineering. FCIS and the College of Architecture, Art, and Planning are also interested in Digital Arts and Graphics.

Further information about the department and the Faculty of Computing and Information Science is available on the World Wide Web at <http://www.cs.cornell.edu> and <http://www.cis.cornell.edu/>

Applicants should submit a vita and the names of at least three references to:

Faculty Recruiting Committee Chair
Department of Computer Science
4130 Upson Hall
Cornell University
Ithaca, NY 14853-7501

Please include reference number with application.

Cornell University is an Affirmative Action/Equal Opportunity Employer and Educator and welcomes applications from women and ethnic minorities.

www.cornell.edu/jobs
<http://chronicle.com/jobs/profiles/2377.htm>

Professional Opportunities

Cornell University School of Electrical and Computer Engineering Computer Systems Tenure-Track

The Cornell School of Electrical and Computer Engineering invites applications from exceptional candidates for tenure-track faculty positions at all levels in computer engineering and computer systems. We especially seek individuals who want to build systems that apply leading-edge computer technology to current problems in electrical engineering, such as, but not limited to, information processing, communications, sensing, biotechnology, and nanotechnology. Although we are particularly looking for applicants in computer systems, our search is not restricted to these areas. We will consider applications from outstanding candidates in all areas of Electrical and Computer Engineering.

Applicants must have demonstrated excellence in research and have the ability to develop an independent research program, as well as a strong interest in teaching at both the undergraduate and graduate level.

Applicants are expected to hold a Ph.D. degree in Electrical Engineering and/or Computer Science. Further information on the School can be found at <http://www.ece.cornell.edu>. A letter of application, professional resume, statement of research and teaching goals, along with the names and contact information of at least four references should be submitted to:

Professor Clifford R. Pollock, Director
School of Electrical and Computer
Engineering
Cornell University
224 Phillips Hall
Ithaca, NY 14853-5401

Applications received by January 15, 2004 will be assured full consideration.

Cornell's College of Engineering is an equal opportunity/affirmative action employer and welcomes nominations of, and applications from, women and underrepresented minorities.

Duke University Department of Computer Science Experimental Systems Faculty Position

We invite applications and nominations for a tenure-track or tenured faculty position at any rank in the Department of Computer Science at Duke University, to start September 2004. Preference will be given to applicants in the various areas of experimental systems and architecture. We are seeking to build upon our strong, highly collaborative group in experimental systems. We are broadly interested in all areas of experimental systems with emphasis on databases, computer architecture, networking, security, and distributed systems.

Computational Biology Faculty Position

We invite applications and nominations for a tenure-track assistant professor position in the Department of Computer Science at Duke University, effective from September 2004. We seek applicants with outstanding records in the general area of computational biology and bioinformatics. The areas of particular interest include but are not limited to sequence analysis, functional genomics, transcriptomics, structural genomics, machine learning and data mining, and computational simulation and mathematical modeling.

For more information about the faculty, facilities and other resources, please refer to www.cs.duke.edu.

Applications should be submitted *online* at <http://www.cs.duke.edu/csnews/facsearch>. Applications should include a curriculum vitae, a list of publications, and copies of the most important publications. A Ph.D. in computer science or related area is required. Assistant Professor applicants should arrange for at least four letters of reference to be sent preferably via email (facsearch@cs.duke.edu) to the Faculty Search Chair. Senior candidates should provide the names and contact information of three potential references. To guarantee full consideration, applications and letters of reference should be received no later than January 15, 2004.

Faculty Search Chair
Department of Computer Science
Duke University
Durham, NC 27708-0129
facsearch@cs.duke.edu

Duke University is an affirmative action, equal opportunity employer.

Florida Institute of Technology Department of Computer Sciences Faculty Search 2004-2005

Florida Institute of Technology invites applications for faculty positions in the Department of Computer Sciences for the 2004-2005 academic year. Applicants must have a Ph.D. in Computer Science or in a closely related field. Traditional areas of

specialization (e.g., compilers, operating systems, programming languages) will be considered, but expertise in software testing, system evolution (e.g., reverse engineering & program understanding, redocumentation, empirical studies), and bio-informatics are particularly encouraged. Junior candidates must show outstanding research and teaching potential. Senior candidates must have an exceptional research and teaching record. Salary is competitive, and commensurate with appointment rank and qualifications. The Department continues to enjoy a period of strategic growth. There are currently 19 faculty members in the Department. New faculty joining in 2004 will be expected to assist in improving undergraduate and graduate education, developing quality research programs, attracting new funding, and strengthening our collaborations with industry, government, and other academic institutions. For a list of current faculty interests, please visit www.cs.fit.edu.

Florida Tech is a selective private university, recruiting only the best students. The Department currently has approximately 225 undergraduate students, 140 students studying for the master's degree, and 25 Ph.D. students. The Department is housed in the new Olin Engineering Complex with modern laboratories and multimedia classrooms. The Department has over \$6 million in active research funding from multiple government agencies such as NSF, DARPA, ONR, and NASA, and commercial companies such as

BMW, IBM, Microsoft, and Northrop Grumman.

The University is located in Melbourne on Florida's Space Coast, one of the nation's most prosperous and growing high-tech areas. The campus occupies 130 tropical acres, including a picturesque 30-acre botanical garden. The campus is 5 minutes from the Indian River estuary, 10 minutes from the Atlantic Ocean, and 50 minutes from Orlando and the Kennedy Space Center.

Applicants should send a letter of intent, curriculum vitae, research and teaching statements, and full contact information for at least three references by email to:

faculty-search@cs.fit.edu
or by regular mail to:
Faculty Search Committee
Department of Computer Sciences
Florida Institute of Technology
150 W. University Blvd.
Melbourne, FL 32901-6975

Review of applications will begin immediately and continue until the positions are filled. Florida Tech is an Equal Opportunity Employer.

Florida International University School of Computer Science Tenure-Track Faculty Positions

Applications are invited for multiple tenure-track faculty positions at the level of Assistant, Associate or Full Professor. A Ph.D. in computer science or related area is required. Outstanding candidates are sought in all areas

of computer science, but priority will be given to the areas of Bioinformatics, Databases and Data mining, Security, and Software Systems. Candidates with an added ability to forge interdisciplinary research collaborations will be favored. Successful candidates are expected to develop a high-quality funded research program and must be committed to excellence in teaching at both the graduate and the undergraduate levels.

Founded just 30 years ago, FIU has grown into a comprehensive research university, classified as "Doctoral-Research Extensive" by the Carnegie Foundation. FIU offers 190 baccalaureate, master's and doctoral degree programs in 19 colleges and schools. With over 35,000 students, it is one of the 30 largest universities in the United States. US News & World Report has ranked FIU among the top 100 public universities.

The School of Computer Science (SCS) is a designated program of excellence at the University and enjoys strong support of the university administration. Its research centers include the High Performance Database Research Center, Center for Advanced Distributed Systems Engineering, Distributed Multimedia Information Systems Laboratory, Bioinformatics Research Group, and Computer Security Research Group. With annual funding of over 2 million dollars, the School was ranked 65th in the country in research funding from Federal agencies in 2001. It has attracted substantial funding from NSF, NASA, ARO, AFOSF, BMDO, FEMA, ONR,



DREXEL UNIVERSITY

COLLEGE OF INFORMATION SCIENCE & TECHNOLOGY

Full-time Faculty Position in Information Systems/Software Engineering

Drexel University's College of Information Science & Technology (IST) invites applications for a tenure-track position in Information Systems/Software Engineering at the assistant, associate, or full professor level. We are particularly interested in applicants with teaching and research competencies in software engineering (including requirements engineering, software design and modeling, software metrics, process improvement, software quality, and project management), human-computer interaction and computer-supported collaborative work, databases and information retrieval, information management, knowledge management, organizational learning, and networking and information security. Secondary interests in areas such as healthcare informatics, visualization, interaction architecture, and collaborative learning are welcome.

Required qualifications include a completed doctorate in information systems, computer science, cognitive science or a related field, excellent verbal and written communication skills, evidence of excellence in teaching and research, and interest in a highly collaborative faculty environment. Candidates for senior positions should have an established research record and success in obtaining external research funding.

A full position description can be found on the IST website:
http://www.cis.drexel.edu/placement/ist_jobs/is_positions.asp.

Please submit a letter of application, curriculum vitae, and names and contact information of at least three references to:

Dr. Katherine W. McCain, Chair, IST Search Committee
College of Information Science & Technology
Drexel University
3141 Chestnut Street
Philadelphia, PA 19104

E-mail: faculty-search@cis.drexel.edu

Review of applications will begin immediately and will continue until the position is filled. Drexel is an Equal Opportunity/Affirmative Action employer. Women and minorities are encouraged to apply.

Professional Opportunities

Technical Director



Fraunhofer USA

Fraunhofer USA is searching for a Technical Director for its Center for Experimental Software Engineering (CESE) in College Park, Maryland. CESE is a fast growing, not-for-profit, applied research and technology transfer organization that has been in business since 1998.

Candidates for the position should hold the Ph.D. degree and have industrial or academic research experience in software engineering with a commensurate publication record.

The Technical Director shares directorial responsibility with the Managing Director, provides technical leadership for the technical program of contracts and grants, and determines future research directions for the Center. The Technical Director is expected to be successful in obtaining contracts and grants, publish in appropriate conferences and journals, and be a presence in the software engineering research community.

The Center currently has contracts with federal agencies such as NASA and the DoD and with several local Maryland and international companies. Current activities involve software development process improvement, software capability evaluations, inspections, agile development, security and knowledge management. The Technical Director is expected to add to this list of capabilities.

Fraunhofer USA, an independent non-profit corporation, is a subsidiary of the Fraunhofer-Gesellschaft, Europe's largest organization for applied research. The goals of Fraunhofer USA are to facilitate cooperation between the Fraunhofer Institutes in Germany and high quality research programs in the U.S., and to provide customers with world class technology solutions

Please send your resume to:

Frank Herman
Fraunhofer Center for Experimental Software Engineering
4321 Hartwick Rd., Suite 500
College Park, MD 20740
fherman@fc-md.umd.edu

AFRL, NIH, and other agencies. The School has excellent computing infrastructure and technology support. It has 29 faculty members and offers B.S., M.S., and Ph.D. degrees in Computer Science, as well as a B.S. in Information Technology. The School's enrollment has roughly doubled over the past 10 years, to approximately 1000 undergraduate majors, 70 Masters students, and 45 PhD students.

Applications, including a letter of interest, contact information, curriculum vitae, and the names of three references, should be sent to:

Chairperson
Recruitment Committee
School of Computer Science
Florida International University
University Park
Miami, FL 33199

Evaluation will begin January 15, 2004, and will continue until the positions are filled. Further information can be obtained from the School website <http://www.cs.fiu.edu>, or by e-mail to recruit@cs.fiu.edu.

Florida International University is a member of the State University System of Florida and is an equal opportunity/affirmative action/equal access employer.

Georgia State University Department of Computer Science Tenure-Track positions

The Department of Computer Science of Georgia State University invites applications for an anticipated tenure-track position for assistant professor beginning the Fall semester, 2004. Earned Ph.D. in Computer Science, or a closely related discipline, and an excellent record in publications in computer science are required with preference for extramural funding. Preference is for individual with specialty in graphics, bioinformatics, content processing, software engineering, internet multimedia communications, operating systems or algorithms.

The department offers programs leading to the B.S., M.S., and Ph.D. degrees in computer science. Departmental computing facilities for research and instruction include a departmental network of PCs, Unix/Linux workstations, and a 24-processor Origin 2000 high-performance computer and five laboratories, and a hypermedia and visualization research laboratory. A full-time systems programmer supports the departmental computing facilities.

Applicants should send a letter of application, vita without birth date, but with citizenship status, and three letters of reference and transcripts of all graduate work to:

Chair
Department of Computer Science
Georgia State University
34 Peachtree Street, Suite 1450
Atlanta, Georgia, 30303
(or e-mail to: mfraser@cs.gsu.edu)

Applications will be accepted until position is filled. Georgia State University is an EEO/AA institution.

Georgia Institute of Technology College of Computing

Georgia Tech's College of Computing invites applications for tenure-track faculty positions at all levels. Applicants must have an outstanding record of research and a sincere commitment to teaching. Applications from candidates in all areas of computing are welcome, especially animation, nanotechnology, and trusted computing.

With an academic faculty of 70, and a research faculty of 40, the College covers a broad range of research areas. A number of research centers, including the GVU Center, the Center for Experimental Research in Computer Systems, the Georgia Tech Information Security Center, and the Modeling and Simulation Research and Education Center, support a wide variety of focused as well as collaborative research projects spanning multiple academic units on campus. Candidates with an inter-disciplinary research focus and/or interest in potential joint appointments are welcome. The College offers the Edenfield and Raytheon Junior Faculty Chairs for outstanding assistant professors.

We encourage early applications but full consideration will be given to all applications that are received by January 15, 2004. Positions may be filled at any time, but we expect to make most of our hiring decisions by May 1, 2004. Hard copy applications, including a resume, names of at least three references, and a short list of specific publications you would like us to read, should be sent to:

Faculty Search Committee
College of Computing
Georgia Institute of Technology
Atlanta, GA 30332-0280
Phone: 404-894-3152; Fax: 404-894-9846

In addition, please email (recruiting@cc.gatech.edu) a URL pointing to your on-line resume and publications in PDF format.

Georgia Tech is an Affirmative Action/Equal Opportunity Employer. Applications from women and under-represented minorities are strongly encouraged. Please see <http://www.cc.gatech.edu/general-info/jobs.html> for more details on employment opportunities in the College of Computing.

HRL Laboratories Information Sciences Laboratory Research Staff Member

HRL Laboratories Information Sciences Lab is looking for a creative, inventive, and energetic individual to join the Cooperative and Distributed Systems Department as a Research Staff Member. In this department,

you will be developing new concepts and applications for decentralized control and coordination of systems that are intended to produce useful emergent group behavior out of the culmination of local interactions between individual elements. The ideal candidate will be able to draw inspiration from a variety of areas, including biology, complexity theory, control theory, multi-agent systems, and distributed computing.

Candidates should have a PhD in Computer Science or Engineering, but individuals with an MS and a strong record of publications and/or patents will also be considered. All applicants should have strong software development skills in C++ and/or Java, with significant software development experience beyond class projects.

Our beautiful Malibu location, competitive salary, and benefits package contribute to a work environment designed to optimize creative research.

Position requires US citizenship or permanent resident status.

Submit resume at www.hrl.com—navigate through Career Opportunities (Job code #03 3021AD).

Equal Opportunity Employer.

Illinois State University School of Information Technology Director

Illinois State University, Normal/Bloomington: Searching for a Director, School of Information Technology, to provide leadership in keeping the School at the forefront of the computing, telecommunications and information systems fields. Position available July 1, 2004. Ph.D. in area appropriate to the School required.

To assure full consideration, send letter of application, curriculum vitae, and contact information of three references by 1/9/04 to:

Dr. Norma J. Stumbo, Chair
Information Technology Director Search Committee
Campus Box 5000
Illinois State University
Normal, IL 61790-5000

See position description at <http://www.acs.ilstu.edu/Positions.htm>. EEO/AA employer.

Indiana University Computer Science Department Faculty Position

The Indiana University Computer Science Department anticipates filling a tenure-track, assistant professor position beginning in the fall of 2004. Though applications from all areas of computer science are welcome, we are strongly interested in candidates with research interests in embedded systems, algorithms and programming languages.

The CS department, which is part of the College of Arts and Sciences, is working closely with our new School of Informatics which is also seeking to fill CS related positions.

A Ph.D. in Computer Science is required for all CS faculty positions. Applicants must have demonstrated potential for excellence and productivity in research. In addition, a strong contribution to the educational mission of the department is expected.

The department occupies a spacious limestone building with extensive state-of-the-art computing facilities. The attractive wooded campus of Indiana University is located in Bloomington, chosen as one of the most cultural and livable small cities in the US, and only one hour from the Indianapolis airport. To learn more about the department please visit our web site at www.cs.indiana.edu.

Please send a detailed CV and a list of references to:

Faculty Search
Computer Science Department
Indiana University
Lindley Hall 215
Bloomington, IN 47405-7104
email: search@cs.indiana.edu

Indiana University is an Equal Opportunity/Affirmative Action Employer. The Computer Science Department strongly encourages applications from women and minorities.

Indiana University Purdue University Indianapolis Department of Computer & Information Science

Assistant or Associate Professor

The Department of Computer and Information Science invites applications for tenure-track positions at the level of Assistant or Associate Professor, beginning in August 2004. Rank and salary will be commensurate with the academic credentials and the experience.

Applicants must have a Ph.D. in Computer Science or closely related field and are expected to develop a high quality funded research program and be committed to excellence in teaching at both the graduate and undergraduate levels. Candidates from all specializations of Computer Science are welcome to apply; however we are preferentially seeking candidates in programming languages and software engineering, distributed/GRID systems, or bioinformatics.

The application must consist of a letter of interest, the curriculum vitae, and a one-page statement of research direction and teaching interests. Applicants should also arrange for four letters of recommendation to be mailed directly to the committee.

Send all the materials to:

(cont'd)

Professional Opportunities

Faculty Search Committee
Department of Computer and Information Science
IUPUI
723 W. Michigan Street, SL 280
Indianapolis, IN 46202-5132

Consideration of applications will begin on December 8, 2003 and will continue until the positions are filled. IUPUI is an Equal Opportunity/ Affirmative Action Employer. Women and minority candidates are encouraged to apply.

For further information about the department, please visit www.cs.iupui.edu.

Indiana University School of Informatics Indianapolis campus (IUPUI) Tenure-Track Faculty Positions in Informatics

The Indiana University School of Informatics invites applications for tenure-track positions at its Indianapolis campus (Indiana University Purdue University Indianapolis, IUPUI), in a range of areas pertaining to the emerging field of informatics.

Founded in 1999, the School of Informatics is the first entirely new school dedicated to informatics. At IUPUI, the school offers baccalaureate degrees in informatics, health information administration, and new media, and master's degrees in bioinformatics, chemical informatics, health informatics, human-computer interaction, laboratory informatics, and new media. A Ph.D. program in informatics is currently being developed. More information about the school may be found at www.informatics.iupui.edu.

This is an excellent opportunity for faculty interested in building new academic programs in a dynamic environment. Applicants should be able to teach a range of undergraduate and graduate courses in informatics pertaining to the above majors. Joint appointments in the applicants' discipline with appropriate other schools on campus are possible.

Applicants at the assistant professor level should have a promising agenda of research or creative activity and a demonstrated commitment to teaching. Senior applicants should have evidence of outstanding research and excellent teaching. Generally, an earned Ph.D. or equivalent is required, but consideration will also be given to an terminal degree where warranted.

These positions will primarily be at the assistant professor rank. Senior rank will be considered for applicants with recognized national and international stature. Rank will be determined by qualifications and experience.

Applicants should send a letter of application outlining their qualifications, a curriculum vitae, and a list of three references (for senior applicants, six references). A sample of written work and evidence of quality teaching are welcome additions. Mail all application materials to:

Dr. Douglas Perry
IU School of Informatics
Walker Plaza, Rm 370
719 Indiana Ave.
Indianapolis, IN 46202

The faculty search will continue until the positions are filled. The School of Informatics is eager to consider applications from women and people of color. Indiana University is an Affirmative Action/Equal Opportunity Employer.

Indiana University South Bend Department of Computer and Information Sciences Assistant Professor of Computer Science/Informatics

The Department of Computer and Information Sciences invites applications for one or more tenure-track positions for the 2004-2005 academic year. A Ph.D. in computer science or informatics or closely related area is required. Candidates with expertise in areas such as software engineering, computer security, computer networks, or areas within informatics will be given preference. Successful candidates will be expected to teach both undergraduate and graduate courses. Duties include research and teaching eighteen semester hours per year (usually 5 courses). Salary will be competitive. The position comes with an excellent fringe benefit package.

Applicants should submit by January 1, 2004 a letter of application, a curriculum vitae, transcripts, and letters from three references to:

Dr. Hossein Hakimzadeh, Chair
Department of Computer and Information Sciences
Indiana University South Bend
South Bend, IN 46634

At least one of the letters should address teaching qualifications. These materials may also be faxed to (574) 237-6589, or transmitted by email to hhakimza@iusb.edu.

Applications received after January 1 will be considered only if a suitable candidate cannot be found in the initial applicant pool. As an AA/EEO/ADA employer, IUSB encourages women, minorities and the disabled to apply.

Additional information about the department may be obtained by visiting our web site at www.cs.iusb.edu or www.informatics.iusb.edu.

Ithaca College Department of Mathematics and Computer Science Assistant Professor

Ithaca College invites applications for a tenure eligible computer science/information systems position starting in the 2004-2005 academic year. The successful candidate is expected to teach computer science and information system courses at a variety of undergraduate levels. Strong candidates in any computing area are encouraged to apply; we are especially interested in candidates interested in networks and/or systems analysis and design.

Required Qualifications: Appointees at the assistant professor level must have a Ph.D. or ABD in Computer Science, Information Systems or a closely related field. Salary is competitive and is commensurate with qualifications and experience.

Interested individuals should apply on line at: <http://www.icjobs.org> Applicants should attach a resume and a cover letter addressed to:

Dr. Patricia Woodworth, Chair
Department of Mathematics and Computer Science

Applications will be reviewed beginning early January 2004, and will continue to be accepted until the position is filled. Please arrange to have three letters of reference sent including at least one that addresses teaching.

Ithaca College is an Affirmative Action/Equal Opportunity Employer. Members of historically underrepresented groups (including people of color, persons with disabilities, Vietnam veterans and women) are encouraged to apply.

Kansas State University Department of Computing and Information Sciences Faculty Position

The Department of Computing and Information Sciences at Kansas State University invites applications for a position at the rank of associate or full professor beginning in Fall 2004.

The department has a number of active research teams working in the areas of software model-checking and testing, model-driven design of distributed systems, domain-specific middleware, language-based security, and program synthesis and adaptation via partial evaluation and generative programming. The department is seeking candidates who will enhance the existing strengths of the department by collaborating with teams working in the areas above and who will demonstrate leadership in one or more of the following areas: model-driven computing, generative programming, adaptable systems, static analysis of designs and implementations, distributed middleware systems, security, and software architecture.

Evidence of excellence in research/scholarly activity, collaborative research, and leadership in directing research projects is desired.

Applicants should have a PhD degree in computer science, and must be committed to both teaching and research. Applications must include descriptions of teaching and research interests along with copies of representative publications. Non-U.S. citizens must include visa status. Salary will be commensurate with qualifications.

The University is committed to the growth and excellence of the department. The department has a faculty of nineteen, more than 100 graduate students, 350 undergraduate students, and offers BS, MS, MSE, and PhD degrees. Computing facilities include a large network of servers, workstations and PCs with more than 250 machines and a Beowulf cluster with 80+ processors. The department building has a wireless network and state-of-the-art media equipped classrooms. The department hosts several laboratories for Embedded systems, Software analysis, Robotics, and Data-mining. Details can be found at the URL <http://www.cis.ksu.edu/>. Please send applications to:

Dr. Virgil Wallentine, Head
Department of Computing and Information Sciences
234 Nichols Hall
Kansas State University
Manhattan, KS 66506
(email: virg@cis.ksu.edu)

Review of applications will commence January 15 and continue until the positions are filled.

Kansas State University is an equal opportunity employer. The department actively seeks diversity among its employees, and women and minority candidates are encouraged to apply.

Kansas State University Department of Computing and Information Sciences Faculty Position

The Department of Computing and Information Sciences at Kansas State University invites applications for a tenure-track position beginning in Fall 2004. The department is interested in candidates in the areas of software engineering, middleware and distributed systems, model driven computing, security, static and dynamic analysis and verification, generative programming, and system adaptation and specialization.

Applicants must be committed to both teaching and research. Applicants should have a PhD degree in computer science by the starting date of the appointment; salary will be commensurate with qualifications.

Applications must include descriptions of teaching and research interests along with copies of representative publications. Non-U.S. citizens must include visa status.

The University is committed to the growth and excellence of the department. The department offers a stimulating environment for research and teaching, and has several ongoing collaborative projects involving researchers in different areas of computer science as well as other engineering and science departments. The department has a faculty of nineteen, more than 100 graduate students, 350 undergraduate students, and offers BS, MS, MSE, and PhD degrees. Computing facilities include a large network of servers, workstations and PCs with more than 250 machines and a Beowulf cluster with 80+ processors. The department building has a wireless network and state-of-the-art media equipped classrooms. The department hosts several laboratories for Embedded systems, Software analysis, Robotics, and Data-mining. Details can be found at the URL <http://www.cis.ksu.edu/>

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Review of applications will commence January 15 and continue until the positions are filled.

Kansas State University is an equal opportunity employer. The department actively seeks diversity among its employees, and women and minority candidates are encouraged to apply.

McGill University School of Computer Science Tenure-Track positions

The School of Computer Science at McGill University wishes to invite applications for tenure-track positions at the assistant professor level, to begin June 1st, 2004. Areas of priority include, but are not limited to: software architecture, software/systems design, model driven development, software testing and artificial intelligence.

Hardcopy applications, including a curriculum vitae, a list of publications with copies of one or two sample reprints, as research proposal and the names and e-mail addresses of three references should be sent to:

Head, Search Committee
School of Computer Science
McGill University
McConnell Engineering Building, #318
3480 University Street
Montreal, QC H3A 2A7

The review process will begin immediately and the search will continue until the positions are filled.

All qualified candidates are encouraged to apply; however, Canadians and permanent residents of Canada will be given priority. McGill University is committed to equity in employment.

Miami University Computer Science Faculty Tenure-Track positions

The School of Engineering and Applied Science at Miami University seeks applicants for tenure-track positions in Computer Science. Successful candidates will be expected to teach courses, conduct labs, perform service and maintain an active research program. We are primarily seeking applicants to begin at the rank of Assistant Professor, but will consider applicants qualified for Associate Professor. A Doctorate in Computer Science or related field is expected. ABDs will be accepted, but the doctorate must

be completed by the time of the appointment.

Send resume, three letters of reference, and visa status (if applicable) to:

Michele Lea
Computer Science & Systems Analysis Dept.
School of Engineering and Applied Science
Miami University
Oxford, OH 45056
Phone: 513-529-8342
Fax: 513-529-1524
Email: CSsearch@MUOhio.edu

We encourage applications from a broad spectrum of individuals, including women and members of ethnic minorities. Miami University is an affirmative action/equal opportunity employer.

Michigan Tech Electrical and Computer Engineering Tenure-Track and visiting faculty positions

Michigan Tech invites applications for both tenure-track and visiting faculty positions at all levels in computer engineering. Areas of primary interest are hardware-software co-design, distributed and embedded computing, wireless networking and protocols, secure/reliable communication and design automation and modeling techniques.

The Department of Electrical and Computer Engineering has one of the leading undergraduate programs in the nation and is aggressively growing its graduate education and research program. Michigan Tech is located in the beautiful Upper Peninsula of Michigan, offering extensive outdoor recreation.

Michigan Tech is an equal opportunity employer. Send resume, statements of teaching and research interests and three references to:

Chair, ECE Search Committee
Michigan Tech
1400 Townsend Drive
Houghton, MI 49931
or submit electronically to:
ecesearch@mtu.edu

See www.ece.mtu.edu.

The Middlebury College Department of Computer Science

Department of Computer Science invites applications for a one-year visiting position beginning September 2004. The department consists of five full-time faculty members and prides itself on innovative teaching and fostering strong student/faculty interaction.

Applicants should have, or be close to finishing, a Ph.D. in computer science and should have a commitment to excellence in teaching and research. Specific field open but ideal applicant should be able to teach undergraduate courses in operating systems and/or software design.

Review of applications will begin January 15, 2004 and continue until the position is filled. Candidates should submit a letter of application, description of current research, statement of teaching philosophy, curriculum vitae, graduate transcripts, and three letters of recommendation, at least two of which should speak to teaching, to:

Professor Robert Martin, Chair
Department of Computer Science
Bicentennial Hall
Middlebury College
Middlebury, VT 05753

Middlebury College is an Equal Opportunity Employer committed to recruiting a diverse faculty to complement the increasing diversity of our student body. For more information about Middlebury College or the Department of Computer Science: <http://www.middlebury.edu/depts/cs>.

Montana State University Department of Computer Science Assistant Professor (Multiple Positions)

Enthusiastic, well qualified applicants are invited to join the growing, dynamic Department of Computer Science as full time, tenure-track faculty at the Assistant Professor level starting in August 2004. Exceptional applicants may be appointed at a higher rank. Requirements for the position include a Ph.D. in Computer Science or a closely related field and excellent communication skills.

Preferred qualifications include a demonstrated potential for excellence in teaching, research and the acquisition of extramural funding. Preference will be given to candidates with interest and experience in the areas of data mining, databases, distributed/parallel computing, networks, and/or software engineering. Outstanding applicants of all backgrounds are encouraged to apply.

The department has a growing graduate program that is in high demand. Successful applicants will be expected to mentor students at the B.S., M.S. and Ph.D. levels. In addition, successful applicants will teach courses, perform research, and be involved in service activities.

Professional Opportunities

MSU was recently named one of the top 5 colleges in the US based on its beautiful location, its access to recreational activities and its academic excellence in education and research. For a complete position description, application instructions, information about the department and a description of the area, candidates should visit www.cs.montana.edu/search. Other questions may be addressed to search@cs.montana.edu. The review of candidates will begin January 15, 2004 and continue until the position is filled.

Faculty Search Committee
Department of Computer Science
Montana State University
Bozeman, MT 59717-3880
ADA/AA/EO/VetPref

New Jersey Institute of Technology Computer Science Department Faculty Positions

The Computer Science Dept. at New Jersey Institute of Technology invites applications for tenure-track / tenured faculty positions, beginning spring/fall 2004 in bioinformatics, networking/security, web technologies & software engineering. System-building experience will be a plus. Applicants must have PhD in computer science or related area. Senior applicants must have an outstanding record. Junior applicants should have shown research potential and commitment to excellence in teaching. Salaries are competitive.

Dept. research interests incl. algorithms, computational biology and bioinformatics, computer vision, databases, parallel processing, simulation and modeling, software engineering and computer networking. The dept. has 27 faculty members & 1,400 students. The dept. offers BS, MS and PhD degrees.

NJIT is located in Newark's University Heights, a multi-institutional campus shared with Rutgers University, the University of Medicine & Dentistry of New Jersey & Science Park. NJIT is close to several other universities, numerous pharmaceutical, telecommunications and financial companies and research labs thus offering excellent opportunities for collaboration, consulting and industry sponsored research. NJIT is minutes from New York City and close to the Jersey Shore which offer a wide range of cultural and leisure activities.

Applicants can apply by sending their CV and a list of at least 3 references to:
New Jersey Institute of Technology
Attn: Personnel Box CS-AAP
University Heights
Newark, NJ 07102-1982
by mail, or by email to: hr@njit.edu.

NJIT is an equal opportunity, affirmative action, equal access employer and especially encourages applications from minorities, women and persons with disabilities.

New York University Department of Computer Science Regular Faculty Position

The department expects to have several regular faculty positions beginning in September 2003 and invites candidates at all levels. We will consider outstanding candidates in all areas; high priority areas include: bioinformatics, databases, distributed and secure systems, e-commerce, HCI, machine learning, mobile and autonomous computing, networking, and operating systems. Faculty members are expected to develop an independent first-rate research program and to participate in teaching at all levels from the undergraduate to the doctoral. The new

appointees will be offered highly competitive salaries, competitive startup packages, and low-cost university housing within short walking distance of the department. New York University is located in Greenwich Village, one of the most attractive residential areas of Manhattan.

The department may also have one or more visiting positions, with appointments for either one or two semesters.

The department has 30 regular faculty members and several adjunct, clinical, research, and visiting faculty members. Current strengths of the department lie in algorithms, compilers and programming languages, computational biology, computer graphics, computer vision and image processing, cryptography and security, distributed and parallel computing, multimedia, natural language processing, scientific computing, and verification. There are specialized laboratories and research facilities for computer graphics and multimedia, computer vision, and parallel and distributed computing.

Collaborative research with industry is facilitated by the geographic proximity to the main research centers of AT&T, BellCore, IBM, Lucent, Matsushita, NEC, and Siemens.

Applications should include a resume, a statement of career objectives and key publications; junior candidates also need to have at least three letters of reference sent to the address below. Applicants are encouraged to provide a URL for a description of their activities. To guarantee full consideration, applications should be received no later than Jan. 6, 2003; however, this is not a hard deadline, as all candidates will be considered to the extent feasible, until all positions are filled.

Please send applications to:
c/o Shanta Stroud
Faculty Search
Department of Computer Science
New York University
251 Mercer Street
New York, NY 10012-1185
New York University is an equal opportunity/affirmative action employer.

Northeastern University Boston, MA College of Computer and Information Science Faculty Position in Information Science

The College of Computer and Information Science invites applications for a tenure-track faculty position in information science beginning Fall 2004. The position is at the Assistant Professor level, but exceptional candidates at the senior level (Associate or Full Professor) will also be considered. Candidates are sought with research and teaching interests that bridge the gap between technical and contextual aspects of IT such as: IT policy; information security; empirical research methods; information and knowledge management; information systems design and development; human-computer interaction/CSCW; organizational and social informatics. A Ph.D. in information science, information systems, computer science or a related field is required.

The College has a diverse full-time faculty of 24, with approximately 635 undergraduates, 125 Masters students, and 60 PhD students. The College maintains a strong research program with significant funding from the major federal research agencies and private industry. Current areas of faculty research in information science include human-computer interaction/CSCW, databases and data

mining, information retrieval, and natural language processing. In May 2002, Northeastern University, led by the College, was designated a Center of Academic Excellence in Information Assurance Education by the National Security Agency.

Located on the Avenue of the Arts in Boston's historic Back Bay, the College takes advantage of its location to foster collaborations with other institutions in the greater Boston area. The College will be moving to a new state-of-the-art building opposite the Museum of Fine Arts in Fall 2004.

Please send a resume, statement of research interests, and three letters of recommendation to:

Faculty Hiring Committee
College of Computer and Information Science
161 Cullinane Hall
Northeastern University
Boston, Massachusetts 02115

Electronic submission of documents is encouraged; see <http://www.ccs.neu.edu/hiring> for details. Screening of applications begins immediately and will continue until the search is completed. For further information, send e-mail to hiring@ccs.neu.edu or visit the College's home page at <http://www.ccs.neu.edu>.

Northeastern University is an Equal Opportunity/Affirmative Action Employer. We strongly encourage applications from women and minorities.

The Ohio State University Department of Computer and Information Science Tenure-Track position

The Department of Computer and Information Science invites applications for a tenure-track position at the rank of assistant professor. The department's focus areas are in artificial intelligence, graphics, networking, software engineering, and systems. Outstanding applicants in any of these areas are welcome; however, priority consideration will be given to those applicants whose research cuts across area boundaries. Of particular interest are candidates who combine interests in one or more of the following fields: data mining, machine learning, and model checking as they relate to bioinformatics or security.

Applicants should hold or be completing a Ph.D. in computer science and engineering or a closely related field, and have a commitment to excellent research and quality teaching.

The department maintains and encourages active collaborations With Ohio Super-computer Center, Advanced Computing Center for the Arts and Design, Center for Cognitive Science, Department of Biomedical Informatics, and many other units in the university.

To apply, send a curriculum vitae (including names and addresses of at least three references) and a statement of research and teaching interests, by e-mail to: fsearch@cis.ohio-state.edu or by mail to:

Chair, Faculty Search Committee
Department of Computer and Information Science
The Ohio State University
2015 Neil Avenue, DL395
Columbus, OH 43210-1277

Review of applications will begin immediately and will continue until the position is filled. For additional information please see <http://www.cis.ohio-state.edu>.

The Ohio State University is an Equal Opportunity/Affirmative Action Employer. Qualified women, minorities, or individuals with disabilities are encouraged to apply.

Oregon State University School of Electrical Engineering and Computer Science Assistant/Associate/Full Professor Tenure-Track positions

Our new School of Electrical Engineering and Computer Science seeks outstanding faculty to increase our research and teaching strength in Computer Science. We invite applicants for tenure-track positions at the rank of Assistant, Associate, or Full Professor. Appointments are expected to begin September 2004 but can begin earlier. An earned doctoral degree in Computer Science or a closely related field is required. We are seeking faculty members who can develop strong research programs and excellent teaching in and out of the classroom. Applicants for Assistant Professor should have records that demonstrate clear promise of this; applicants for higher ranks must have a track record that demonstrates this. Preferred qualifications include a demonstrable commitment to promoting and enhancing diversity.

We desire candidates whose research complements our existing research strengths and who are excited by a collaborative and interdisciplinary work environment. We

particularly seek candidates in the areas of graphics, animation, and vision; artificial intelligence; usability engineering; human-computer interaction; networking; architecture; and software engineering.

Oregon State University is one of only ten American Universities to hold Land Grant, Sea Grant, and Space Grant designation, and is a Carnegie Doctoral/Research-Extensive university. With a faculty of 45 the School of EECS enrolls 1300 undergraduate and 320 MS/PhD. students. More information on the School can be found at <http://eeecs.oregon-state.edu>. For review of the full position announcement refer to our website at <http://osu.oregonstate.edu/admin/hrjobs.html>.

Oregon's reputation for livability is well deserved. Corvallis residents enjoy all the benefits of small town life and still have easy access to everything from big-city culture to wilderness recreation. Oregon's reputation for livability is well deserved. Corvallis residents enjoy all the benefits of small town life and still have easy access to everything from big-city culture to wilderness recreation.

To apply, send a complete resume, a statement of research interests, and at least three sealed letters of recommendation (email is acceptable) to:

CS-Chair
EECS Search Committee
220 Owen Hall
Oregon State University
Corvallis, OR 97331-3211

Email: cssearch@eeecs.oregonstate.edu
Review of applications will begin October 27, 2003. For full consideration, applications must be received by March 31, 2004.
OSU is an AA/EOE.

Palo Alto Research Center (PARC) Embedded Model-based Computing Group

We are seeking candidates for a position in artificial intelligence planning and control. Relevant research areas include planning, scheduling, model-based diagnosis, and constraint programming. A PhD or substantial relevant experience is required. For more information, please see www.parc.com/ employment.

A subsidiary of Xerox, PARC offers a multidisciplinary environment for pursuing both basic and applied research. Our funding comes from both corporate sources and government agencies.

PARC is an Equal Employment Opportunity company committed to workforce diversity.

Penn State Capital College Faculty Position in Computer Science This Position Is Being Re-advertised

Penn State Capital College (Harrisburg campus) seeks a tenure-track Assistant Professor of Computer Science for fall 2004. Candidates must have teaching and professional experience as well as research interests in compiler design, computer architecture, principles of programming languages, software engineering/design, artificial intelligence, or computer graphics. Ph.D. required. Salary is commensurate with qualifications and experience. Teaching responsibilities include courses for the B.S. and M.S. degrees in Computer Science. Faculty are expected to pursue scholarly research and publication, participate in curricular development and professional service, advise undergraduate and graduate students, and serve on graduate degree committees. For further information about Penn State Harrisburg, please see <http://www.hbg.psu.edu>.

Send letter of application, curriculum vitae, and the names, addresses and phone numbers of at least three references to:

Chair, Computer Science Search Committee
c/o Mrs. Dorothy Guy
Director of Human Resources
Penn State Capital College
Box CRA
777 West Harrisburg Pike
Middletown, PA 17057-4898

Applicant review will begin immediately and continue until the position is filled. Penn State is committed to affirmative action, equal opportunity, and the diversity of its workforce.

The Pennsylvania State University Department of Computer Science and Engineering Faculty Position Vacancies

Applications are invited for several tenure-track faculty positions at all ranks. Outstanding candidates in all areas of computer science and engineering will be considered. Areas of particular interest are Networking, with an emphasis on systems and security; Software Systems, with an emphasis

(cont'd)

University of Massachusetts Boston

Department of Computer Science, www.cs.umb.edu Assistant Professor

The Computer Science Department at the University of Massachusetts Boston invites applications for Fall 2004 for one faculty position at the Assistant Professor level. We offer a BS, an MS with an emphasis on software engineering, and a Ph.D. in Computer Science. We seek to strengthen our research program significantly. Current faculty interests include databases, data mining, biodiversity informatics, natural language processing, computer and human vision, system modeling, algorithms, and theoretical computer science.

Strong candidates will be considered from any area of Computer Science but preference will be given to a candidate who does research in Software Engineering and is interested in assuming a lead role in teaching our graduate year-long required sequence in this discipline. Evidence of significant research potential and a PhD in Computer Science or a related area are required. We offer a competitive salary and a generous startup package. Send cover letter, curriculum vitae, statements about research and teaching, and the names and email addresses of three references to:

search@cs.umb.edu.

Our campus overlooks Boston harbor; our faculty and students enjoy professional life in a center of academia and the software industry. For more information, visit us at <http://www.cs.umb.edu>.

Review of applications has begun and will continue until the position is filled.

UMass Boston is an Affirmative Action, Equal Opportunity, Title IX employer and strongly encourages women, members of all ethnic groups, and people with disabilities to apply.



University of
Massachusetts
Boston
www.umb.edu

Professional Opportunities

on operating systems, distributed systems, and embedded systems; Programming Languages; Computer Vision; all aspects of information Security; Computational Science and Engineering, with a focus on multiscale materials modeling and simulation including nanotechnology; VLSI including Analog and Mixed-Mode Circuits; and Bioinformatics. Additional coordinated hiring with the School of Information Sciences and Technology (IST) and the Department of Electrical Engineering is possible.

The Department of Computer Science and Engineering (CSE) has 28 collegial, tenure-track faculty. The university is committed to growing the faculty ranks over the next several years. Eight members of our faculty are recipients of the NSF Career Award. Our faculty also received 7 NSF ITR Grants and a \$2.5M Research Infrastructure Grant in recent years. There are state-of-the-art research labs for microsystems design and VLSI, computer vision and robotics, virtual environments, high performance computing, bioinformatics, and networking. The Department offers a graduate program with about 90 Masters students and 90 Ph.D. students, and undergraduate programs with minimum GPA requirements in computer science and computer engineering. By Fall 2003, the Department will move into a new 100,000 square foot building housing both CSE and IST.

Penn State is a major research university and is ranked second in the nation in industry-sponsored research among universities. US News and World Report consistently ranks PSU's College of Engineering undergraduate and graduate programs in the top 15 of the nation. The university is located the beautiful college town of State College in the center of Pennsylvania. State College has 40,000 inhabitants and offers a variety of cultural and outdoor recreational activities nearby. The university offers outstanding events from collegiate sporting events to fine arts productions. Many major population centers on the east coast (New York, Philadelphia, Pittsburgh, Washington D.C., Baltimore) are only a few hours drive away and convenient air services to several major hubs are operated by three major airlines out of State College.

Applicants should hold a Ph.D. in computer science, computer engineering, or a closely related field and should be committed to excellence in both research and teaching. Support will be provided to the successful applicants for establishing their research programs. We encourage dual career couples to apply. Applications should be received by January 31, 2004 to receive full consideration. To apply by electronic mail, send your resume (including curriculum vitae and the names and addresses of at least three references) as a postscript file or pdf file to recruiting@cse.psu.edu. Applications may also be sent by mail to:

Chair, Faculty Search Committee
The Pennsylvania State University
Department of Computer Science and Engineering
220 Pond Laboratory, Search #015-10
Box CRN
University Park, PA 16802-6106

Penn State is committed to Affirmative Action/Equal Opportunity and the diversity of its workforce. For more information about the Department of CSE at PSU, see <http://www.cse.psu.edu>. Click the Faculty link under Employment to fill out and print an Affirmative Action Applicant Data Card. NOTE: This will require you to have Adobe Acrobat Reader 4.0 or better to download this form and fill it in prior to printing it. This form can then be faxed to the Affirmative Action Office at 814-863-7799.

Portland State University Computer Science Department Tenure-Track Faculty Positions

Portland State University invites applications for two tenure-track, nine-month faculty positions at all levels to begin Fall 2004. Applicants for senior positions are expected to have a nationally recognized research program and to have demonstrated the ability to generate external funding; applicants for junior positions must show potential for future external support. The department is looking for faculty in the areas of networking, software engineering, computer security and databases, but excellent applicants in all areas will be considered.

The minimum qualifications for the position include an earned Ph.D. The faculty member will teach undergraduate and graduate classes; develop program, course and laboratory resources in Computer Science; maintain scholarly activity in funded research and publications; provide professionally related public service; advise students, and support University activities through

committee service.

The department currently has nineteen faculty and offers a ABET accredited B.S., an M.S., and a Ph.D. in Computer Science. Our teaching loads give faculty time to maintain funded research programs and to collaborate with local industry. The department currently serves approximately 400 undergraduates and 120 graduate students.

Further information about the department is available at <http://www.cs.pdx.edu>.

Portland State University is located in downtown Portland, Oregon. Portland's "Silicon Forest" is one of the major software/hardware development centers in the country. Within the Portland metropolitan area are over 200 hardware and software organizations, including the world's largest campus of Intel, the Open Source Development Lab, the world headquarters of Tektronix, In Focus, and Mentor Graphics, major R&D sites of Oracle and Informix, a major division of IBM, along with many other companies ranging from major corporations to software start-ups. The University is approximately one hour from magnificent beaches and from year-round skiing.

Review of applications will begin immediately and will continue until the positions are filled. Please send a statement of research and teaching interests, a vita, and the names of three references to:

Faculty Search Committee
Department of Computer Science
Portland State University
P.O. Box 751
Portland, OR 97207-0751
or e-mail recruitcra@cs.pdx.edu

Portland State University is an Affirmative Action, Equal Opportunity institution and, in keeping with the President's diversity initiative, welcomes applications from diverse candidates and candidates who support diversity.

Purdue University School of Electrical and Computer Engineering Faculty positions

The School of Electrical and Computer Engineering at Purdue University invites applications for faculty positions across the breadth of computer science and computer engineering at all levels.

The Computer Engineering Area of the school (engineering.purdue.edu/ECE/Research/Areas/CompEngr) has eighteen faculty members who have active research programs in areas including the following: artificial intelligence, cluster computing, compilers, computational linguistics, computer architecture, computer graphics, dependable computing, design automation, distributed systems, energy efficient systems, haptics, high performance computing, human computer interaction, information security, intrusion tolerance, IT for education, machine learning, machine vision, micro architecture, multimedia systems, multimodal user interfaces, network computing, networking, operating systems, pedagogical agent learning systems, performance evaluation, sensor networks, software engineering, spoken language processing, systems architecture, and visualization. We will consider outstanding applicants in these and other areas.

Minimal qualifications include a PhD in computer science/engineering or a related field and a significant demonstrated research record commensurate with the level of position applied for.

Applications should consist of a cover letter, a cv, a research statement, names and email addresses of five references, and URLs of three to five papers. Applications, in the form of a single attached PDF file, and inquiries can be sent to:

compengr@ecn.purdue.edu or contact
Connie Boss at 765-494-3649.

Candidates should also arrange for five reference letters to be sent directly to the above email address. Applications will be considered as they are received.

Purdue University is an equal access, equal opportunity, affirmative action employer.

Purdue University Department of Computer Sciences Tenure-Track positions

The Department of Computer Sciences at Purdue University invites applications for tenure-track positions beginning August 2004. Positions are available at the Assistant Professor level; senior positions will be considered for highly qualified applicants. Of particular interest are candidates in the areas of embedded and real-time systems, software verification and assurance, and pervasive and wireless computing. Successful candidates will be expected to strengthen the growth areas outlined in the departmental strategic plan, and to contribute to core areas, especially

operating systems, programming languages and compilers, software engineering, and networking.

The Department of Computer Sciences offers a stimulating and nurturing academic environment. Forty faculty members direct research programs in analysis of algorithms, bioinformatics, compilers, databases, distributed and parallel computing, graphics and visualization, information security, networking and operating systems, programming languages and compilers, scientific computing, and software engineering. The department implements a strategic plan (see <http://www.cs.purdue.edu/strategicplan/Aug03.pdf>) for future growth which is strongly supported by the higher administration. This plan includes a new building expected to be operational in 2006 to accommodate significant growth in faculty size. Further information about the department is available at <http://www.cs.purdue.edu>.

Applicants should hold a Ph.D. in Computer Science, or a closely related discipline, be committed to excellence in teaching, and have demonstrated strong potential for excellence in research. Salary and benefits are highly competitive. Special departmental and university initiatives are available for junior faculty. Applicants are encouraged to apply electronically by sending a curriculum vitae, a statement of career objectives, and names and contact information of at least three references in Portable Document Format (PDF) to: fac-search@cs.purdue.edu.

Hard copy applications can be sent to:
Faculty Search Committee Chair
Department of Computer Sciences
Purdue University
West Lafayette, IN 47907-1398

Applications are being accepted now and will be considered until the positions are filled.

Purdue University is an Equal Opportunity/Equal Access/Affirmative Action employer and is committed to building a diverse faculty of excellence.

Purdue University Department of Computer Sciences Tenure-Track Positions

The Department of Computer Sciences invites applications for tenure-track positions, beginning August 2004, as part of a school-wide effort focused on "Management, Analysis, Visualization, and Security aspects of Massive Data". This area is one of seven multidisciplinary research areas initiated to provide new directions and synergies among scientists working in different disciplines and to accelerate the flow of expertise and inquiry across traditional departmental boundaries. To facilitate the growth of these research areas, new faculty are sought to fill positions in specific departments with joint or courtesy appointments in a second department.

Hires are expected to expand partnerships among researchers in different areas, develop solutions and tools for scientific problems, and empower researchers and disciplines that need to analyze massive data sets. This effort emphasizes four thrust areas: (i) databases, data mining, and statistical methods, (ii) visualization and simulation, (iii) computational infrastructures, and (iv) data integrity and security. In the first year of this effort, we expect to hire in the areas of data mining, computational infrastructures, and visualization.

Positions are expected to be filled at the assistant professor level or beginning associate professor level. More senior positions will be

considered for highly qualified applicants. Applicants should hold a Ph.D. in a scientific field and are expected to produce a record of excellence in research and teaching. Successful hires should have a record of working in scientific fields involving very large data sets, solving research challenges that are both discipline specific and have cross disciplinary applications. More information and details on how to apply can be found at <http://www.science.purdue.edu/COALESCE>.

Purdue University is an Equal Opportunity/Equal Access/Affirmative Action employer and is committed to building a diverse faculty of excellence.

Rensselaer Polytechnic Computer Science Tenure-Track positions

The Department of Computer Science at Rensselaer Polytechnic Institute invites applications for one or more expected tenure-track positions at the Assistant Professor level. Strong candidates at all professional levels and areas of computer science will be considered, however, the Department has special interest in candidates working in the areas of architecture, bioinformatics, cryptography, data mining and visualization, human-computer interaction, and security. Applicants should hold a Ph.D. in Computer Science or in a closely allied field, have substantial research accomplishments for the professional level sought, and demonstrate a strong commitment to teaching.

Rensselaer, under the direction of its president, plans to double its research program in the next five years (see <http://www.rpi.edu/web/President/Plan/index.html>). Major research initiatives in information technology and biotechnology are integral components of this plan. The faculty of the Department of Computer Science are strongly encouraged to participate in collaborative research at the forefront of both of these initiatives. The department currently has 22 full-time faculty members and offers BS, MS and Ph.D. degrees. It has excellent computing facilities that support a vigorous growing research program (approximately \$2 million per year) that currently includes 6 active NSF CAREER awards.

Applicants should submit a vita with a list of publications, a statement describing current and planned research, and a statement describing teaching philosophy to the address listed below. Candidates should also arrange to have at least three letters of recommendation sent to the same address. To ensure full consideration, all application materials must be reviewed by the committee by March 15, 2004.

Faculty Search Committee
Attn: Jacky Carley
Department of Computer Science
Rensselaer Polytechnic Institute
110 8th Street
Troy, NY 12180-3590

Rensselaer Polytechnic Institute is an Equal Opportunity/Affirmative Action Employer. Women and minorities are strongly encouraged to apply.

Saint Mary's College of California Computer Science Filippi Chair of Computer Science/Full Professor

Responsibilities: Provide leadership in the continuing development of a new Computer Science major. Revise and develop computer science courses. Teach six (6) courses per year (and have one (1) additional course equiva-

University of Massachusetts Boston

Alton J. Brann Distinguished Professorship

The Alton J. Brann Distinguished Professorship is a chaired tenured position in the College of Science and Mathematics. It carries endowed support and is to be filled by a distinguished scientist who will influence and enhance our computational science programs. We are seeking an established scientist who would have an initial appointment at the level of professor, but would also strongly consider appointments of junior scientists with active research programs.

We are seeking a scientist who is actively involved in computational science and who has an interdisciplinary research program in such areas as biodiversity and ecosystem informatics. The applicant's established research area will complement and build on existing strengths, and offer an opportunity to develop an active program around the chaired position that would support post-doctoral fellows, visiting scientists, industry practitioners, and additional research activities. Candidates are expected to have a distinguished research publication record and a significant record of external grant support. The candidate will have a primary appointment in one of the doctoral degree granting departments with a joint appointment, if appropriate, in one of the other science departments.

The successful candidate will be expected to: Add to the existing strengths in the Sciences and increase UMass Boston's visibility both nationally and internationally in a way that attracts other scholars to our campus. Have an established or emerging national and international reputation in computational science. Develop an active research agenda at this campus, initiating and engaging in collaborative and interdisciplinary programs. Obtain substantial external research support.

Review of applications will begin January 2004 and continue until the position is filled. Please send a cover letter, curriculum vitae, and names, addresses and telephone numbers of three references to: **Chair, Alton Brann Professorship Search Committee, University of Massachusetts Boston, 100 Morrissey Blvd., Boston, MA 02125-3393.** More information about the University of Massachusetts can be found at www.umb.edu.

UMass Boston is an Affirmative Action, Equal Opportunity, Title IX employer and strongly encourages women, members of all ethnic groups, and people with disabilities to apply.



University of
Massachusetts
Boston
www.umb.edu

Professional Opportunities

lent reassigned for collaborative work with students.) Teaching load includes undergraduate courses in computer science (and possibly mathematics) as well as participation in the January Term and the Collegiate Seminar Great Books program. Maintain an active scholarly career. Advise students, direct independent studies and serve on faculty committees. Successful candidate will be expected to respect the College's Catholic, Lasallian, and liberal arts traditions.

Qualifications: Ph.D. in Computer Science. Demonstrated ability to teach throughout the core CS curriculum, including computer architecture, programming languages, operating systems and networking. Must be a recognized scholar with a distinguished academic background in teaching, research/scholarship, and service to the professions. Experienced with curricular issues related to the development of computer science within a liberal arts environment.

Salary: Salary range for the 2003-04 academic year is \$71,445 - \$87,442, dependent upon qualifications and experience.

To Apply: Please send letter of application, statements on teaching and scholarship, curriculum vitae, at least three (3) letters of recommendation, at least one (1) of which must address teaching, to:

Jim Sauerberg, Chair
Department of Mathematics and
Computer Science
Saint Mary's College
P.O. Box 3517
Moraga, CA 94575
www.stmarys-ca.edu; math.stmarys-ca.edu.
Consideration of applications begins
January 20, 2004.

Simon Fraser University School of Computing Science Tenure-Track positions

The School of Computing Science at Simon Fraser University in Greater Vancouver invites applications for several tenure-track positions at the Assistant Professor level. Outstanding candidates at more senior levels will be considered as well. A Ph.D. in Computing Science or equivalent is required, with a strong commitment to excellence in research and teaching. Candidates at the more senior levels should have a strong record of publication, research funding, and student supervision and instruction. Preference will be given to candidates in systems and applications oriented areas, and interdisciplinary areas such as bioinformatics. However, the overall innovation and promise of the candidate's work will be considered as important as any specific area.

Simon Fraser University is consistently one of the top-ranked, publicly-funded universities in Canada. The School of Computing Science currently has over 170 Ph.D. and M.Sc. students, 700 undergraduate majors, and 46 faculty members. The School is at the outset of a phase of strong growth. As part of the "Doubling the Opportunities" program of the government, both the number of faculty and students shall be significantly increased within the next three years. The School of Computing Science highly encourages interdisciplinary research building upon the strengths of Simon Fraser University.

Simon Fraser University is situated on Burnaby Mountain in Greater Vancouver. Vancouver thrives as a scenic waterfront city located just minutes away from the mountains and a wide range of outdoor activities. It has the mildest climate in Canada. Vancouver's cultural and intellectual pursuits, leisure opportunities, favorable climate, and clean and safe environment are consistently cited as quality of life factors that make it one of the most desirable places in the world to live and work.

All qualified candidates are encouraged to apply; however Canadians and permanent residents will be given priority. Simon Fraser University is committed to employment equity and encourages applications from all qualified women and men, including visible minorities, aboriginal people and persons with disabilities. Applications will be accepted until the positions are filled. All positions are subject to budgetary approval. For additional information see www.cs.sfu.ca.

To apply, send a curriculum vitae, evidence of research productivity, and the names, addresses and phone numbers of three referees to:

Faculty Search School of Computing
Science
Simon Fraser University
Burnaby, British Columbia
Canada, V5A 1S6
email: faculty-search@cs.sfu.ca.

Stanford University Departments of Computer Science and Electrical Engineering Faculty Opening in Sensor Networks

The Computer Science and Electrical Engineering Departments at Stanford University invite applications for a tenure-track faculty position at the junior level (Assistant or untenured Associate Professor). We are seeking applicants knowledgeable in some aspect of sensor networks, e.g., applicants with interest in gathering and interpreting information from large numbers of possibly dispersed sensors, or applicants who design and build sensors for networked applications. We expect candidates to have worked experience in one or more of the following areas: signal processing, sensor design, graphics and vision, networking and protocols, data bases and information management, security, distributed algorithms, or other areas related to sensor networks. We are also interested in candidates with expertise in applications that may use sensor nets, such as health care, transportation, and environmental science. (If appropriate, we will also consider joint appointments with other departments beyond besides EE and CS.) Higher priority will be given to the overall innovation/creativity and promise of the candidate's work than to any specific sub-area.

An earned Ph.D., evidence of the ability to pursue a research program, and a strong commitment to graduate and undergraduate teaching are required. A successful candidate will be expected to teach courses at the graduate and undergraduate levels and to build and lead a team of graduate students in Ph.D. research. Further information about the Computer Science Department can be found at <http://cs.stanford.edu/> and about the Electrical Engineering Department at <http://www-ee.stanford.edu>. The School of Engineering website may be found at <http://soe.stanford.edu/>.

Applications should include curriculum vitae, statements of research and teaching interests and the names of at least four references. Candidates are requested to ask references to send their letters directly to our search committee. The letters should be sent in as soon as possible, but no later than the application deadline. All materials should be sent to:

Search Committee Chair
c/o Laura Kenny-Carlson
Computer Science Department
Stanford University
Gates 278
Stanford, CA 94305-9025
or via electronic mail to:
search@cs.stanford.edu.

The review of applications will begin on January 5, 2004, and applicants are strongly encouraged to submit applications by that date; however, applications will continue to be accepted until February 2, 2004. The position is available beginning Autumn 2003.

Stanford University is an equal opportunity employer, affirmative action employer, and welcomes nominations of women and minority group members and applications from them.

SUNY College at Oneonta Mathematics, Computer Science & Statistics Department Assistant Professor Position

SUNY College at Oneonta seeks applications for a tenure-track position in the Mathematics, Computer Science & Statistics Department at the Assistant Professor rank beginning in the Fall 2004 semester. The initial appointment for this position is two years. The expectations for this position include teaching; research; advisement; and college service. Ph.D. or A.B.D. in Computer Science or related field required. Strength in database systems, theory of computation, and/or artificial intelligence; demonstrated collegiate teaching excellence; and ability to teach diverse courses in an undergraduate Computer Science major program preferred.

Applicants should send a letter of application, curriculum vitae, graduate transcripts, and arrange to have three letters of reference sent to:

Dr. Leo J. Alex
Search Committee Chair
Mathematical Sciences Department
Box A
SUNY Oneonta
Oneonta, NY 13820
Review of applications will continue until the position is filled.
SUNY Oneonta is an EEO/AA/ADA employer. Women, minorities, veterans, and persons with disabilities are encouraged to apply.

Swiss Federal Institute of Technology, Lausanne, Switzerland (EPFL) Computer and Communication Sciences Faculty positions

The School of Computer and Communication Sciences at EPFL invites applications for faculty positions in computer science at the tenure-track assistant professor and tenured associate and full professor level.

Successful candidates will develop an independent and creative research program, participate in both undergraduate and graduate teaching, and supervise PhD students. The language of instruction in the graduate school is English.

Candidates from all areas of computer science will be considered, but preference will be given to candidates with interests in algorithms, bio-informatics, hardware and software systems, and foundations and applications of verification.

EPFL has recently implemented an ambitious program of change, including the institution of a tenure-track system and the formation of the School of Computer and Communication Sciences. The School is slated for substantial growth in the coming years.

Start-up resources will be available. We offer internationally competitive salaries and benefits.

To apply, please follow the application procedure at <http://icrecruiting.epfl.ch>. The following documents are requested in PDF format: curriculum vitae, including publication list, brief statements of research and teaching interests, names, addresses and e-mail of 3 references for junior positions, and 6 references for senior positions. Screening will start on January 15, 2004. Further questions can be addressed to:

Professor Willy Zwaenepoel
Dean, School of Computer and
Communication Sciences
Swiss Federal Institute of Technology
(EPFL)
CH-1015 Lausanne, Switzerland
recruiting.ic@epfl.ch
Additional information about the EPFL is available at <http://www.epfl.ch>. The EPFL is an equal opportunity employer.

Toyota Technological Institute at Chicago (<http://tti-c.org>) Computer Science at TTI-Chicago Faculty Positions at All Levels

Toyota Technological Institute (TTI-Japan) is founding a new Department of Computer Science (TTI-Chicago) adjacent to the University of Chicago campus. Applications are invited for tenure-track and tenured faculty positions at all ranks. In addition to traditional faculty positions, TTI-Chicago has a larger number of limited term positions.

TTI-Chicago will have exclusive use of the interest on a fund of \$100 Million being set aside by TTI-Japan for this purpose. TTI-Chicago will be dedicated to basic research, education of doctoral students, and a small masters program. Faculty members will receive continuing research grants and will have a teaching load of at most one course per year in a quarter system.

TTI-Chicago will have close ties with the Computer Science Department of the University of Chicago. The Department is projected to grow to a steady-state of thirty faculty (including limited term faculty) by 2007.

Faculty is particularly sought with research programs in:

Computational geometry Databases and data mining Human-computer interaction Large-scale scientific simulation Machine learning Networking and distributed computing Software and programming systems Theoretical computer science.

Applications should be submitted electronically at:


<http://tti-c.org/apps/faculty.htm>.

Toyota Technological Institute at Chicago is an Equal Opportunity Employer.

Tulane University Department of Electrical Engineering and Computer Science Faculty Positions

The Department of Electrical Engineering and Computer Science invites applications for a tenure-track faculty position in Computer Science starting in Fall 2004. Candidates should have a Ph.D. in Computer Engineering or Computer Science, a strong commitment to both research and teaching, a publication record in their area, and demonstrate

(cont'd)



UNIVERSITY of VIRGINIA

CHAIRPERSON

Department of Computer Science

Department Chairperson, Department of Computer Science School of Engineering and Applied Science University of Virginia The University of Virginia School of Engineering and Applied Science invites applications for the chairperson of the Department of Computer Science. The University of Virginia has approximately 18,000 students pursuing degrees in nine colleges and professional schools, including the School of Engineering and Applied Science (SEAS). The University of Virginia is consistently ranked as one of the top public universities in the country.

The School of Engineering and Applied Science has approximately 2,000 undergraduate students, 625 graduate students, 150 tenure and tenure track faculty members in nine departments, and conducts approximately \$45 million per year in externally funded research programs. The Department of Computer Science has more than 300 undergraduate students, 110 graduate students, and 27 (23 tenured or tenure-track and four teaching) faculty members. The department offers B.S., M.S., M.C.S., and Ph.D. degrees in computer science and B.S., M.S., M.E., and Ph.D. degrees in computer engineering in conjunction with the Department of Electrical and Computer Engineering. The department has undergone significant growth and programmatic evolution and aspires to become one of the top departments in experimental systems research and the leading institution in undergraduate CS education. The department has a novel undergraduate curriculum, is actively expanding its graduate research program, and is engaged in multi-disciplinary programs with other departments, schools, and universities.

Active research programs exist in the following areas: algorithms, architecture, compilers and languages, computer-aided design, computer graphics, computer security, distributed systems and databases, mobile computing, computer and wireless sensor networks, operating systems, parallel and grid computing, programming environments, real-time and embedded systems, and software engineering.

We seek a chairperson with a strong research reputation who can provide leadership for a department committed to excellence in teaching, research, and service, guide the growth of new promising directions at a university that is committed to enhancing the general area of information technology, and visibly enhance the department's national stature. Candidates must have an earned doctorate in an appropriate discipline and an outstanding record of scholarship and research achievement. Candidates with exceptional credentials will be considered for an endowed professorship. Applications will be reviewed as they are received and until the position is filled.

Applicants are encouraged to visit the departmental website for more information at: <http://www.cs.virginia.edu/>. Please submit a letter of application to:

Professor James H. Aylor, Search Committee Chair
School of Engineering and Applied Science
University of Virginia
351 McCormick Road, P. O. Box 400232
Charlottesville, VA 22904-4743

Email: jha@virginia.edu

The University of Virginia is an Equal Opportunity/Affirmative Action Employer. Women and members of minority groups are strongly encouraged to apply.

Professional Opportunities

potential for obtaining external research funding. Outstanding candidates at all levels and from all areas of expertise will be considered.

Applicants should send a letter of intent, a statement of research and teaching interests, a resume, and the names of at least three references including the references address, e-mail, telephone, and fax number to:

Dr. Boumediene Belkhouche
Search Committee Chair
Department of Electrical Engineering and Computer Science
Tulane University
New Orleans, LA 70118

Applications will be accepted until the position is filled. Tulane University is an equal opportunity/affirmative action employer.

University of Alabama at Birmingham (UAB)

Department of Computer and Information Sciences

Assistant or Associate Professor Position
<http://www.cis.uab.edu/>

The University of Alabama Birmingham (UAB) Department of Computer and Information Sciences is seeking highly qualified candidates for a tenure track position at the Assistant or Associate Professor rank, beginning as early as Fall 2004. Scalable Data Mining, Knowledge Discovery, and Distributed Database Systems are of particular interest.

Highly qualified candidates with a Ph. D. in Computer Science or a closely related field are encouraged to apply. A strong research background, including advanced knowledge, demonstrated research results, refereed publications, and potential for research funding in one or more of the focus areas are required. Commitment to excellence in teaching and service and interest in multidisciplinary collaboration with the biotechnology and medical research programs of the UAB campus are also very important.

Send four references, a complete CV, a one-page research plan, and a one-page teaching plan via email to facapp@cis.uab.edu or via regular mail to:

Faculty Search Committee
Department of Computer and Information Sciences
University of Alabama at Birmingham
1300 University Blvd
Birmingham, AL 35294-1170

Interviewing for the position will begin as soon as qualified candidates are identified, and will continue until the position is filled.

The University of Alabama at Birmingham is an equal opportunity/affirmative action employer.

University of British Columbia Department of Computer Science Tenure-Track Teaching Positions

The Department of Computer Science is recruiting for one or more tenure-track teaching positions in the Instructor ranks. These positions provide the rare opportunity to pursue a career based on excellence in teaching while participating as a full and equal colleague in the intellectually exciting atmosphere of a top-tier computer science department. Duties include teaching at all undergraduate levels, curriculum development, and academic advising. Opportunities exist to take leadership roles in defining educational directions within the department, the university, and society at large. For example, our instructors serve in senior university administrative positions, organize regional conferences on computer science education, and have created a revolutionary educational technology system. Research activity is not required and is not a criterion for reappointment or tenure.

Applicants must demonstrate outstanding teaching ability and strong interpersonal skills. Experience in curriculum development is desirable. A Ph.D. or equivalent in Computer Science or a related area is expected, although exceptional candidates with other backgrounds will be considered. The positions are available immediately and salary will be commensurate with experience.

Applicants should submit their resume and the names of at least three references to:

Chair, Instructor Recruiting Committee
Department of Computer Science
University of British Columbia
Vancouver, BC V6T 1Z4

specifying that they are applying for the tenure-track Instructor position. Applications submitted electronically in PDF are welcome (instructor-recruit@cs.ubc.ca). Applications will be accepted until 31 January 2004.

The University of British Columbia is within easy reach of downtown Vancouver and the airport, and is spectacularly situated amidst ocean, mountains, and forests.

UBC hires on the basis of merit and is committed to employment equity. We encourage outstanding candidates to apply;

however, Canadians and permanent residents of Canada will be given priority. The positions are subject to availability of funding.

University of British Columbia Department of Computer Science Canada Research Chair in Computational Statistics/Machine Learning

The Department of Computer Science at the University of British Columbia is seeking candidates to nominate for a Junior (Tier II) Canada Research Chair (CRC) in the areas of computational statistics or machine learning. The CRC Program is aimed at outstanding researchers who are world leaders or who have the potential for world leadership in their fields. Successful nominees would hold a tenured or tenure-track position in the Department of Computer Science, or a joint appointment with another department. Further information about the CRC program may be found at <http://www.chairs.gc.ca>, while specifics about the department's CRC position and other positions are at <http://www.cs.ubc.ca/career/>. The start date is negotiable, but is nominally September 1, 2004.

Candidates for nomination should submit a CV, a teaching statement and a research statement, and the names of at least three references to:

Anne Condon, Chair
Recruiting Committee
Department of Computer Science
University of British Columbia
Vancouver, BC V6T 1Z4
(recruit@cs.ubc.ca)

Applications submitted electronically in PDF are welcome. Applications will be accepted until 31 January 2004.

Computer Science at UBC is world renowned for its high quality and depth of research. One of the University's academic priorities is to continue to grow as a world class centre for Computer Science, and outstanding candidates are invited to participate in this effort. Applicants must demonstrate exceptional research track record or potential, and excellent teaching ability. Successful candidates are expected to pursue an active research program, perform both graduate and undergraduate teaching, and supervise graduate students.

All positions are subject to review and final approval by the CRC Secretariat. UBC hires on the basis of merit and is committed to employment equity. We encourage all qualified persons to apply. Canada Research Chairs are open to individuals of any nationality: offers will be made in accordance with Canadian immigration requirements associated with the Canada Research Chairs program.

University of British Columbia Department of Computer Science Tenure-Track positions

The Department of Computer Science at the University of British Columbia is recruiting for one or more tenure-track or tenured positions at the rank of Assistant Professor, Associate Professor and Professor.

Computer Science at UBC is world renowned for its high quality and depth of research. One of the University's academic priorities is to continue to grow as a world class centre for Computer Science, and outstanding candidates are invited to participate in this effort. Applicants must demonstrate exceptional research track record or potential, and excellent teaching ability. Successful candidates are expected to pursue an active research program, perform both graduate and undergraduate teaching, and supervise graduate students.

The Department has identified the following as priority areas for growth:

- Bioinformatics
- Databases
- Scientific Computing
- Software Engineering and Programming Languages

Our recruiting effort this academic year will focus on the above areas, although truly exceptional candidates in other areas that are part of our multi-year growth plans, such as systems, may also be considered. The ability of an applicant's research profile to complement and enhance the existing research strengths of the department will be a key factor in selection. A Ph.D. or equivalent in Computer Science or a related area is required. The positions are available as of 1 July 2004, and salary will be commensurate with experience.

Applicants should submit a CV, a teaching statement and a research statement, and the names of at least three references to:

Anne Condon, Chair
Recruiting Committee
Department of Computer Science
University of British Columbia
Vancouver, BC V6T 1Z4
(recruit@cs.ubc.ca)

Applications submitted electronically in PDF are welcome. Applications will be accepted until 31 January 2004. Further information on career opportunities can be found online at <http://www.cs.ubc.ca/career/>.

The University of British Columbia is within easy reach of downtown Vancouver and the airport, and is spectacularly situated amidst ocean, mountains, and forests.

UBC hires on the basis of merit and is committed to employment equity. We encourage outstanding candidates to apply; however, Canadians and permanent residents of Canada will be given priority. The positions are subject to availability of funding.

The University of California, Berkeley Department of Electrical Engineering and Computer Science Tenure-Track positions

The University of California, Berkeley invites applications for tenure-track positions in Electrical Engineering and Computer Sciences at the Assistant Professor, Associate Professor, or Full Professor level, beginning in Fall Semester 2004, subject to budgetary approval.

Several faculty searches have been approved. We are also considering the possibility of joint searches with other UC Berkeley departments.

Applicants should have received (or be about to receive) a doctoral degree in Computer Science, Electrical Engineering, Computer Engineering, or a related field. A principal requirement is demonstrated excellence in research. In addition, potential for excellence in teaching and leadership are important requirements. Successful applicants will be expected to establish a quality research program and to teach both graduate and undergraduate courses in their general area of specialty.

Interested persons should send an application consisting of a resume, a one- to two-page statement of their future research and teaching interests/plans, a select subset of publications, and the names of three references whom you have asked to send in recommendations. Review of completed applications will begin December 15, 2003. We will not consider applications received after March 1, 2004.

Recommendation writers should send letters directly to the same address where applications are sent, to arrive before January 1, 2004 if possible. Reference letters will NOT be requested directly by the department.

Computer Science applications should be sent to:

CS Faculty Search Committee
c/o Debra Zaller
Computer Science Academic Personnel
381 Soda Hall # 1776
UC Berkeley, CA 94720-1776

Electrical Engineering applications should be sent to:

EE Faculty Search Committee
c/o Jean Richter, Electrical Engineering Academic Personnel
231 Cory Hall # 1770
UC Berkeley, CA 94720-1770

The University of California is an Equal Opportunity, Affirmative Action Employer.

University of California, Davis Department of Computer Science Faculty Positions

The University of California, Davis invites applications for three positions in Computer Science for appointments with a start date of July 1, 2004. We are seeking candidates in the areas of Large-scale Information Systems, Computer Systems, and Emerging Applications of Computer Science. However, outstanding applicants in all areas are strongly encouraged to apply, especially those who complement our current research programs, and can strengthen our connections to research areas of special campus-wide interest at UC Davis, such as Functional Genomics and Bioinformatics, Technocultural Studies, Neuroscience, and Computational Science and Engineering.

Applicants should have received (or be about to receive) a doctoral degree in Computer Science or a related field. Candidates must have demonstrated excellence in research and a commitment to quality teaching. Successful applicants will be expected to establish a top-quality research program and to teach both graduate and undergraduate courses.

The CS Department currently has 28 faculty. We are a congenial department with excellence spanning several areas of computer science. Davis is a highly-livable town simultaneously close to the Bay Area and the Sierra Nevadas. Interested persons should submit an application on-line at <http://www.cs.ucdavis.edu/department/employ>.

Applications should consist of a vitae, a personal statement, a select subset of

publications, and the names of three references. Review of completed applications will begin immediately. Materials should be received by January 15, 2004.

The University of California is an Equal Opportunity, Affirmative Action Employer. Please consult our web page (<http://www.cs.ucdavis.edu/department/employ>) for additional information on the particular areas of interest and application instructions.

University of California, Irvine School of Information & Computer Science

Distinguished Senior Faculty Positions

The School of Information and Computer Science (ICS) at the University of California, Irvine (UCI) is seeking to fill two or more distinguished professor position(s) with leading scholars who work on emerging issues in one or more of the following areas:

- Ubiquitous Computing
- Networked/Embedded Systems
- Pervasive Software and Information Systems
- Computer Enabled Medicine and Health Care
- Large Scale Information Access and Data Analysis
- A major endowment is anticipated for one or more of these distinguished scholar positions.

These appointments, at the rank of senior full professor, are anticipated to begin July 2004 or later. The School of ICS expects to continue to grow over the next decade and to recruit new faculty each year. Thus, outstanding candidates in other research areas and at other ranks are encouraged to contact us.

Applicants should bring an interdisciplinary, integrative perspective to the discipline. A successful candidate would be enthusiastic in engaging with professional and business communities, the general public, and UCI scholars who study issues of information and computing technology, and support the development of advanced technologies and applications. We envision endowed chair-holders or distinguished professors to serve as a catalyst on campus to establish educational and research programs that foster a collaborative perspective. Accordingly, candidates should not only have a strong disciplinary background as well as a distinguished record of scholarly publications and extramural funding, but also a proven track record of innovation, collaboration, and leadership in both education and research.

UC Irvine is targeted as a growth campus for the University of California. It is one of the youngest UC campuses, yet ranked 12th among public universities by *US News & World Report*. Salary and other compensation (including priority access to on-campus faculty housing) are competitive with the nation's finest public universities. For a perspective on UCI, see <http://www.uci.edu>.

The School of ICS is one of nine academic units at UCI and was recently elevated to an independent school by the UC Regents. ICS' mission is to lead the innovation of new information and computing technology and study its economic and social significance while producing an educated workforce to further advance technology and fuel the economic engine. The School of ICS has excellent faculty, innovative programs, high quality students and outstanding graduates as well as strong relationships with high tech industry. With approximately 2200 undergraduates, 330 graduate students, and 50 faculty members, ICS is the largest computing program within the UC system. For a view of ICS, see <http://www.ics.uci.edu>.

Application screening will begin immediately upon receipt of curriculum vitae. Applications should include a cover letter indicating the area of primary research, a CV, three to five recent publications, and letters from three to five references, and should be sent to:

Attn: Faculty Recruiting
Interim Dean Debra J. Richardson
School of Information and Computer Science
University of California, Irvine
Irvine, CA 92697-3425

The University of California, Irvine is an equal opportunity employer committed to excellence through diversity, has a National Science Foundation Advance Gender Equity Program, and is responsive to the needs of dual career couples.

University of California, Santa Barbara Department of Computer Science Faculty Position

The University of California Santa Barbara invites applications for faculty positions in Computer Science and Computer Engineering.

Professional Opportunities

The Department of Computer Science currently has 25 full-time faculty and approximately 200 graduate students (including approximately 120 Ph.D. students) involved in various research areas including digital libraries and databases, parallel and distributed systems, programming languages, networking, computer and network security, theory of computation, algorithms, computer vision, human-computer interaction, bioinformatics, and computational science and engineering.

The Department of Computer Science is part of the expanding College of Engineering which encompasses over 130 faculty in various engineering disciplines. UCSB is a major research institution, elected member of the Association of American Universities, as well as an integral part of the nine-campus University of California system. Graduate degrees in Computer Science are offered at the M.S. and Ph.D. levels. The Department and the College feature a highly collaborative and stimulating working environment.

Department faculty lead several NSF ITR projects, and have recently been awarded two NSF IGERT grants for interdisciplinary graduate education and research, in computational science and engineering and in interactive digital multimedia. The total amount of 2002-03 extramural funding in the department was approximately 6.8 million dollars.

Applicants should hold a doctoral degree in Computer Science or a related field; appointments are scheduled to begin in July 2004. Primary consideration will be given to candidates who apply by January 15, 2004, however, positions will remain open until filled. Send resume, research and teaching statements, and names and addresses of at least four referees to:

Recruitment Committee
Department of Computer Science
University of California
Santa Barbara, CA 93106-5110

To apply by electronic mail, send the application to: recruit@cs.ucsb.edu. Additional information about the Computer Science Department may be found at <http://www.cs.ucsb.edu>.

The department is especially interested in candidates who can contribute to the diversity and excellence of the academic community through research, teaching, and service.

An EO/AA employer.

University of Central Florida The School of Computer Science in the College of Engineering & Computer Science

UCF Computer Science is looking for talented faculty in all areas of specialization. We expect to fill over 10 faculty lines in the next few years, and seek outstanding candidates for tenured and tenure-track faculty positions at all levels for appointments in 2004. We are particularly interested in candidates with research interests in bioinformatics, compilers, computer architecture, computer graphics, computer vision, database and information systems, mobile systems, multimedia computing, networking, novel forms of computing, operating systems, parallel and distributed computing, and security/cryptography.

We offer competitive salary and start-up packages to outstanding individuals, and our faculty enjoy generous benefits. New faculty have graduate student support and significantly reduced teaching loads. Special senior-level positions are available to exceptionally qualified individuals, and we welcome candidacies from coordinated groups of faculty. In the past five years, nine distinguished faculty have joined UCF Computer Science, and we seek to add to the growing strength of our program.

Applicants should have a Ph.D. and a strong commitment to the academic process, including teaching, scholarly publications, and sponsored research. Candidates at the Associate or Full Professor level should have demonstrated leadership in their fields at the national/international level. Those applying for Assistant Professorships should have a track record of high quality publications, and be recognized for their potential.

UCF Computer Science is the oldest Ph.D. granting CS program in the state of Florida. We have a rapidly growing educational and research program with over \$2.8MM in annual expenditures from grants and contracts, with over 250 graduate students and 860 undergraduate CS majors. In addition, we offer a B.S. degree in Information Technology (IT), with over 400 undergraduate majors. We also encourage faculty candidates for the IT program to respond to this ad. The University is strongly committed to continue the buildup of strength in CS, with significant special monetary support dedicated to maintain and expand the excellence of the School of Computer Science.

Our Federal research sponsors include NSF, ARO, ONR, NASA, U.S. Army STRICOM, the Department of Transportation, and other agencies of the Department of Defense. We enjoy the support of numerous industrial sponsors including established companies such as Adaptec, ATI, Boeing, Harris, Honeywell, Imagesoft, Intel, Lockheed Martin, Lucent, Oracle, Schwartz Electro-Optics, as well as hi-tech start-ups such as Aximetric, Giganet Technologies, and Millenium Technologies.

UCF has over 42,000 students and is among the nation's fastest growing universities. We are located in Orlando, FL at the center of the I-4 High Tech Corridor with a thriving industrial base in telecommunications, computer systems, semiconductors, defense and space, lasers, simulation and software, and the world renowned entertainment industry.

The Orlando metropolitan area enjoys an exceptional climate with rapid access to the Atlantic seashore and the Gulf of Mexico. Because of the presence of major theme parks such as Disney World, Sea World and Universal Studios, we benefit from a major airport with numerous direct international and national connections. Orlando is also a major center for national and international technical conferences.

Please send applications electronically (PDF format is preferred) to cs-positions@cs.ucf.edu. Applications should include a cover letter, a detailed CV, a Research Statement, a Teaching Statement, and five names of references. Alternatively, though not preferred, hardcopy applications may be sent to:

Chair
Computer Science Search Committee
School of Computer Science
University of Central Florida
Orlando, FL 32816-2362

Applications received by January 31, 2004 will be given priority.

The University of Central Florida is an Equal Opportunity/Affirmative Action employer. Women and minorities are particularly encouraged to apply. As an agency of the State of Florida, UCF makes all application materials and selection procedures available for public review.

University of Colorado Computer Science Department Tenure-Track Assistant Professor

The Computer Science Department seeks outstanding candidates for a tenure-track assistant professor position in computational biology or bioinformatics.

Candidates must have a Ph.D. in computer science or related disciplines and the ability to develop an innovative interdisciplinary research program.

The University has committed multiple positions to bioinformatics as part of a larger initiative in molecular biotechnology, offering an unrivaled opportunity for a top computer scientist to join a critical mass of colleagues.

The University of Colorado is committed to diversity and equality in education and employment.

Review of applications begins immediately. Information on the department and application procedure are at www.cs.colorado.edu.

University of Denver Department of Computer Science Full/Associate Professor

We invite applications for a full professor or a well-established associate professor position to begin fall 2004. The minimum requirements are a Ph.D. in CS or related areas and demonstrated ability in research and teaching. The department is particularly interested in a candidate who can teach and direct research in the areas related to bioinformatics, digital media, networks and security, spatial data, or web systems. The Computer Science Department is part of the new School of Engineering and Computer Science (SECS) at the University of Denver. SECS promotes research and teaching collaborations among different disciplines. Faculty in Computer Science have unique opportunities for cross-disciplinary activities. For further information, visit SECS website at <http://www.du.edu/secs/>.

Our current faculty have research programs in algorithms, computational geometry, computer security, database systems, distributed systems and algorithms, graphics, multimedia systems, optical networks, parallel computer architecture, performance modeling, and symbolic computation and computer algebra. We offer bachelor's, master's and doctoral degrees.

The University of Denver is a medium-size (10,000 students) private university. Class sizes are small, the teaching load is moderate and the salary is competitive. The University

is located in an attractive residential area 5 miles from downtown Denver. Denver, with its metro area population of 2.3 million, is consistently ranked as one of the top five country's most pleasant places to live. Many of the country's best ski areas, mountain bike trails, and the 14,000 foot peaks of the Colorado Rockies are only one or two hours away.

The University of Denver is committed to enhancing the diversity of its faculty and staff and encourages applications particularly from women, minorities and the disabled. Application screening will begin immediately and continue until the position is filled. Applicants should submit a curriculum vitae, a statement of teaching and research interests and have at least 3 reference letters sent to:

Chair, Computer Science Search
Committee
Computer Science Department
School of Engineering and Computer
Science
University of Denver
2360 S. Gaylord Street
Denver, CO 80208-2453
EEO/AA/D/V.

University of Florida Department of Computer and Information Science and Engineering Lecturer Position

Applications are invited for a lecturer/senior-lecturer/master-lecturer position in the Computer and Information Science and Engineering Department at the University of Florida, Gainesville. Lecturer candidates must hold a Master's degree in computer science, computer engineering, or a closely related field. For appointment at the senior-lecturer or master-lecturer level, an earned PhD in computer science, computer-engineering, or a closely related area is desirable. Candidates should have a strong commitment to excellence in teaching, and must have experience teaching computer science at the university level.

The Department of CISE currently has a faculty of 34 and a student body of 330 graduate and 1151 undergraduate students. The Department encompasses a wide range of research areas including high performance computing, database systems, computer vision, computer graphics, and simulation, computer networks and security, distributed and real-time systems, and software engineering.

Applicants for these positions must send a curriculum vita and at least three letters of recommendation to:

Chair, Faculty Search Committee
c/o Robyn Edwards
Dept. of CISE
301 CSE, P.O. Box 116120
University of Florida
Gainesville, FL 32611
email: search@cise.ufl.edu
Tel: 352-392-1212
Application deadline is January 15, 2004.

The University of Florida is an Affirmative Action Employer and women and minorities are encouraged to apply. For more information about the department and positions, please visit <http://www.cise.ufl.edu>

University of Florida Department of Computer and Information Science and Engineering Tenure-Track positions

The Department of Computer and Information Science and Engineering at the University of Florida invites applications for tenure-track positions at all ranks beginning August 2004 or anytime thereafter. Exceptionally strong candidates in all areas of computer science and engineering are encouraged to apply.

All applicants should hold a PhD in Computer Science, Computer Engineering, or a closely related discipline, and should be committed to excellence in teaching and research. Salary and support are competitive and depend on background and experience.

The Department of CISE currently has tenure-track faculty of 34 and a student body of 330 graduate and 1151 undergraduate students. The Department encompasses a wide range of research areas including high performance computing, database systems, computer vision, computer graphics, simulation, computer networks and security and distributed and real-time systems.

Candidates should send a curriculum vitae and have at least three letters of recommendation sent to:

Chair, Faculty Search Committee
c/o Robyn Edwards
Department of Computer and Information
Science and Engineering
301 CSE, P.O. Box 116120
University of Florida
Gainesville, FL 32611
e-mail: search@cise.ufl.edu
Tel: 352-392-1212

Applications will not be reviewed until all recommendation letters have been received.

The committee will begin reviewing applications on December 31, 2003 and will continue to receive applications until the positions are filled.

The University of Florida is an Affirmative Action Employer and women and minorities are encouraged to apply. For more information about the department and positions, please visit <http://www.cise.ufl.edu>

University of Georgia Department of Computer Science Tenure-Track positions

The Department of Computer Science at the University of Georgia invites applications for tenure-track positions for Fall 2004. (The potential exists for a January, 2004, start date also.) Successful applicants must be committed to excellence in both research and teaching.

Our two open positions are dedicated to the Georgia strategic initiative Yamacraw, whose goal is to make Georgia a world leader in the design of broadband communications systems, devices, and chips. One of the positions is to be filled at the assistant professor level, while appropriately qualified applicants at all levels will be considered for the other position. Relevant research areas include networking, operating systems, distributed systems, mobile computing, architecture, chip design and embedded systems, programming languages, and compilers. We currently have several faculty with research interests spanning these areas.

Computer Science is a growing and congenial department of 21 faculty. The department has 300 undergraduate and over 100 graduate students and offers the B.S., M.S., and Ph.D. degrees in CS. The teaching load allows for substantial concentration on research. In addition to the areas in which we are recruiting, our faculty cover a broad range of research interests, including distributed information systems, human-computer interaction, databases, vision and image processing, theory, algorithms, bioinformatics, scientific computing, parallel and distributed computing, and artificial intelligence.

The University of Georgia, founded in 1785, is the oldest land-grant university in the nation and the largest university in Georgia, with a student body of over 33,000. It is located in Athens, a charming and historic university town of 100,000, approximately 65 miles from metropolitan Atlanta, with mild winters and warm summers. The University boasts a major Performing Arts Center and the country's best fitness and exercise facility for students and faculty. It has been consistently ranked in the top 20 public universities by U.S. News and World and Report.

Submit a vitae and a statement of research interests, and have three reference letters sent to:

Prof. Rodney Canfield
Faculty Search Committee Chairman
The University of Georgia
Computer Science
415 GSRC
Athens, GA 30602-7404

To be assured full consideration, applications should be received by 15 January 2004. Highly qualified candidates whose applications are received by November 15, 2003, will be considered for early appointment (January, 2004). UGA is an equal opportunity/affirmative action employer and especially encourages applications from women and minorities.

University of Illinois at Chicago Department of Computer Science Faculty Position

We invite applications for one or more anticipated open rank faculty positions, starting August 16, 2004. A Ph.D. degree or equivalent in Computer Science is required. Candidates at the assistant professor level should have a strong research and teaching potential and senior candidates should have a proven record of outstanding research and teaching. Candidates in all areas of Computer Science will be considered so as to either strengthen or complement the department's current research.

UIC is a research-1 university with 15 colleges offering ample opportunities for interdisciplinary research. The University is in the midst of a \$500 million campus development project. The UIC campus is located near downtown Chicago, and is close to other research institutions and universities. Chicago offers all the cultural amenities of a major city, a wide range of affordable housing and plenty of job opportunities.

The Department of Computer Science, which belongs to the College of Engineering, has 31 faculty members, and more than 80 PhD students. The faculty includes five new

(cont'd)

Professional Opportunities

hires since 2001, with three more hires being planned by 2006. Four faculty members are IEEE or ACM fellows and seven are NSF CAREER award winners. The department is one of the fastest growing departments in terms of scholarly research and grant productivity. Last year's external research expenditures exceeded \$9 million. The department has state of the art computing resources for research and teaching. For more information, visit our web page at <http://www.cs.uic.edu>.

Applications must be submitted in hard copy. Send a vitae and the names and addresses of at least three references to:
 Prof. Isabel F. Cruz
 Search Committee Chair
 The University of Illinois at Chicago
 Dept. of Computer Science (M/C 152)
 851 S. Morgan Street
 Chicago, Illinois 60607-7053
 Review of applications will begin on January 6, 2003 and will continue until the positions are filled. Inquiries may be addressed to faculty_search_2004@cs.uic.edu.

The University of Illinois at Chicago is an Affirmative Action/Equal Opportunity Employer.

The University of Iowa Computer Science Department Assistant Professor Position, Fall 2004

The University of Iowa Computer Science Department is soliciting applications for a tenure-track position commencing August 2004. Applications from all areas of computer science are invited, including applied algorithms, artificial intelligence, computational biology, graphics and human-computer interaction, databases and information systems, security, systems and networking. The Department is committed to growth in research in emerging and interdisciplinary areas of computer science, especially in connection with our highly regarded programs in the health sciences. More emphasis will be placed on innovation and promise of the candidate's scholarship than on specific area.

Initial appointment is expected to be at the rank of assistant professor; visiting appointments may also be considered. The University of Iowa is a major national research university of about 30,000 students with a tradition of fostering interdisciplinary research and scholarship. Candidates must hold a PhD in computer science or closely related discipline. Competitive salary and benefits are offered; applications received by January 15, 2004, are assured of full consideration.

To apply, please send a curriculum vitae, research statement, and three letters of recommendation to:

Faculty Search Committee
 Computer Science
 University of Iowa
 14 MacLean Hall
 Iowa City, IA 52242-1419

Applications or queries may also be sent to cs_hiring@cs.uiowa.edu. More information can be found on <http://www.cs.uiowa.edu/hiring>.

The University of Iowa's Dual Career Network assists faculty spouses/partners in locating and securing employment. The University of Iowa is an affirmative action/equal opportunity employer. Women, minorities and individuals with disabilities are encouraged to apply.

University of Louisiana at Lafayette

The Center for Advanced Computer Studies

Faculty Position Graduate Fellowships

Candidates with a strong research record and an earned doctorate in computer science or computer engineering are invited to apply for a tenure-track assistant professor faculty position starting August 18, 2004. Target areas include computer networks, communications, digital system design, testing and fault-tolerance, embedded systems, system-on-a-chip and hardware-software co-design. Consideration will also be given to outstanding candidates in other areas. The candidate must have demonstrated potential to achieve national visibility through accomplishments in research contract and grant funding, publications, teaching and supervising graduate students.

Faculty teach mostly at the graduate-level and offer a continuing research seminar. State and university funds are available to support research initiation efforts. Salaries are competitive along with excellent support directed towards the attainment of our faculty's professional goals. The Center's colloquium series brings many world known professionals to our campus each year.

FELLOWSHIPS: A number of PhD fellowships, valued at up to \$18,000 per year including tuition and most fees, are available. They provide support for up to four years of study towards the PhD in computer science or

computer engineering. Eligible candidates must be U.S. citizens or must have earned an MS degree from a U.S. or Canadian university. Recipients also receive preference of low-cost campus housing.

THE CENTER: The Center is primarily a graduate research unit of 18 faculty, with programs leading to MS/PhD degrees in computer science and computer engineering. Approximately 225 graduate students are enrolled in these programs, including 80 PhD students. The Center has been ranked 46th in a recent NSF survey based on research and development expenditures in the period of 1996 through 1999. The Center has state-of-the-art research and instructional computing facilities, consisting of several networks of SUN workstations and other high performance platforms. In addition, the Center has dedicated research laboratories FPGA and Reconfigurable Computing, Internet Computing, Virtual Reality, Software Research, VLSI and SoC, and Wireless Technologies. Related university programs include the CSAB (ABET) accredited undergraduate program in Computer Science Department, and the ABET accredited undergraduate program in Electrical and Computer Engineering Department. Additional information about the Center may be obtained at <http://www.cacs.louisiana.edu/>.

THE UNIVERSITY: The University of Louisiana at Lafayette is a Research Intensive University, with enrollment over 16,200 students. Additional information may be obtained at <http://www.louisiana.edu/>. The University is located in Lafayette, the hub of Acadiana, which is characterized by its Cajun music and food, and joie de vivre atmosphere. The city, with its population of over 120,000, provides many recreational and cultural opportunities. Lafayette is located approximately 120 miles west of New Orleans.

The search committee will review applications and continue until the position is filled. Candidates should send a letter of intent, curriculum vitae, statement of research and teaching interests, and names, addresses and telephone numbers of at least four references. Additional materials, of the candidate's choice, may also be sent to:

Dr. Magdy A. Bayoumi, Director
 The Center for Advanced Computer Studies
 University of Louisiana at Lafayette
 Lafayette, LA 70504-4330
 Tel: 337-482-6147; Fax: 337-482-5791
 The University is an Affirmative

Action/Equal Opportunity Employer.

University of Maine Computer Science Department Faculty Position in Computer Science

Our department invites applications for a tenure-track position at the assistant professor level starting September 2004. A Ph.D. in Computer Science is required. Candidates should exhibit a strong commitment to teaching and solid research potential. Preference will be given to candidates with a strong background in database systems, distributed and parallel systems, digital communications/networking, operating systems, or programming languages. Responsibilities include graduate and undergraduate teaching, the establishment of a program of independent or collaborative research with support from external funding agencies, and involvement of graduate/undergraduate students through dissertations, theses, and/or project work.

The University of Maine is the flagship university and primary graduate institution in the State of Maine. The Department of Computer Science offers BA, BS, MS, and Ph.D. degrees in Computer Science. Current research areas of our department include algorithms, artificial intelligence, agents, software engineering and reuse, combinatorics, homeland security, learning environments, networking, and finite-element modeling. The University also has strong programs in Electrical and Computer Engineering and various computer science application areas. We are actively seeking individuals whose research has interdisciplinary components or potential. The Department has strong ties to Jackson Laboratory, the National Center for Geographic Information and Analysis, and the Maine Software Developers Association. Our Web site can be visited at www.cs.umaine.edu.

The University of Maine is located one hour from the beautiful Bar Harbor area, which includes Acadia National Park, and approximately the same distance to Mount Katahdin and to skiing and remote hiking areas. Many lakes and rivers are nearby as well. The area provides a pleasant, safe, and affordable living environment in a range of settings from rural forest or farmland to small towns to a medium-sized city. Extensive cultural activities are available at the Maine Center for the Arts and in the greater Bangor area.

Salary and startup support packages are competitive. Applicants should send a letter of application, a statement of research interests, a curriculum vitae, and three letters of reference to:

Prof. George Markowsky, Chair
 Department of Computer Science
 5752 Neville Hall
 Orono, ME 04469-5752

Review of applications will begin January 15, 2004 and continue until the position is filled. We encourage applications from women and under-represented minorities.

The University of Maine is an Equal Opportunity/Affirmative Action Employer.

University of Manitoba Department of Computer Science Tenure-Track position

Applications are invited for one full-time tenure-track position, at the Assistant Professor or Associate Professor level in the Department of Computer Science at the University of Manitoba, commencing July 1, 2004, or as soon as possible thereafter. Position No: AAF 782. Minimum qualifications are a PhD in Computer Science or equivalent, with a strong record in both teaching and research as described in the following paragraph. Applicants at the Associate Professor level require a minimum of five years experience in a faculty position at a post-secondary institution. A Faculty of Science startup research grant will be awarded to all newly appointed faculty members.

We are primarily seeking expertise in the areas of Databases, Software Engineering, Data Security and Cryptography. We will also consider candidates in the areas of programming languages and compilation, human-computer interaction, operating systems, bioinformatics, and multimedia, as well as outstanding candidates in other areas of Computer Science. Duties will include undergraduate and graduate teaching and supervision, research, and service-related activities.

The Department currently has 26 full-time tenure-track faculty members and 6 full-time instructors, and offers a full range of both undergraduate and graduate programs, including cooperative programs. We currently have over 100 graduate students and over 400 undergraduate students. There are a total of approximately 26,000 students at the University of Manitoba.

The Department was founded in 1970 and is currently expanding. The Computer Science Development Plan, funded by the Provincial Government of Manitoba, has provided \$3.6 million of special funding for this expansion. In addition, a new \$50M Engineering and Information Technology Complex is nearing the completion of the design phase, and it will house all of the teaching and research activities of the department.

Winnipeg (www.city.winnipeg.mb.ca) has a great deal to offer, both culturally and recreationally, with a number of professional and ethnic arts groups, professional sports teams, outstanding restaurants, and many opportunities nearby for all types of outdoor activities in all seasons. The Winnipeg housing market is one of the most favourable in Canada to the home buyer.

This is an excellent opportunity for individuals with outstanding research potential and a commitment to excellence in teaching to join an exciting, expanding department.

The University of Manitoba encourages applications from qualified women and men, including members of visible minorities, Aboriginal peoples, and persons with

disabilities. All qualified candidates are encouraged to apply; however Canadians and permanent residents will be given priority.

Further information concerning the Department and the University may be obtained from the Department's website (www.cs.umanitoba.ca) and the University's website (www.umanitoba.ca).

Applicants should send a curriculum vitae and the names of three referees to the address below. Qualified women are particularly encouraged to apply. Consideration for the position will commence immediately and will continue until February 27, 2004, or until the position is filled.

Chair of Search Committee
 Department of Computer Science
 University of Manitoba
 Winnipeg, Manitoba R3T 2N2 Canada
 E-mail: search@cs.umanitoba.ca
 Telephone: (204) 474-8313
 Fax: (204) 474-7609
 Website: www.cs.umanitoba.ca

Application materials, including letters of reference, will be handled in accordance with the *Freedom of Information and Protection of Privacy Act* (Manitoba).

University of Maryland Baltimore County

Department of Computer Science and Electrical Engineering
 Tenure-Track Position in Computer Engineering

The UMBC CSEE Department invites applications for a tenure-track faculty position in computer engineering at the rank of Assistant Professor. Higher ranks may be considered. We are mainly interested in applicants specializing in the following areas:

(1) VLSI (esp. mixed signal, ASIC, DSP system implementations, FPGAs, CAD for deep sub-micron devices) (2) VLSI testing and verification (3) Design and Test for SoC (4) Architectures (including Reconfigurable computing, Polymorphic architectures, Arithmetic Algorithms and Implementations including cryptography, on-line/digit-serial arithmetic). (5) MEMs systems. Applicants must have, or be about to receive, a Ph.D. in computer science, computer engineering, electrical engineering, or a related discipline.

The Department offers B.Sc., M.Sc., and Ph.D. degrees and has 34 full-time tenured and tenure track faculty members and 7 full time lecturers, and about 1200 undergraduate majors and 300 graduate students. We received approximately \$7M in sponsored research support last year and are planning on significant growth. Construction of the new Information Technology and Engineering building, into which we moved recently, was completed in 2003.

Applications, including CV, and a statement of teaching and research interests and goals, should be sent to:

Computer Engineering Faculty Search
 Department of Computer Science and Electrical Engineering
 University of Maryland Baltimore County
 1000 Hilltop Circle
 Baltimore, MD 21250
 Phone: 410-455-3500; Fax: 410-455-3969
 URL: <http://www.csee.umbc.edu/>

Applicants should arrange for three letters of reference to be sent to the same address. Electronic submissions are encouraged (Email: ce-search@csee.umbc.edu). Selection of candidates will start immediately.

UMBC is an affirmative action/equal opportunity employer. Women and minorities are encouraged to apply.

WESTERN CONNECTICUT STATE UNIVERSITY

WWW.WCSU.EDU

Computer Science

Fall 2004

WCSU is seeking a tenure-track candidate for the Computer Science Department for the fall semester, August 2004. Academic rank commensurate with experience, Ph.D. in Computer Science is required. Candidates should be able to teach C++ and object-oriented software development. Candidates who can teach two or more of the following will be highly considered: computer security, computer organization, distributed computing, web development, artificial intelligence, advanced java programming, theory of computation, assembly language programming, and theory of programming languages. Currently we have collaborations with other departments in digital media and security. We also have minors in Web Development, Security, Digital Media and Informatics. Other duties include: maintaining and developing CS curriculum; academic advisement; university and department committee work; and continued research. Possible opportunity to assist in managing the department's lab. Some night teaching is expected of all faculty members. Preference will be given to candidates who can demonstrate strong teaching ability.

Salary & Benefits – WCSU offers competitive salaries commensurate with candidate's experience and a comprehensive benefit package.

Application Material: Interested candidates should submit a cover letter specifying the position you are applying for, a current vita, graduate transcripts, a statement of teaching philosophy, contact information (name, title, address, telephone number and email addresses) of three professional references to **CS Search Committee, Western Connecticut State University, 181 White St., Danbury, CT 06810. Review of applications will begin on January 22, 2004 and continue until the position is filled.**

WCSU is an AA/EO Educator/Employer.

Professional Opportunities

The University of Massachusetts, Amherst

Department of Computer Science Faculty and Research Scientist Positions

The University of Massachusetts, Amherst invites applications for tenure-track faculty positions at the assistant professor level. Applicants must have a Ph.D. in Computer Science or related area and should show evidence of exceptional research promise. Candidates with an established record of strong research may also apply for positions other than at the assistant professor level. We particularly welcome candidates who would thrive in a highly collaborative environment in which projects often span several research groups.

The Department of Computer Science has 37 tenure and research track faculty and 170 Ph.D. students with broad interdisciplinary research interests. The department offers first-class research facilities. Please see <http://www.cs.umass.edu> for more information. Applications should reference search R19628.

We also invite applications for Research Faculty (R19627), Research Scientist (R19626), Postdoctoral Research Associate (R19626), and Research Fellow (R19626) positions in all areas of Computer Science. Applicants should have a Ph.D. in Computer Science or related area (or an M.S. plus equivalent experience), and should show evidence of exceptional research promise. These positions are grant-funded; appointments will be contingent upon continued funding.

To apply, send a letter with your vitae and at least three letters of recommendation to: Search {fill in number from above} c/o Chair of Faculty Recruiting Department of Computer Science University of Massachusetts Amherst, MA 01003-9264

Review of applications has begun and will continue until available positions are filled. Salary commensurate with education and experience; comprehensive benefits package.

Inquiries and requests for more information can be sent to: facrec@cs.umass.edu

The University of Massachusetts is an Affirmative Action/Equal Opportunity employer.

Women and members of minority groups are encouraged to apply.

University of Nebraska - Lincoln Computer Science and Engineering Department

Assistant Professor Faculty Position

The UNL CSE Department is embarking on dynamic growth and seeks applications for a tenure-track Assistant Professor faculty position in grid computing or an Assistant or Associate Professor faculty position in software engineering beginning August 2004. Grid computing includes distributed computing, networking, collaborative technologies, security, visualization, and advanced simulation and modeling. Software engineering includes software validation and verification, program transformation, model checking, and adaptable software. The applicant is expected to teach computer science and engineering courses, do research, advise undergraduate and graduate students, and participate in the outreach and service activities of the department.

The successful candidate must have a Ph.D. in computer science or a closely related discipline, outstanding potential as a research scholar who will complement the department's research faculty and our collaborators, and a commitment to teaching excellence. Candidates for associate professor must have a record of accomplishments that warrant the rank.

CSE Faculty Search Committee
Department of Computer Science and Engineering
115 Ferguson Hall
University of Nebraska-Lincoln
Lincoln, NE 68588-0115
For complete position advertisements, visit: <http://cse.unl.edu/search>, email: search@cse.unl.edu, or phone 402-472-2401.

The University of Nebraska is committed to a pluralistic campus community through affirmative action and equal opportunity and is responsive to the needs of dual career couples. We assure reasonable accommodation under the Americans with Disabilities Act; contact Richard Sincovec at 402-472-2401 for assistance.

University of North Carolina at Charlotte

Department of Computer Science Assistant Professor in Computer Science

The Department of Computer Science (www.cs.uncc.edu) at the University of North Carolina at Charlotte invites applicants for a tenure-track position at the level of Assistant Professor. Applicants must have an earned doctorate in Computer Science, Computer

Engineering, Information Technology, or a related field, and should have demonstrated potential to excel in teaching and research.

Charlotte, NC has a metro-area population of over one million people and is the second largest financial center in the U.S. UNC-Charlotte has a student enrollment of approximately 19,000 with plans to grow to 25,000 and is poised to move from Doctoral Research Intensive to Doctoral Research Extensive Carnegie Classification. The University has seven colleges (Information Technology, Engineering, Arts and Science, Health and Human Services, Architecture, Education, and Business Administration) offering a variety of Ph.D., Master, and baccalaureate programs. The Department of Computer Science, located within the College of Information Technology, has approximately 600 undergraduate computer science majors and 150 graduate students in computer science and information technology. Construction has begun on a new building to house the entire College of Information Technology with anticipated completion date of Fall 2004.

Applicants should send a letter of application together with their curriculum vitae and the names and contact information of at least four references to:

search@cs.uncc.edu or by postal mail to:
Chair, Search Committee
Computer Science Department
University of North Carolina at Charlotte
9201 University City Boulevard
Charlotte, NC 28223-0001

Electronic submission of PDF files is preferred. Review of applications will begin immediately and continue until the position is filled.

University of North Carolina at Charlotte

Computer Science Department Senior Lecturer Position in Computer Science

The Computer Science Department at the University of North Carolina at Charlotte is recruiting for a Senior Lecturer, to begin January 2004, to teach introductory courses and serve as an academic advisor. Senior Lecturers are also responsible for updating introductory courses for the department and service courses to other departments. Candidates should have an advanced degree in computer science, a strong teaching background and extensive experience in curriculum development.

UNC Charlotte has a student enrollment of nearly 20,000 with plans to grow to 25,000. The Department of Computer Science, located within the College of Information Technology, has approximately 500 undergraduate and 200 graduate students. Further details and application instructions are at www.cs.uncc.edu.

UNC Charlotte is an equal opportunity employer. Applications are encouraged from minorities, persons with disabilities and women.

University of North Carolina at Charlotte

Department of Software and Information Systems Tenure-Track Faculty Position

The Department of Software and Information Systems at UNC Charlotte has an open tenure-track faculty position. The Department offers degrees at the Bachelor, Masters, and Ph.D. levels. Current faculty members have strong research programs, with substantial funding from both federal agencies and industrial partners. Salary will be highly competitive.

Applicants must have a Ph.D. in Computer Science, Information Technology, or a related field, and a strong commitment to teaching and research. We are especially interested in faculty with strong interests in system building. Areas of interest include, but are not limited to: network security, pervasive/grid computing, software engineering, computer supported collaborative work, and human-computer interaction. For further details please visit www.sis.uncc.edu.

Application review will start in January 2004. Please send a detailed CV together with four references, copies of scholarly publications, and other support material to:

Search Committee Chair
Department of Software and Information Systems
UNC Charlotte
9201 University City Blvd
Charlotte, NC 28223
Email: search@sis.uncc.edu

Women, minorities and individuals with disabilities are encouraged to apply. UNC Charlotte is an equal opportunity/affirmative action employer.



University of California, Merced School of Engineering Faculty Positions in Computer Science and Engineering

The University of California is creating a dynamic new university campus and campus community in Merced, California, which will open in August 2005 as the tenth campus of the University of California and the first American research university built in the 21st century. The School of Engineering invites applications for multiple tenure-track positions in Computer Science and Engineering, at all ranks and sub-disciplines, and is especially interested in receiving applications from senior scholars in the areas of networking, wireless, and distributed systems; computer algorithms and software engineering; high performance and parallel computing, and complex systems modeling; computer architecture, and embedded and pervasive computing; informatics and database systems; and computer systems security. Interested scholars and cohorts should send curriculum vitae, statements of research and teaching interests, and the names and addresses of five references to: David B. Ashley, Executive Vice Chancellor and Provost, University of California, Merced, PO Box 2039, Merced, CA 95344. Materials may be submitted electronically to: ucmfacultypositions@ucmerced.edu with the job number 923-03A in the subject line. For further information please contact Jeff Wright, Dean of Engineering at engineering@ucop.edu. The University of California at Merced is an Affirmative Action Equal Opportunity employer.

University of Notre Dame Department of Computer Science & Engineering Faculty positions

The Department of Computer Science and Engineering (<http://www.cse.nd.edu>) invites faculty applications. Rank and area of specialty are open.

Our faculty are actively engaged in high-quality research in a variety of areas, supported by NSF, DARPA, SRC, Air Force, HP/Compaq, and other organizations. The blend of small class size, low teaching load, and a "PhD only" graduate program allows us to emphasize true excellence in both teaching and research. Faculty must be committed to both quality teaching and a strong externally-funded research program.

Notre Dame is ranked 19th among national universities in the 2003 U.S. News and World Report. Notre Dame's heritage and values are unique among top-ranked national universities, resulting in a distinctive character of campus life.

Screening of applications will begin immediately and continue until the positions are filled. Applicants should send cover letter, cv, a statement of research and teaching interests, and names and addresses of at least three references either to:

facultysearch@cse.nd.edu, or to:
Faculty Search Committee
Department of Computer Science and Engineering
384 Fitzpatrick Hall
University of Notre Dame
Notre Dame, IN 46556

University of Pittsburgh Department of Computer Science Tenure-Track position

The Department of Computer Science at the University of Pittsburgh is initiating a search for a tenure-track position at the Assistant Professor level effective September 2004, pending budgetary approval. Outstanding candidates are sought in the area of Computer Systems, with particular considerations given to candidates working on Embedded Systems, Computer Architectures, Distributed Systems and System Security. Responsibilities include research, supervision of graduate student research (PhD and MS), and graduate and undergraduate teaching. Candidates should have a PhD in Computer Science and demonstrate exceptional research potential and teaching ability.

Candidates should send a curriculum vitae, a statement of research and teaching interests, and names and addresses of at least three references to:

Professor Rami Melhem, Chair
Department of Computer Science
University of Pittsburgh
Pittsburgh, PA 15260

In order to expedite the review process, candidates should also complete the web-based form at <http://www.cs.pitt.edu/recruiting>. Please direct your inquiries to faculty-search@cs.pitt.edu. Applications must be received by February 14, 2004 to ensure full consideration.

The Department provides a stimulating environment for research and teaching that results in strong graduate and undergraduate programs. The Department already has a strong group in the Computer Systems area

and is a partner in the Computer Engineering program, which is an interdisciplinary program between the Computer Science and the Electrical Engineering departments. Departmental resources include extensive computing facilities of over 400 workstations and personal computers with multimedia capabilities and specialized networks and devices. Faculty members also have network access to additional high performance computing platforms provided by the general computing facilities of the University as well as by the Pittsburgh Supercomputing Center (of which the University of Pittsburgh is a founding member). For further information about the Department please see <http://www.cs.pitt.edu>.

The University of Pittsburgh is an Affirmative Action, Equal Opportunity Employer. Women and members of minority groups under-represented in academia are especially encouraged to apply.

University of Rochester Department of Computer Science Tenure-Track positions

The Computer Science Department at the University of Rochester invites applications from candidates seeking a tenure-track appointment. Applicants at the Assistant Professor level must have received, or be about to receive, a doctorate in Computer Science or a related discipline, and must demonstrate exceptional potential for both research and teaching. Applicants at more senior levels must possess an outstanding record of scholarly achievement.

Applications are welcome in all areas of computer science, but the department is particularly interested in areas that will advance the vision of <i>intuitive computing</i>, in which users collaborate in their everyday activities with an intelligent digital assistant that models user intent, and suggests or carries out actions likely to satisfy that intent. Intuitive computing systems can be expected to actively monitor the physical environment; learn from past experience; seek out and utilize distributed information and computational resources; use innovative algorithms to compute the most promising courses of action in the face of complex, incomplete, or contradictory inputs; and employ sophisticated spoken language and graphical interfaces.

Our department has a strong record of publication and external funding. We offer an outstanding research environment, with excellent students and facilities, and an unusually close-knit and collegial atmosphere. Current areas of expertise include artificial intelligence (computational vision; robotics; virtual reality; natural language understanding; knowledge representation), systems (compilers; operating systems and runtime environments; computer architecture; parallel, distributed, and mobile computing), and theory of computation (algorithms; computational complexity; data mining; DNA computing). Computer Science faculty also participate in externally funded projects with colleagues in more than a dozen other departments. Total enrollment in the Ph.D. program is approximately 45 students. Further information can be found at <http://www.cs.rochester.edu>.

(cont'd)

Professional Opportunities

Applicants should send a curriculum vitae, copies of relevant papers, and the names and addresses of at least three references to:

Faculty Recruiting Committee
Department of Computer Science
University of Rochester
Rochester, NY 14627-0226

The University of Rochester is an Equal Opportunity employer; women and members of minority groups are strongly encouraged to apply.

University of Southern California Computer Science Department Tenure-Track positions

The Computer Science Department at the University of Southern California (www.cs.usc.edu) invites applications for tenure-track faculty at all levels and across all areas of computer science. We are particularly interested in outstanding candidates who will contribute to the department's cross-cutting strategic thrusts in computation, immersion, interaction, and autonomy.

Computation: computational modeling (including simulation and optimization) as well as on new and emerging models of computation especially in neural and genomic computing.

Immersion: natural and effective interactions among people (both real and virtual), computation, and the world through improved embeddings of each within the others.

Interaction: a coordinated investigation of distributed information technology across three levels: the network, where components become connected; the grid, where connected components become pools of resources; and organization, where resource pools support collaborative activities.

Autonomy: intelligent agents embodied in both hardware (robots) and software. Progress on these strategic thrusts requires research on new theories, technologies, and systems spanning the traditional sub-disciplines of computer science, plus broader syntheses across these areas. USC has a strong tradition of interdisciplinary research.

Furthermore, much of this research is fostered by strong links between CS and USC's Information Sciences Institute, Integrated Media Systems Center and Institute for Creative Technology.

Candidates should apply on line at <http://www.cs.usc.edu/facultyonline/> or contact Edith Ross (edith@usc.edu).

USC is an EO/AA employer, and encourages applications from under-represented groups and untraditional backgrounds.

University of Southern California Department of Electrical Engineering-Systems Tenured-Track positions

The Systems Division of the Electrical Engineering Department invites applications for tenured-track positions at all faculty levels in the following targeted areas: computational imaging with biomedical applications; system level VLSI design and architecture with applications to wireless communication, or biomedical systems; communications with a focus on quantum information processing.

Applications must include a letter clearly indicating area of specialization, a detailed curriculum vitae, a one page statement on current and future research directions, and names of at least four professional references. Applicants are responsible for soliciting reference letters to be sent directly to the address below. Please send material to:

Chair, Faculty Recruitment Committee
Electrical Engineering-Systems Division
University of Southern California
Los Angeles CA, 90089-2560

USC is an Affirmative Action/Equal Opportunity Employer and encourages applications from women and minorities.

University of Texas at Austin Department of Computer Sciences Tenure-Track Positions

The Department of Computer Sciences of the University of Texas at Austin invites applications for tenure-track positions at all levels. Excellent candidates in all areas will be seriously considered.

All tenured and tenure-track positions require a Ph.D. or equivalent degree in computer science or a related area at the time of employment. Successful candidates are expected to pursue an active research program, teach both graduate and undergraduate courses, and supervise graduate students.

The department is ranked among the top ten computer science departments in the country. It has 38 tenure-track faculty members across all areas of computer science. The department participates in the University's Computational and Applied Mathematics interdisciplinary program. Austin, the capital of Texas, is located on the Colorado River, at the edge of the Texas Hill Country, and is famous

for its live music and outdoor recreation.

Austin is also a center for high-technology industry, including companies such as IBM, Dell, Motorola, Sematech, AMD, National Instruments, Tivoli, Trilogy, Computer Sciences Corporation, and Intel. For more information please see the department web page: <http://www.cs.utexas.edu/>.

The department prefers to receive applications online, beginning November 3, 2003. To submit yours, please visit

<http://recruiting.cs.utexas.edu/faculty/>

If you cannot apply online, please send a curriculum vitae, home page URL, description of research interests, and selected publications, and ask three referees to send letters of reference directly to:

Faculty Search Committee
Department of Computer Sciences
The University of Texas at Austin
1 University Station C0500
Austin, Texas 78712-0233

Inquiries about your application may be directed to: faculty-search@cs.utexas.edu.

Applications will be considered immediately. For full consideration, please apply by January 16, 2004. Women and minority candidates are especially encouraged to apply. The University of Texas is an Equal Opportunity Employer.

University of Texas at El Paso Department of Computer Science Assistant, Associate or Full Professor

The Department of Computer Science of the University of Texas at El Paso invites applications for two positions at all ranks for fall, 2004. We seek applicants in high-performance computing (e.g., computer systems design, performance evaluation, parallel/distributed computing, programming environments and compilers) and theory motivated by applications (e.g., interval computations, soft computing) and security. In exceptional cases, we will consider applicants in other areas of computer science. We offer BS and MS degrees in Computer Science and have a joint Ph.D. program with the Department of Electrical and Computer Engineering. Approval of a distinct Ph.D. program in Computer Science is expected for fall 2004. Candidates must hold a Ph.D. in Computer Science or a closely related field. UTEP recently received an NSF ADVANCE award to further the recruitment, retention and advancement of female faculty in NSF-related disciplines. Applications from dual-career couples are encouraged.

UTEP is a Carnegie doctoral-intensive university with an enrollment of 18,500 students, situated where the Rocky Mountains meet the Rio Grande. UTEP's campus reflects the beauty of the surrounding high desert. El Paso is a highly livable, bi-cultural community of 700,000 people that offers affordable homes and is a major meeting point for the United States and Latin America.

Send a curriculum vitae, a statement of teaching and research interests, and contact information for at least four professional references to:

Faculty Recruiting 2004
Department of Computer Science
UTEP
El Paso, TX 79968-0518

Much more information about the department, including e-mail contacts for inquiries and electronic submission of applications, is available at <http://www.cs.utep.edu>.

The University of Texas at El Paso does not discriminate on the basis of race, color, national origin, sex, religion, age, disability, veteran's status or sexual orientation in employment or the provision of services.

University of Toronto at Scarborough Teaching and Learning, UTSC Lecturer Position

For more details on the position please click the link below:

http://eir.library.utoronto.ca/academicjobs/display_job_detail_public.cfm?JOBID=1326

University of Toronto at Scarborough Teaching and Learning, UTSC Lecturer Position

For more details on the position please click the link below:

http://eir.library.utoronto.ca/academicjobs/display_job_detail_public.cfm?JOBID=1311

University of Washington Department of Computer Science & Engineering Tenure-Track, Research, and Teaching Faculty

The University of Washington's Department of Computer Science & Engineering has one or more open positions in a wide variety of technical areas in both

Computer Science and Computer Engineering, and at all professional levels. A moderate teaching load allows time for quality research and close involvement with students. Our recent move into a beautiful new building, the Paul G. Allen Center for Computer Science & Engineering, allows many opportunities for new projects and initiatives. Information about the department can be found on the web at <http://www.cs.washington.edu>.

We welcome applicants in all CSE research areas (but especially candidates whose research interests include hardware). We expect candidates to have a strong commitment both to research and to teaching. The department is primarily seeking individuals at the Assistant Professor rank; however, under unusual circumstances and commensurate with the qualifications of the individuals, appointments may be made at the rank of Associate Professor or Professor. We are also seeking non-tenured Research Assistant Professors and Lecturers. Applicants for the tenure-track and research positions must have earned a doctorate by the date of appointment; those for the lecturer position must have earned at least a Master's degree.

Please apply online at <http://www.cs.washington.edu/news/jobs.html>, or if web access is impossible, send a letter of application, a resume, statement of research and teaching interests, and the names of four references to:

Faculty Recruiting Committee
Computer Science & Engineering
University of Washington
Box 352350
Seattle, WA 98195-2350

Applications received by January 30, 2004 will be given priority consideration.

The University of Washington is a recipient of a new National Science Foundation ADVANCE Institutional Transformation Award to increase the participation of women in academic science and engineering careers. We are building a culturally diverse faculty and encourage applications from women and minority candidates.

The University of Washington is an affirmative action, equal opportunity employer.

Washington State University, Vancouver Computer Science Assistant Professors

The Washington State University Vancouver Engineering & Science Institute invites applications for two tenure-track assistant professor positions in Computer Science starting in Fall 2004. We are seeking applicants from all areas of computer science but are especially interested in candidates whose research interests include artificial intelligence, systems, networking, and design automation. A Ph.D. in Computer Science or closely related field, evidence of the ability to pursue a research program, and a commitment to excellence in teaching are required.

WSU Vancouver is located on a beautiful 351-acre campus fifteen miles north of Portland, Oregon. Established in 1989, WSU Vancouver is growing to meet the needs of southwest Washington for higher education and currently serves 1800 graduate and undergraduate students. The computer science program at WSU Vancouver is ABET/CSAB accredited, very young and is expected to grow rapidly. WSU, a Research I institution, is Washington's land grant university with faculty and programs on four campuses. Successful candidates will be expected to teach computer science courses at the graduate and undergraduate levels, establish a funded research program and collaborative projects with regional industry, and perform academic duties associated with our CS program.

Applicants should submit a curriculum vitae, statement of research and teaching interests, the names of three references and arrange for the letters of recommendation to be submitted directly. All materials should be sent to:

cssearch@vancouver.wsu.edu (in PDF files)
or
Computer Science Search Committee
Engineering and Science Institute -
VELS 130
Washington State University
14204 NE Salmon Creek Avenue
Vancouver, WA 98686-9600

Review of applications begins January 31, 2004. WSU is an equal opportunity/affirmative action educator and employer. Protected group members are encouraged to apply.

Washington State University, School of Electrical Engineering and Computer Science Director

The School of Electrical Engineering and Computer Science at Washington State

University invites applications and nominations for the position of Director of the School, to be filled August 16, 2004. A Ph.D. degree in electrical engineering, computer engineering, computer science or a related discipline is required. Candidates must possess a national and/or international reputation for scholarly activities, a commitment to excellence in undergraduate and graduate education, a successful record of obtaining external funding, proven fiscal proficiency, and outstanding communication and leadership skills. The initial appointment is for a four-year period with the possibility of reappointment. The position is a 12-month position with tenure, and salary is negotiable, commensurate with qualifications and experience.

The School of Electrical Engineering and Computer Science is the largest of five engineering departments in the College of Engineering and Architecture at Washington State University. Programs are offered at all four University campuses: the main campus at Pullman and three urban campuses at Tri-Cities, Spokane, and Vancouver. The School has 40 full-time faculty, and student enrollment consists of 860 undergraduates and 140 graduates. The School awards baccalaureate through doctoral degrees in electrical engineering, computer engineering and computer science. The total budget for the School exceeds \$8 million per year. The School has three endowed chairs and four distinguished professorships in electrical engineering, computer engineering and computer science. The School participates in two NSF UCRC centers, one for Design of Analog-Digital Integrated Circuits and the other for Power Engineering. The School maintains active research programs in many leading edge technologies and has excellent facilities. Additional information may be found at the School's website <http://www.eecs.wsu.edu>.

Applications and nominations should be sent to:

EECS Director Search Committee
School of Electrical Engineering and
Computer Science
Washington State University
Pullman, WA 99164-2752

Screening of applications will begin February 15, 2004.

WSU is an EEO/AA Employer. Protected group members are encouraged to apply.

Wheaton College Math/Computer Science Assistant Professor in Computer Science

Tenure-track assistant professor position in Computer Science, beginning August 2004, in a department that has five mathematics faculty, three computer science faculty and offers majors both in mathematics and computer science. Candidates should have doctorate in computer science and proven experience or potential as an effective teacher and mentor of students. A research agenda, administrative skills, and/or industrial experience are desirable.

Submit statement detailing experience in each of these areas, a list of particular strengths in computer science teaching and research along with a complete curriculum vitae. Review of applications will begin January 31, 2004, and continue until the position is filled. Send materials to:

Dr. Robert Brabenec
Dept. of Math/CS
Wheaton College
501 College Ave.
Wheaton, IL 60187

or Robert.L.Brabenec@Wheaton.edu.
Wheaton College is an evangelical Protestant Christian liberal arts college whose faculty and staff affirm a Statement of Faith and adhere to lifestyle expectations. The College complies with federal and state guidelines for nondiscrimination in employment. Women and minority candidates are encouraged to apply.

CRA Academic Careers Workshop

February 23-24, 2004

Washington, DC

Details:
<http://www.cra.org>