COMPUTING RESEARCH NEWS

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Congress Protects Science Funding in Final Appropriations

President Requests Further Increases at Key Science Agencies in FY 2008

By Peter Harsha

After several months of fearing a freeze on federal science funding in FY 2007, the science community breathed a collective sigh of relief in late January as congressional appropriators reached an agreement on a final resolution for the year's spending bills that would preserve increases for three key science agencies. The increases—proposed more than a year earlier by President Bush as part of his "American Competitiveness Initiative"(ACI)—will put the research budgets of the National Science Foundation, National Institute of Standards and Technology, and Department of Energy's Office of Science on track to double over ten years.

The funding increases, which received broad approval from the full House and the Senate Appropriations Committee, were put in jeopardy when Congress was unable to finish work on 10 of 12 annual appropriations bills by the start of the 2007 fiscal year (which began October 1, 2006). At that point, the Congressional leadership opted to postpone further consideration on the spending bills until after the November 2006 congressional elections, passing stopgap legislation instead that would fund all federal agencies except Defense and Homeland Security (the focus of the two spending bills that did see passage) at the levels approved for FY 2006. After big gains by Democrats in the November election and the shift in control of both chambers of Congress, the appropriations process broke down even further, with the Republican leadership eventually deciding to abdicate responsibility for finishing FY 2007 appropriations. Another "continuing resolution" was passed funding agencies through February 15, 2007.

Even before officially taking control, Democratic appropriators announced that they, too, were unlikely to finish the FY 2007 appropriations bills under regular order, and so planned to pass yet another stopgap continuing resolution that would extend for the balance of FY 2007. It was this plan that caused the science community such distress as it meant that the gains the community had worked so hard to achieve in the FY 2007 appropriations bills (that now lay unfinished) would not be realized in FY 2007, and the process would have to begin anew for FY 2008.

The community responded with an outpouring of concern directed at the Democratic leadership. CRA joined in the effort, sending letters on its own and organizing a response from the computing community to House Speaker Nancy Pelosi (D-CA), Senate Majority Leader Harry Reid (D-NV), and the chairs of the House and Senate Appropriations Committees.[1] Ultimately, the community's appeals were successful, and increases for NSF, NIST, DOE Office of Science and the National Institutes of Health (even though NIH was not an original focus of the ACI) were included in the final resolution.

While the agencies will not receive the full amounts they requested as part of ACI, each agency will receive significantly more than they received in FY 2006. Under the agreement, NSF's research accounts will receive a 7.7 percent increase to $4.7 billion in FY 2007, matching the increase called for in the ACI—$335 million more than FY 2006. NIST will receive $50 million in additional funding for its core research budget. DOE's Office of Science will see $200 million more than FY 2006, plus the elimination of $127.8 million in earmarks that would then

Science Funding Continued on Page 5

Inside CRN

SDSC: Harnessing Data for Science and Society

By Warren R. Froelich

Stroll the halls of the San Diego Supercomputer Center (SDSC), and a world of discovery—from the inner space of the mind to the outer space of the universe—is brought into focus. Images of neuro-transmitters activating synapses, proteins docking into molecular targets, and animations of the birth of the solar system line the center's corridors. What were once streams of mathematical theorems, equations and solutions are transformed into visual scenes, where the surreal approaches reality.

Such is the daily life at SDSC, where petabytes (a thousand trillion bytes of electronic data) are transmitted, stored, mined, archived and computationally translated for a global user community of about 4,000 scientists and engineers—helping in their quest to solve the planet's most complex, yet critical, mysteries. If the world is awash in a tidal wave of data, then SDSC may be likened to an international dam that's turning this on-rushing torrent into a large but gentle reservoir.

Indeed, the overriding theme of SDSC is the harnessing of data for science and society. Last year, the center expanded its archival tape storage capacity to 25 petabytes (25 thousand trillion bytes), or roughly 1,000 times the digital plain-text equivalent of the printed collection of the Library of Congress. As a result, SDSC's home campus of the University of California, San Diego (UCSD) now has more storage capacity than any other educational institution in the world.

The center also features an additional 2 petabytes of online disk storage, in addition to powerful high-end computing resources, an ever-widening network bandwidth and a broad spectrum of software, portals, workbenches and services—key components to what is generally referred to as cyberinfrastructure.

When combined with human expertise and large-scale computers, SDSC is considered a world leader in data cyberinfrastructure, providing tools for scientists and engineers to discover new knowledge—using end-to-end collaborative environments for data integration, large-scale analysis and simulation, data visualization and, lastly, dissemination and preservation of data-driven results.

For example, in 2006:

- SDSC and an eight-institution team of scientists from the Southern California Earthquake Center conducted the largest and most detailed simulation ever of a 7.7-magnitude earthquake on a 230-kilometer stretch of the San Andreas

SDSC Continued on Page 6

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Expanding the Pipeline

Gender Differences: Recognizing and Developing Potential in Female Students

By Diana Franklin

Last year, a colleague in my department approached me with the following quandary: Why did his female student have difficulty working independently on her senior project, despite her demonstrated ability in his class?

When we delved further, we discovered it was merely fear of failure and the need for reassurance, not a lack of ability, that caused her to give this impression. This led me to two questions—had she not been in his class, how would he have recognized her potential? How can he develop in her the confidence and independence necessary to succeed at competitive levels in academia?

In this article, I discuss some of the societal causes of this apparent lack of independence, as well as other communication patterns that make females appear to have less ability than their male counterparts. I conclude with a set of suggestions for professors and mentors to help females develop the skills they need to succeed at the higher levels of this field.

Background

Let us begin with two caveats. First, these are statistical observations, and the difference within the group is often larger than between groups. There are females who exhibit none of these characteristics, and those are the most likely to have succeeded to date. My concern is that we are unintentionally discouraging a large, talented segment of our population because they do not appear as capable as they are.

Second, behaviors that are a product of society change through time. What was true in this generation may not be true in the next. If we are aware of these societal effects, we can both develop the students who were influenced by them and change how we treat young females in order to prevent them from experiencing the same fate.

The difference in society's treatment of males and females begins by pre-school. It has been observed that females are subtly punished by both their fathers and peers for playing with "boys'" toys.[4] In elementary school classrooms, teachers ask boys more questions,[2] and the type of question is more open-ended and challenging than those asked of girls.[7] Thus, females have less practice with open-ended problems, leading to less confidence in these types of tasks.

Confidence is further diminished during adolescence. Adolescence is a difficult time for all children, especially those who are academically gifted. For females, the social structure is very important to self-confidence, so this period is especially hard on self-esteem. Females have been socialized to understand subtle social cues, so they are painfully aware of their social failures, such as when well-meaning relatives ask if they have a boyfriend.[3] From adolescence to early adulthood, female self-esteem tends to decrease, whereas that of males increases.[1] Furthermore, valuing independence and autonomy was strongly correlated with lowered self-esteem in females.[1] Thus, by the time they enter college, females have much lower self-esteem than males.

Computer science is an excellent major for the male students to fit in, but for females this can be worse than high school, since it is the first time they are a minority in academic classes. In addition, males are more likely to have programming experience entering college,[5] magnifying this sense of isolation for females. As a result, females have less confidence than their male counterparts and transfer out of the major, citing failure as the major reason, at higher GPAs than males.[5,6]

Concrete Suggestions for Teaching and Mentoring

In only four years of teaching, I have seen the trends above expressed in many ways that would hurt recognition of the students' accomplishments as well as damage their ability to compete at the highest level. These behaviors of high-achieving females include choosing less ambitious open-ended projects, asking many questions in class and/or office hours, and exhibiting a lack of persistence in independent work. We need to distinguish between perception and ability, and develop those students who have the potential to succeed. The idea is to begin the process as early as possible in students' education in order to reverse the societal influences by the time students exit, or even enter, graduate school. These suggestions form a progression, from careful attention, to determining a student's knowledge, to explicitly developing her self-confidence and independence.

Ask a student to guess the answer to their question to gauge their knowledge. Females are more likely to ask questions to reassure themselves they are on the right track, rather than because they have no idea of the answer. Determining the level of their knowledge is important in how you view them. I had a female student who, despite getting top grades on all the tests, did not convince her professor she was smart until the second quarter she had him; because she asked so many questions, he thought her grades were a fluke.

Provide mentoring. Because of the social isolation in computer science for females, it is more important to have a mentor relationship. Several times, I have shared stories with students and former students. The farther they get in their education, the more they identify with the stories. They have expressed relief and renewed confidence that what they are experiencing is normal.

Do not believe seemingly self-aware expressions of self-doubt. Females are likely to minimize their accomplishments. One student had so little confidence that she often expressed her doubts in her ability to succeed at open-ended, creative research problems. Despite the fact that the professor's only direct evidence of her ability had been stellar, this led to a somewhat negative letter of recommendation.

Make expectations explicit. Open-ended projects should not be used to determine who is the most capable. Students with low self-confidence are more risk-averse, leading to less ambitious projects. If you want to see if a student can do something more challenging, assign it.

Assign leadership. In many large research groups, the professors let the leaders "naturally emerge" from the group. In group settings, men are more likely to interrupt females than males, and females are more likely to acquiesce than males when interrupted.[8] This and other factors mean that a hands-off approach is very unlikely to result in a female leader. If you want to see how a female performs as leader, declare her leader and counsel her as to what level of authority that leadership gives her.

Assign increasingly risky projects. The student needs to be told explicitly that the intent of research is exploration, sometimes failure, and eventual success. Making failure an intermediate goal helps risk-averse students try ambitious projects. Beginning with a very high-risk project that fails, on the other hand, may reinforce the feelings of inadequacy.

Although it is easier to teach only technical content and make the students learn assertiveness and confidence on their own, this does a disservice to the field. Males and females alike can benefit from these techniques. Furthermore, as society matures, more and more females will be treated as equals from a young age, so one hopes that these techniques will be necessary for fewer students. In this era of global competition, we need to train those who will contribute the most, not just the ones who are the easiest to teach.

Diana Franklin *is an Assistant Professor at Cal Poly, San Luis Obispo, who researches computer architecture.*

Notes

1. Block and Robins, "A Longitudinal Study of Consistency and Change in Self-Esteem from Early Adolescence to Early Adulthood," *Child Development*, 1993, 64, 909-923.
2. French and French, "Gender imbalances in the primary classroom: an interactional account." *Educational Research*, 1984, 26, pp. 127-136.

Expanding the Pipeline
Continued on Page 3

Musings from the Chair

Why We Go to the Woods

By Dan Reed, CRA Board Chair

In the spirit of Henry David Thoreau, why do we get up each day and work? To pay for groceries and make mortgage payments? Practical and necessary reasons, for sure. To conduct important research, educate students and make disciplinary contributions? These are the quantitative and qualitative metrics of success in our field, without doubt. Yet I suspect neither practicality nor disciplinary metrics are the real reasons we climb out of bed each morning. Rather, I believe that when we are circumspect, we know we are each driven by the desire to make a difference, to make the world a better place today than it was yesterday.

Hence, I often ask people, based on their age, one of two variants of a standard question. If they are beginning their careers, I ask, "What do you lie awake at night and dream about doing?" If they are older, or like me—older *and* follicly challenged—I ask, "What do you want to tell your grandchildren you did with your life?" The answers are always revealing and insightful. We are blessed to work in a discipline that is transforming society and enriching the human experience and we are privileged to be a part of that process.

The astronomer Edwin Hubble once wrote, "Our immediate neighborhood we know intimately. But with increasing distance our knowledge fades. . . . The search will continue. The urge is older than history. It is not satisfied, and it will not be denied." Although technically about the large-scale structure of the universe, his comments are perceptive and speak to the real reason we get up each day and why we conduct research—because we want to add a tile to the great mosaic of human knowledge, because we want to make a difference in the lives of the world's citizens. When it comes to the big questions—matter and the universe, life and its processes, and what they mean for the human condition—in each case, computing research is revolutionizing our approaches to exploration and discovery, and we are a part of it.

When I was teaching, at the end of each semester I spent some time talking to my class, not just about final examinations or term projects, but about what they should do in life and why computing matters. Although we are well remunerated for our efforts, I always tell students that they should work for love, not for money. If you love what you do and you are passionate about it, it always pays enough. If the passion isn't there, the tasks become drudgery.

All too often, we become immersed in the minutiae and lose sight of the "big picture." Remember that in the end it isn't about how many proposals you wrote or how many papers you published; it's about whether you really are making a difference. It's that ineffable notion of impact, but driven by our passions and desires, not by external expectations.

We need to make sure we share the passion, the love, the dreams, with our students and our colleagues. Our students need to know what we know: that computing research is driven by the same creative impulses that shape art, music, literature and the other sciences. We are artists in that most malleable of media, the world of computing, where ideas take flight. Share the love, share the future.

Finally, as I write this, the National Science Foundation has just announced that our colleague Jeannette Wing has been named the new NSF Assistant Director for Computer and Information Science and Engineering (CISE). All of us in the community look forward to working with Jeannette in her new role, as we chart the future of computing.

***Dan Reed**, CRA's Board Chair, is the Chancellor's Eminent Professor and Vice-Chancellor for Information Technology at the University of North Carolina at Chapel Hill. He also directs the interdisciplinary Renaissance Computing Institute (RENCI). Contact him at reed@renci.org* ■

NSF Appoints Jeannette Wing AD for CISE

The National Science Foundation announced on January 31, 2007, that Jeannette Wing, Head of the Computer Science Department at Carnegie Mellon University, will become the new Assistant Director of NSF for Computer & Information Science and Engineering (CISE). Dr. Wing will assume her duties July 1, 2007.

According to the NSF press release, in the view of Carnegie Mellon University President Jared L. Cohon, "Jeannette Wing is one of the most original and creative scientists in computing today. . . . She has made superb contributions here as a researcher, teacher and administrator. NSF could not have made a better choice for this pivotal leadership role."

Appointed Department Head at CMU in 2004, Dr. Wing has also directed the Specification and Verification Center since 2001. She has served as SCS associate dean for academic affairs, as well as associate department head for the doctoral program in CS.

Well known for her research in the field of formal methods, Dr. Wing recently has focused on trustworthy computing with a particular interest in software security. She has an impressive record of service in professional societies, is widely published, and has worked for or consulted with a range of companies and research labs.

A graduate of MIT with bachelor's and master's degrees in electrical engineering and computer science, Dr. Wing was awarded a doctorate in computer science from MIT in 1983. She joined the CS department at CMU in 1985.

For additional details, see: http://www.nsf.gov. ■

Fran Allen Wins Turing Award

Our congratulations to former CRA board member, Fran Allen, who has been named the 2006 recipient of ACM's prestigious A.M. Turing Award. An IBM Fellow Emerita, she is the first woman to be so honored since the award was first presented in 1966.

Fran Allen was named for contributions that fundamentally improved the performance of computer programs in solving problems, and accelerated the use of high performance computing. The award is widely considered the "Nobel Prize in Computing," and carries a $100,000 prize, with financial support provided by Intel Corporation.

In addition to her research accomplishments, Fran Allen also has an impressive record of service to the community, and was an active member of CRA's Board of Directors from 1994 to 2000.

For additional details, see: http://campus.acm.org/public/pressroom/press_releases/2_2007/turing2006.cfm ■

CRA Hires New Staff Member

Marie Hooper joined the CRA staff on February 12 as Director of Finance and Operations. She was most recently the Director of Administration for the Council for Responsible Nutrition in Washington, DC.

A graduate of Manhattanville College, Marie has an MS in Organizational Development & Human Resources Management. She has worked in several non-profit organizations and brings a diverse background well suited to CRA's current needs and activities.

We welcome Marie to the CRA staff!

Expanding the Pipeline from Page 2

3. Holland and Eisenhart, *Educated in Romance: Women, Achievement, and College Culture* (1990, University of Chicago Press).
4. Langlois and Downs, "Mothers, Fathers, and Peers as Socialization Agents of Sex-Typed Play Behaviors in Young Children," *Child Development*, 1980 – JSTOR.
5. Margolis and Fisher, *Unlocking the Clubhouse: Women in Computing* (2002, MIT Press).
6. Patterson and Trasti, "Women Students in Computer Science: Student Perspectives of Faculty Bias as a Possible Influence on Student Retention," http://www.multicultural.vt.edu/proceedings/Women_Students_in_Computer_.pdf
7. Swann & Graddol (1998), "Gender inequalities in classroom talk," *English in Education*, 22, pp. 48-65.
8. West, Candace and Don I. Zimmerman, "Small Insults: A Study of Interruptions in Cross-Sex Conversations between Unacquainted Persons." In Barrie Thorne, Cheris Kramarae, and Nancy Henley (Eds.), *Language, Gender and Society*. (Rowley, Mass.:Newbury House, 1983, pp. 102–118). ■

Continued Drop in CS Bachelor's Degree Production and Enrollments as the Number of New Majors Stabilizes

By Jay Vegso

CRA's Taulbee Survey of Ph.D.-granting Computer Science (CS) and Computer Engineering departments in North America has been conducted annually since 1974. Results from the most recent survey were provided to participants and CRA members in February. They will be published on CRA's website (www.cra.org/statistics/) and in *Computing Research News* in May. Due to widespread interest, CRA releases data on undergraduate degrees early.

This article reports on CS bachelor's degree enrollments and production among Ph.D.-granting departments in the United States since the late 1990s. In order to limit the effect of variations in response rates, data are reported in both total numbers and medians per department. Results from the Taulbee Survey should be compared with data produced by the National Science Foundation (NSF), which surveys all institutions that grant CS degrees. NSF's most recent data are from academic year 2003/2004.

According to HERI/UCLA, among all degree-granting institutions, the percentage of incoming undergraduates who indicated they would major in CS declined by 70 percent between fall 2000 and 2005.[1] Unsurprisingly, the number of students who declared their major in CS among the Ph.D.-granting departments surveyed by CRA also fell (Figure 1). After six years of declines, the number of new CS majors in fall 2006 was half of what it was in fall 2000 (15,958 versus 7,798). Nevertheless, this was only a slight decline from the 7,952 new majors reported in fall 2005, and may indicate that the numbers are stabilizing.

The drop in new majors has meant that the number of students enrolled in CS has fallen for several years (Figure 2). Enrollments dropped 14 percent between 2004/2005 and 2005/2006, to 34,898. Overall, enrollments dropped 39 percent from their height in 2001/2002, while the median number of students enrolled in each department fell 44 percent since 2000/2001.

These declines are showing up at the end of the pipeline. Following several years of increases, the total number of bachelor's degrees granted by PhD-granting CS departments fell 28 percent between 2003/2004 and 2005/2006, to 10,206 (Figure 3). The median number of degrees granted per department declined 30 percent (to 48). The sustained drop in total enrollments and student interest in CS as a major suggests that degree production numbers will continue to drop in the near term.

It is important to note that a steep drop in degree production among CS departments has happened before. According to NSF, between 1980 and 1986 undergraduate CS production nearly quadrupled to more than 42,000 degrees. This period was followed by a swift decline and leveling off during the 1990s, with several years in which the number of degrees granted hovered around 25,000. During the late 1990s, CS degree production again surged to more than 57,000 in 2004.[2] In light of the economic downturn and slow job growth during the early 2000s, the current decline in CS degree production was foreseeable.

Jay Vegso can be contacted at jvegso@cra.org.

Notes

1. HERI/UCLA's "CIRP Freshman Survey" is an annual survey of the characteristics of students attending colleges and universities as first-time, full-time freshmen: www.gseis.ucla.edu/heri/freshman.html.
2. See www.cra.org/info/education/us/bs.html and Table 34 at http://www.nsf.gov/statistics/nsf07307/

Figure 1. Newly Declared CS Majors
Source: CRA Taulbee Survey

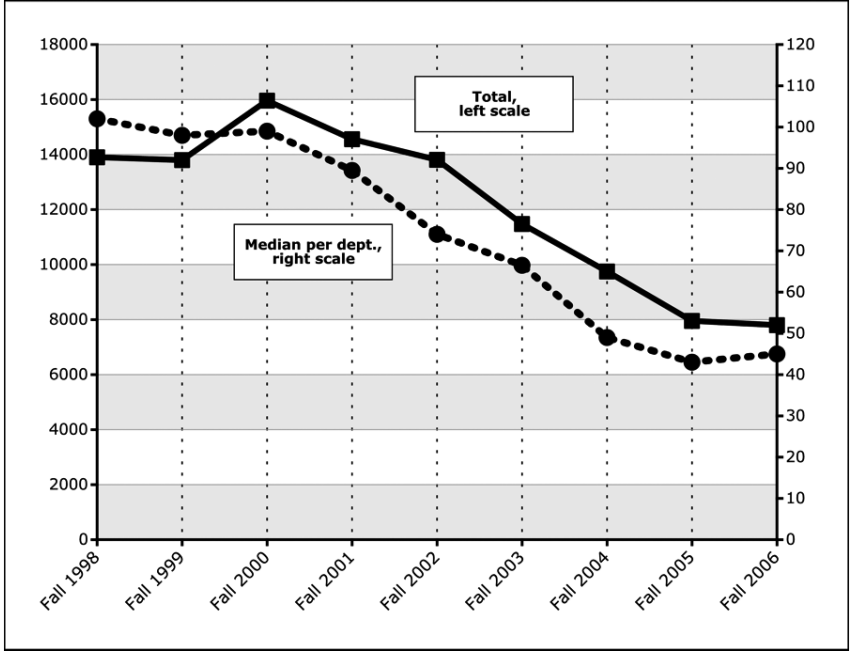


Figure 2. Undergraduate CS Degree Enrollments
Source: CRA Taulbee Survey

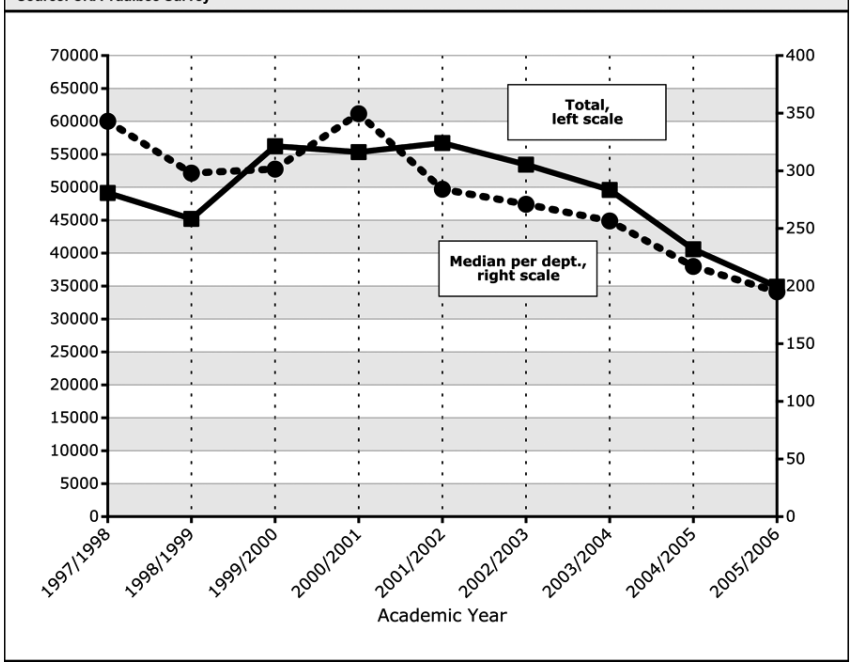
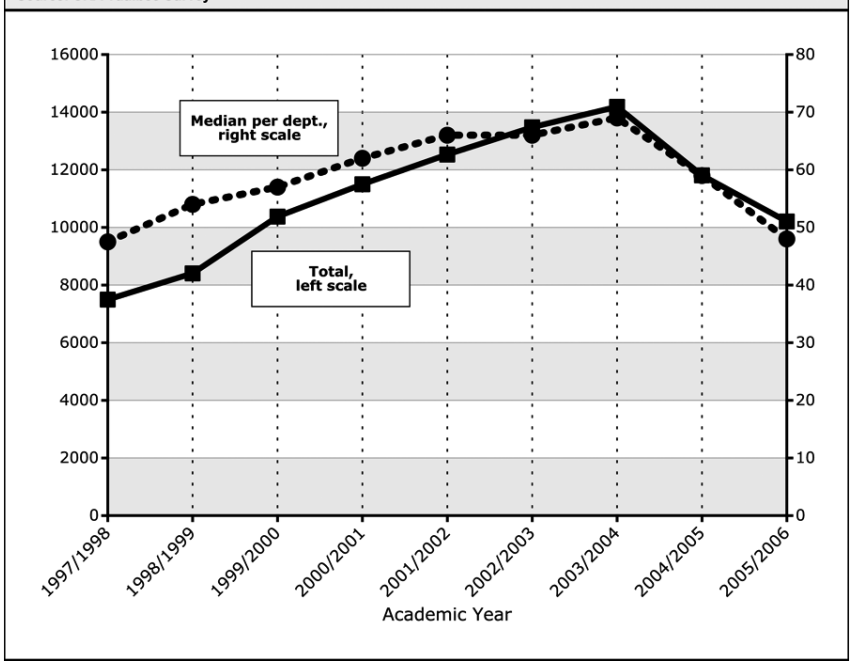


Figure 3. CS Bachelor's Degrees Granted
Source: CRA Taulbee Survey



New CRA Academic Members

Claremont Graduate University - IST

Georgia Institute of Technology - CSS

Georgia Institute of Technology - IIC

Memorial University of Newfoundland - CS

University of Central Arkansas - CS

Revitalizing Computer Architecture Research

New CRA Report Available On-Line at:

http://www.cra.org/Activities/grand.challenges/architecture/home.html

Science Funding from Page 1

be available for competitive research. NIH, which requested flat-funding in FY 2007, would see an increase instead of $619.5 million—which, according to appropriators, would "support an additional 500 research project grants, 1,500 first time investigators, and expand funding for high risk and high-impact research."

The protection of this research funding represents a big win for the science community. Preserving these increases for the federal investment in science in a resolution that included cuts to more than 60 other domestic programs below their FY 2006 levels sends a powerful signal that basic research is a national priority. Science was one of just a few priorities protected by congressional Democrats in the bill, joining federal highway programs, veterans' health care, the FBI and local law enforcement, and Pell grant funding. The science community—along with its partners in industry—weighed in heavily in support of ACI funding, and that advocacy had the desired effect.

The community's good news continued with the release of the President's FY 2008 Budget Request, which continues the increases called for in ACI at NSF, NIST and DOE Office of Science. Under the President's plan (which serves as the starting point for the FY 2008 appropriations process), NSF would see its funding rise to $6.4 billion in FY 2008, an increase of $409 million or 7 percent greater than the FY 2007 request.

Included in that 7 percent increase at NSF is a 9 percent increase to NSF's Computer and Information Science and Engineering directorate—the largest increase requested for any of NSF's research directorates. Under the plan, CISE would grow $47 million to $574 million in FY 2008. That increase, as well as funding freed up as the Information Technology Research program comes to an end, would allow the directorate to fund several new efforts, including:

- High Risk, High Return Research ($50 million)—"Seeking Big Ideas in support of Grand Vision." Programs in this area will focus on fundamental questions in computing and larger projects, and will try to exploit the potential of emerging technologies.
- Cyber-enabled Discovery and Innovation ($20 million)—A new NSF-wide initiative that aims to "broaden the Nation's capability for innovation by developing a new generation of computationally based discovery concepts and tools to deal with complex, data-rich and interacting systems." The $52 million initiative would be led by NSF's CISE directorate (which would control $20 million of the funding), with participation from Engineering, Mathematics and Physical Science, Social Behavioral and Economic Science, Cyberinfrastructure, International Science, and Education and Human Resources.

The President's plan would also increase NIST's Intramural Research and Facilities to $586 million in FY 2008, an increase of $55 million or 10 percent over the FY 2007 request.

DOE Office of Science would increase 7 percent over the FY 2007 request, an increase of $296 million to $4.4 billion. Included in that increase is an increase of $21.5 million (or 6.8 percent) for the Advanced Scientific Computing Research program. Within ASCR, research in applied mathematics and computer science would increase to $82.8 million from $69.6 million in FY 2007; Scientific Discovery through Advanced Computing (SciDAC) would increase slightly to $56.3 million (from $56.1 million in the FY 2007 request); and high-performance computing and network facilities and testbeds would increase to $201.1 million, up from $193 million in the FY 2007 request.

Lastly, the Department of Defense would see its basic and applied research accounts held essentially flat in FY 2008.

For a more complete look at the FY 2008 budget request (and the final outcome of the FY 2007 appropriations), check the *Computing Research Policy Blog* at http://cra.org/blog.

Notes

1. A copy of the computing community letter, endorsed by the American Association for Artificial Intelligence (AAAI), Association for Computing Machinery (ACM), CRA, Coalition for Academic Scientific Computing (CASC), EDUCAUSE, Institute of Electrical and Electronics Engineers (IEEE-USA), Internet2, Microsoft Corporation, Society for Industrial and Applied Mathematics (SIAM), and TechNet, can be found at http://www.cra.org/govaffairs/itrd.php ■

Collaborative Research Experiences for Undergraduates (CREU)

Application Deadline: May 11, 2007

Sponsored by CRA's Committee on the Status of Women in Computing Research (CRA-W) and the Coalition to Diversify Computing (CDC), the CREU program is geared toward increasing the number of women and minorities who go on to CS&E graduate programs. Students have the opportunity to conduct undergraduate research with a small team (2 to 4 students) at their home institution during the academic year. Each student receives a $3,000 stipend for her work in the year-long project. Each team can also request an extra $500 to be used for supporting materials and activities.

For more information see: http://www.cra.org/craw/creu ■

Awards and Announcements

Congratulations to CRA Board Member, **Andrew Chien**, Vice President, Director of Intel Research, who recently was named an IEEE Fellow for his contributions to high-performance cluster and grid computing software.

James D. Foley, former CRA board member and two-term board chair, has been honored with SIGCHI's prestigious Lifetime Achievement Award for 2006. Foley is Professor in the School of Interactive Computing in the College of Computing and Professor in the School of Electrical and Computer Engineering at the Georgia Institute of Technology. The award will be presented at the CHI 2007 Conference in San Jose, CA. Congratulations Jim!

Among those named 2006 ACM Fellows are CRA Board members **J Strother Moore** (University of Texas at Austin) and **Bryant York** (Portland State University). Former board members **Alfred Spector** (IBM, ret.) and **John Guttag** (MIT) were also recognized.

David Patterson, Department of Computer Science at UC Berkeley, has been awarded the inaugural Katayanagi Senior Prize in Computer Science, recognizing his outstanding contributions to the field of computer science. The prize is named for Mr. Koh Katayanagi, founder of the Tokyo University of Technology, and is administered through an endowment at Carnegie Mellon University. Winners are selected by a joint faculty panel from both universities.

In Memoriam

It is with regret that we report the recent loss of three prominent computer scientists and send condolences to family and friends:

Jim Gray, researcher and manager of Microsoft Research's eScience Group, lost while sailing off the coast of San Francisco on January 28, 2007.

Former CRA board member, **Ken Kennedy**, the John and Ann Doerr University Professor of Computational Engineering in the Computer Science Department at Rice University, on February 7, 2007.

Richard Newton, Professor and Dean of the College of Engineering at UC Berkeley, on January 2, 2007.

CORRECTION: The university affiliation of Professor Ralph Griswold, whose passing was recorded in the January 2007 issue of *CRN*, was incorrect. He was the founder of the CS Department at *the University of Arizona.* ■

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SDSC from Page 1

Fault. In second-by-second detail, scientists were able to visualize the impact of the quake's powerful force against the city of Los Angeles and its 11 million residents. Such findings not only are allowing earthquake scientists to get a more accurate picture of the potential destruction triggered by a quake of this size, they are providing insights whose results will eventually find their way into the design of buildings to mitigate that damage.

- To learn more about the state of the planet's oceans—past and present— SDSC staffers worked with Carl Wunsch, professor of physical oceanography at MIT, and other scientists with the Estimating the Circulation and Climate Ocean (ECCO) Consortium to run their highly scalable parallel simulation code, MITgcm. The results meshed with observations of the Southern Ocean during the year 2000. Findings such as these are offering a more accurate way for scientists to assess how ocean temperature, motion and other physical characteristics affect the planet's climate, fishery dynamics, and shipping.
- David Baker, a Howard Hughes Medical Institute investigator with the University of Washington, worked with SDSC staff to dramatically step up the prediction speed for three-dimensional protein structures, using a code dubbed Rosetta. One result of the Critical Assessment of Structure Prediction 7 (CASP7) competition represented the largest-ever calculation of the code, achieving an accurate prediction of the CASP7 target in less than three hours (using the Monte Carlo minimization scheme) for a protein structure that normally would take weeks to achieve. Such research is expected to play a critical role in the rational design of future drugs for cancer, Alzheimer's disease and HIV, among others.

Big problems require access to big computational resources, sometimes working together across a powerful grid. Toward that end, SDSC was one of the founding sites of the National Science Foundation's (NSF) TeraGrid, a multi-year effort to build and deploy the first national-scale grid infrastructure for open scientific research. Eight other centers participate in the TeraGrid project, including the National Center for Supercomputing Applications at the University of Illinois, Argonne National Laboratory, the Pittsburgh Supercomputing Center and the Texas Advanced Computing Center. Combined, the TeraGrid harnesses more than 150 teraflops of computing power (150 trillion calculations per second or the computing power of about 15,000 average desktop computers) through a cross-country network backbone that operates at 10 gigabits or more per second.

For its part, SDSC's national-scale computational resources, housed in its 13,000 square-foot machine room, include one of the top computers in the world, known as IBM BlueGene Data (known inside SDSC as the "Intimidata"), which packs 17.2 teraflops and more than 6,000 processors into just three racks of space. DataStar, another SDSC supercomputer, is a 15.6 teraflop IBM machine with a total shared memory of seven terabytes, and is designed for large-scale, data-intensive and compute-intensive scientific codes. These machines are available through TeraGrid, along with an IA-64 based cluster with a total peak speed of 3.1 teraflops.

At SDSC, data is a driving force, and managing, analyzing, visualizing, and computing with data are all critical to speed science and engineering discovery. SDSC hosts the Protein Data Bank, a global resource for protein information. The Center also created DataCentral, the first nationally allocated storage infrastructure for community digital collections for all academic disciplines. Data Central currently hosts 93 such collections, including: digital tomographic images of the human brain, astronomical observations from the 2-Micron All Sky Survey, digital visualizations of earthquake simulations, tsunami data, digital videos of bee behavior, Chinese text from the Pacific Rim Library Alliance, digital data collection from the Library of Congress, and even digital images of Japanese art.

Data Central also stores data on the scientific analysis of network function from the Cooperative Association for Internet Data Analysis (CAIDA), based at SDSC, which provides engineering and traffic analysis of Internet traffic and performance. The CAIDA data collection includes the UCSD "Network Telescope" data, which monitors unexpected traffic including network security events, such as infection of hosts by Internet worms.

Last year, the National Archives and Records Administration (NARA), the NSF and SDSC/UCSD signed a landmark Memorandum of Understanding, providing the legal basis for preserving federal electronic records and other informational materials resulting from federally sponsored scientific and engineering research and education at SDSC. Preserving valuable digital assets is critical if the nation is to maintain its competitive edge in science and education. The agreement marked the first time NARA established an affiliated relationship for preserving digital data with an academic institution.

SDSC also signed an agreement with the National Center for Atmospheric Research (NCAR) to exchange the archival storage of 100 terabytes at each institution, a significant step towards the replication and protection of critical research and education data collection for the science and engineering communities.

Managing and using the current explosion of data is often easier said than done. For almost a decade, SDSC's Storage Resource Broker (SRB) has been widely used for managing and integrating distributed shared collections for a variety of academic research projects in this country and around the globe. A new middleware system from this group, iRODS (the Integrated Rule-Oriented Data System), provides next-generation data management that is easily customized for user needs and community policies.

SDSC also is contributing to the development and implementation of efficient schemes to move data over wireless networks in real-time. Center researchers are working on several projects with the NSF-supported High Performance Wireless Research and Education Network (HPWREN)—led by Principal Investigator Hans-Werner Braun at SDSC and Co-principal Investigator Frank Vernon at the Scripps Institution of Oceanography, both at UCSD—in collaboration with scientists at San Diego State University.

Last summer, HPWREN researchers were recruited by the California Department of Forestry and Fire Protection (CDF) to establish a critical communications lifeline for firefighters battling a 7,000-acre wildfire, known as the Horse Fire, in the Cleveland National Forest. The researchers set up hardware at key points to allow firefighters in remote locations to communicate via a wireless link from the Horse Fire incident command post to the Internet. HPWREN plays an important role for large-scale sensor network applications in several NSF initiatives covering earth sciences, oceanography, biology, and earthquake engineering simulation.

The Synthesis Center—operated by SDSC and the California Institute for Telecommunications and Information Technology (CalIT2) at UCSD—was launched in 2005 to help today's scientists and engineers address complex and multidisciplinary problems in a collaborative way. Synthesis Center investigators have made significant advances in visualization techniques and technologies. For example, SDSC's Greg Quinn is developing a program that will allow doctors to view a patient's medical history—including X-rays and diagnostic scans—on mobile devices similar to your cell phone or PDA, a key step in the development of personalized medicine.

Of all the resources at SDSC, perhaps the greatest is SDSC's professional staff, scientists, computer scientists, software developers and support personnel. The staff works to help users to optimize their experience with computational and data resources at the Center, and partner with the community in large-scale collaborations that are the hallmark of today's science. SDSC is an integral partner in key cyberinfrastructure-oriented community projects including GEON (development of cyberinfrastructure for the Geosciences), BIRN (development of a national infrastructure for biomedical informatics), and the cyberinfrastructure center for the George E. Brown Jr. National Earthquake Engineering Simulation (NEES) project.

A vital part of SDSC's guiding philosophy is the empowerment of science and engineering communities, both present and future. SDSC offers full-time support, including 24-hour helpdesk services, code optimization, training, and portal development; and a variety of other services, including workshops, training courses and outreach activities to the community. During the summer, SDSC opens its auditorium doors to hundreds of people interested in getting hands-on training in using cyberinfrastructure and high-performance computing in a variety of disciplines, including the humanities, arts and social sciences.

SDSC also invites students and teachers to experience computing at its highest levels. More than 1,200 teachers from about 140 schools attended TeacherTECH workshops at SDSC in 2006, more than double the participation from the previous year. What's more, six workshops introduced nearly 200 high school students and community college biology and ecology professors to SDSC's Discover Data Portal.

In so doing, the stream of data for tomorrow's discoveries will continue to flow, waiting to be mined by the next generation of scientists and engineers. And SDSC will be there to harness that data for all those seeking solutions to big problems, and answers to intractable mysteries.

(For more information about the San Diego Supercomputer Center, please visit the SDSC website at www.sdsc.edu)

***Warren Froelich** is Director of Communications and Public Relations at the San Diego Supercomputer Center.*

Two Conferences Co-Locate in 2007 in Orlando, Florida

Richard Tapia Diversity in Computing
October 14 through 17, 2007
http://www.ncsa.uiuc.edu/Conferences/Tapia2005/

Grace Hopper Celebration of Women in Computing "I Invent the Future - GHC 2007"
October 17 through 20, 2007
http://www.gracehopper.org/

Professional Opportunities

CRN Advertising Policy

See http://www.cra.org/main/cra.jobshow.html

AT&T – Labs Research

Florham Park, New Jersey, U.S.A.

Research Staff Positions

AT&T – Labs Research is seeking exceptional candidates for Research Staff positions. AT&T is the premiere broadband, IP and wireless communications company in the U.S. and one of the largest in the world. Our researchers are dedicated to solving real problems in networking, information mining, and large-scale systems, as well as speech, language, and video processing, and are involved in creating and deploying innovative services. We also explore fundamental research problems in these areas. Outstanding Ph.D.-level candidates at all levels of experience are encouraged to apply. Candidates must demonstrate excellence in research, a collaborative spirit and strong communication skills.

AT&T Companies are Equal Opportunity Employers. All qualified candidates will receive full and fair consideration for employment.

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http://www.research.att.com.

Click on "Join us".

Clemson University

School of Computing

School Director

Clemson University is firmly committed to expanding the role of computing in both research and educational programs throughout the University. We have established a new School of Computing, and as the first step in a major expansion, we now invite applications for the position of School Director at the Full Professor level. A Ph.D. in Computer Science or a closely related discipline, and evidence of significant research in the form of publications, external funding, patents, or the design of major industrial hardware or software products is required. For this position we seek candidates with the vision, research credentials, and leadership skills necessary to implement a program of exceptional quality.

The initial plan for the school may be found online at http://www.cs.clemson.edu/School/initialplan.pdf. Candidates should send (electronically, in pdf format) a cover letter, curriculum vitae, and names of three references to:

search@cs.clemson.edu.

If unavoidable, hard copies may be mailed to:

Search Committee Chair
School of Computing
Clemson University
Clemson, SC 29634-0974

Nominations for this position are also welcome. All application materials must be received by May 1, 2007 to receive full consideration; however, the search will remain open until the positions are filled.

Clemson University is the Land Grant University of South Carolina. It is located on the edge of Lake Hartwell in the foothills of the Blue Ridge Mountains.

Clemson University is an Affirmative Action/Equal Employment Opportunity Employer and does not discriminate against any individual on the basis of age, color, disability, gender, national origin, religion, sexual orientation or veteran status.

Clemson University

School of Computing

School Division Leader

Clemson University is firmly committed to expanding the role of computing in both research and educational programs throughout the University. We have established a new School of Computing, and as the first step in a major expansion, we now invite applications for 3 positions at the Full Professor level as Division Leaders for the school's divisions of Computer Science, Computational Arts, and Information Technology. A Ph.D. in Computer Science or a closely related discipline, and evidence of significant research in the form of publications, external funding, patents, or the design of major industrial hardware or software products is required. For all positions we seek candidates with the vision, research credentials, and leadership skills necessary to lead and direct research and academic effort in a focused area. The Division Leader will support the School Director in the implementation of a new School of Computing.

The initial plan for the school may be found online at http://www.cs.clemson.edu/School/initialplan.pdf. Candidates should send (electronically, in pdf format) a cover letter, curriculum vitae, and names of three references to:

search@cs.clemson.edu.

If unavoidable, hard copies may be mailed to:

Search Committee Chair
School of Computing
Clemson University
Clemson, SC 29634-0974

Nominations for these positions are also welcome. All application materials must be received by May 1, 2007 to receive full consideration; however, the search will remain open until the positions are filled.

Clemson University is the Land Grant University of South Carolina. It is located on the edge of Lake Hartwell in the foothills of the Blue Ridge Mountains.

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Columbus Children's Research Institute

Center for Quantitative & Computational Biology

Postdoctoral Positions

Multiple postdoctoral positions are available immediately in the newly established Center for Quantitative and Computational Biology at Columbus Children's Research Institute. Applicants with expertise in numerical analysis, data mining, data visualization, bioinformatics or statistics/statistical genetics are particularly encouraged to apply, but applications in any area relevant to CQCB research will be considered. The successful applicant will have the opportunity to participate in team-based basic quantitative and/or computational research as well as ongoing clinical collaborative research.

Established in August, 2006, the mission of the Center for Quantitative & Computational Biology is to assemble in a single, highly collaborative group, a broad range of mathematical, statistical, and computational experts, for the purposes of cutting-edge quantitative research in the service of basic and clinical biomedical research, with the ultimate aim of informing and improving clinical care in pediatrics. Building upon existing expertise in statistical modeling in genetics, parallel computing, computational algorithms, and databases, the CQCB will be undergoing a rapid expansion over the next few years, increasing in both scope and size. The CQCB is scheduled to move into 5,000 sq. ft. of customized space in a new research building early in 2008.

Columbus Children's Research Institute is affiliated with Columbus Children's Hospital, the fifth largest free standing children's hospital in the United States. The Research Institute is housed in a modern 300,000 square foot, dedicated research facility with outstanding shared facilities and core laboratories. Federal grant awards in 2005 exceeded 25 million dollars. The Research Institute is equipped with state-of-the-art transgenic, embryonic stem cell, DNA sequencing, informatics, morphology, microarray, and viral vector core facilities.

Children's is an equal opportunity employer that values diversity. We are committed to fostering an environment of personal growth and development for employees while achieving the mission. In keeping with our commitment to health and safety, Children's is a smoke-free workplace.

Send correspondence, including curriculum vitae and contact information for three references to:

Veronica Vieland, Ph.D.
Director, Center for Quantitative and Computational Biology
Fax: 614-355-2728
Email: vielandv@ccri.net
www.columbuschildrens.com

Drexel University

Department of Computer Science
College of Engineering

Faculty Positions

Drexel University's Department of Computer Science (www.cs.drexel.edu) invites applications for tenure-track faculty positions at all levels. The preferred interest is SOFTWARE ENGINEERING, although exceptional applicants in other areas will be considered. The department has expanding graduate research and education programs in software engineering, graphics and vision, information assurance and security, HCI, AI, and scientific computing. We specialize in interdisciplinary and applied research and are supported by major federal research grants from NSF, DARPA, ONR, DoD, DoE and NIST, as well as by private sources such as Nissan, NTT, and Lockheed Martin.

The department offers BS, BA, MS, and Ph.D. degrees in computer science as well as BS and MS degrees in software engineering. Drexel is a designated National Security Agency (NSA) Center of Academic Excellence in Information Assurance Education. There are also plans to establish a Center of Information Assurance in the near future. Several of the Computer Science faculty are recipients of NSF CAREER or Young Investigator Awards.

Drexel is a private university founded in 1891 and is the third largest university in the Philadelphia area with over 16,000 students (nearly 4,500 graduate and professional students) and over 1,000 faculty and 100,000 alumni. The University consists of 11 colleges and schools offering 175 degree programs. The annual budget of the University exceeds $500 million with an endowment of over $500 million, placing it among the top 100 universities for both endowment and research expenditures.

Drexel is a national pioneer of cooperative education, with formal relationships in place with over 2,700 local, national and multi-national companies. Drexel is located on Philadelphia's "Avenue of Technology" in University City and at the hub of the academic, cultural, and historical resources of one of the nation's largest metropolitan regions. Philadelphia is also the midpoint of the mid-Atlantic technology corridor that stretches from New York City (100 miles north) to Washington, DC (135 miles south).

Review of applications begins immediately. To assure consideration materials from applicants should be received by March 15, 2007. Successful applicants must demonstrate potential for research and teaching excellence in the environment of a major research university. To be considered, please send an email to:

cs-search-07@cs.drexel.edu

with a cover letter, CV, brief statements describing your research program and teaching philosophy, and contact information for at least four references. Electronic submissions in PDF format are strongly preferred.

Drexel University is an Affirmative Action/Equal Opportunity Employer.

Indiana University Purdue University Indianapolis

Department of Computer & Information Science

Professor Positions: Rank and Tenure Status Open

The Department of Computer and Information Science invites applications for tenure-track positions at all levels, beginning in August 2007. Rank and tenure status will be commensurate with the academic credentials and experience. Positions are available pending final approval.

Applicants must hold a Ph.D. in Computer Science or closely related field at time of appointment, and are expected to develop a high-quality funded research program and be committed to excellence in teaching graduate and undergraduate students. Applications in the following areas are especially encouraged: software engineering, databases, security, biocomputing, and wireless networks.

Please submit letter of interest, curriculum vitae, and a statement of research direction and teaching interests. Send all the materials to:

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

Four letters of recommendation should also be mailed directly to the committee.

Review of applications begins March 1, 2007 and continues until the positions are filled.

The department is committed to achieving excellence through cultural diversity. Applications and nominations of women, persons of color, applicants with disabilities,

(continued)

VCU

Virginia Commonwealth University

SCHOOL OF ENGINEERING
Computer Science

Virginia Commonwealth University invites applications for the position of Chair of Computer Science. The Computer Science Program has offered baccalaureate, certificate, and master's degrees for over 20 years. It was the first in the state to become accredited by ABET in 1988. In Fall 2001, the program became part of the School of Engineering. At that time, the School of Engineering initiated a Ph.D. program in Engineering. Computer Science, one of six programs of study offered by the VCU School of Engineering, currently has ten faculty members with research interests in the areas of User Interfaces, Networking, Software Testing, Medical Applications, Database, Neural Networks, Parallel Programming, Bioinformatics, and Programming Languages. The Computer Science Program has strong ties to the Bioinformatics Program in Life Sciences and an excellent working relationship with both Information Systems and Computer Engineering. The Chair manages departmental expenditures, and supervises assessment and improvement of the program to maintain ABET accreditation.

Candidates for this position must be eligible for employment in the Unites States and indicate their citizenship or visa status. A Ph.D. in Computer Science or related field is required. Candidates for this position must display a strong record of research in computer science that can support the teaching and research missions of the Computer Science Program. The faculty are committed to maintaining a standard of excellence in undergraduate teaching while expanding research activities in conjunction with the newly instituted Ph.D. program. Information on the School of Engineering is available at **http://www.egr.vcu.edu**.

Applicants should send a statement of their teaching and research interests, curriculum vitae and contact information for at least four references to: **Dr. Lorraine Parker, Search Committee Chair, Computer Science, School of Engineering, P.O. Box 843072, Richmond, VA 23284-3072. E-mail: lparker@vcu.edu.**

VCU is an equal opportunity/affirmative action employer. Women, minorities and persons with disabilities are encouraged to apply.

Professional Opportunities

and members of other under-represented groups are desired.

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

EEO/AA Employer, M/F/D.

Michigan State University
Computer Science & Engineering
Chairperson

Michigan State University invites nominations and applications for the position of Chair of the Department of Computer Science & Engineering (CSE) in the College of Engineering, with a starting date of July 1, 2007.

Computer Science is revolutionizing research in engineering, the natural sciences, and beyond. The CSE department at MSU is positioning itself to accelerate this process and shape its direction. Our faculty have traditionally built interdisciplinary collaboration on top of core computational research, and we will continue to pursue studies that press the boundaries of knowledge and give birth to new fields. The Chair of the Department of Computer Science & Engineering should promote the development of this shared vision of academic excellence, and represent the department to the academic community, industry and government. The Chair should take an active role in faculty development and work with faculty across the department and university to identify and pursue innovations in teaching, research, and outreach and will lead the department in strategic planning for the future. The Chair is also responsible for promoting cultural diversity throughout the department.

Candidates should be qualified to receive an appointment at the rank of tenured Professor. This is an annual (12 month) appointment. Candidates should have a strong teaching record and have a record of outstanding research with broad-based funding. Candidates should provide evidence of scientific and organizational leadership, educational innovation, and administrative effectiveness. This is an annual appointment. Applications received before *February 28, 2007* will receive maximum consideration.

Please submit a curriculum vitae, email address, and the names and contact information (including address, email, fax and phone numbers) of at least five references to:

chair-search@cse.msu.edu

or:

Chair Search Committee
Department of Computer Science & Engineering
3115 Engineering Building
Michigan State University
East Lansing, Michigan 48824-1226

Department Statistics: The department has 25 faculty with a strong commitment to research, teaching and service. Annual research expenditures are approximately $3 million. The department takes pride in providing a small class atmosphere to its majors and most service course students. The CSE Department conducts leading-edge research in many core areas, with particular strength in software engineering and formal methods; biometrics and pattern recognition; machine intelligence and natural language processing; computer networks and pervasive computing; and digital evolution. In addition, CSE faculty members participate in numerous cross-disciplinary research projects and university initiatives involving cybersecurity, high-assurance systems, nanotechnology, ecosystem monitoring, quantitative biology, and applied evolution. The department attracts excellent Ph.D. students, all of whom are supported as fellows or graduate assistants. The current enrollment is about 120 full-time graduate students (85 Ph.D. / 35 M.S.) and 500 undergraduate students. Faculty members are served by a variety of computing resources within the department, college, and university. The department manages its own computing facilities of about 300 workstations, and much larger college facilities are shared with six other departments. In addition to offering degrees in Computer Science the department jointly administers a B.S. in Computer Engineering Program with the Department of Electrical and Computer Engineering.

Michigan State University enjoys a large, park-like campus with many outlying research facilities and natural areas. The greater Lansing area has approximately 450,000 residents. The local communities have excellent school systems and place a high value on education. The University is proactive in exploring opportunities for the employment of spouses, both inside and outside the University.

Additional information about this position may be obtained by sending email to chair-search@cse.msu.edu or by visiting

http://www.cse.msu.edu/.

Michigan State University is an Equal Opportunity/Affirmative Action Institution and encourages applications from women and members of ethnic minority groups.

Minnesota State University Moorhead
Computer Science and Information Systems; Technology
Assistant Professor (Vacancy # GDEV 0730P)

Assistant Professor, effective August 20, 2007: Game Development in the Graphic Communications and Computer Science and Information Systems programs. Topics to be taught may include, Flash, 2 & 3D Animation, ActionScript, and UI Design. Academic advising in the Graphic Communications and Game Development and Production program at the undergraduate level. Curriculum development and design in all phases of the program.

Qualifications: M.A., M.F.A. or M.S. in multimedia, game development and design or related field by date of employment. Experience in the standard 2 & 3D modeling and multimedia software programs used in the graphic communications and game development industry. Expertise and knowledge in the areas of computer multimedia and digital media design processes.

Full vacancy notice and application can be obtained at:

www.mnstate.edu/vacancy

A member of the Minnesota State Colleges and Universities System.

AA/EOEE

Niagara University
(A four-year private Catholic university in the Vincentian tradition)
Computer & Information Sciences Department
Assistant Professor – Tenure-Track, start Fall 2007

Qualifications: PhD - MIS or related field w/specialization in information systems/ technology (ABD considered). Demonstrate potential for undergraduate teaching excellence. Able to contribute to ongoing development of department in light of changing technology & pedagogy.

Preferred: Quality University-level teaching experience w/ability to teach networking, security & web development courses. Record of published research in information systems/ technology field.

Requirements: Dynamic candidate committed to providing students with an excellent educational experience through variety of learning methods that include experiential, active learning classroom & technology-assisted strategies; Strong interest in the development of multidisciplinary programs & to become involved in innovative multidisciplinary initiatives.

Application letter, cv, evidence of teaching & research potential, 3 recommendation letters:

Dr. Suzanne Wagner
Search Committee Chair
Computer & Information Sciences Department
Niagara University, NY 14109-2018
AA/EOE

Northern Illinois University
Department of Computer Science
Assistant Professor (Bioinformatics)

The Department of Computer Science at Northern Illinois University invites applications for a tenure-track faculty position in bioinformatics at the rank of assistant professor, starting in August 2007, with research and teaching responsibilities. The selected applicant will be expected to develop a vigorous externally-funded research program and collaborate with other bioinformatics

Professional Opportunities

researchers on- and off campus, including at Argonne National Laboratory. The applicant will teach graduate courses in bioinformatics as well as other selected courses. Candidates must have a Ph.D. degree in computer science by August 15, 2007 and a demonstrated research record in bioinformatics. Visit us online at www.cs.niu.edu.

To apply, send a vitae and the names of three to five references to:

Reva Freedman
Chair, Search Committee
Department of Computer Science
Northern Illinois University
DeKalb, IL 60115

Completed applications must be received by March 15, 2007.

Northern Illinois University is an Affirmation Action/Equal Employment Opportunity Institution.

The University of Hong Kong

Department of Computer Science
Faculty Positions

The Department of Computer Science of the University of Hong Kong invites applications for faculty positions at levels of Chair/Professor/Associate Professor/Assistant Professor and Post-doctoral Fellow in Bioinformatics.

Applicants should have a Ph.D. degree in Computer Science, Computer Engineering, or related fields, and a strong interest in research and teaching. For the Chair/Professor post, applicants should have an exceptional record of research that aligns with the University's initiatives in information technology and bioinformatics.

For more information and online application, please visit:

http://www.cs.hku.hk/people/vacancies/centenary.html.

University of Chicago

Department of Computer Science
Faculty Positions

The Department of Computer Science at the University of Chicago is interested in exceptionally qualified candidates in all areas of Computer Science, at the ranks of Instructor, Assistant Professor, Associate Professor, and Professor. The University of Chicago has the highest standards for scholarship and faculty quality, and encourages collaboration across disciplines.

The Chicago metropolitan area provides a diverse and exciting environment. The local economy is vigorous, with international stature in banking, trade, commerce, manufacturing, and transportation, while the cultural scene includes diverse cultures, vibrant theater, world-renowned symphony, opera, jazz, and blues. The University is located in Hyde Park, a pleasant Chicago neighborhood on the Lake Michigan shore.

Please send nominations or applications to:

Professor Stuart A. Kurtz, Chairman
Department of Computer Science
University of Chicago
1100 E. 58th Street
Chicago, IL 60637

or to:

apply-074375@mailman.cs.uchicago.edu

(attachments can be in pdf, postscript, or Word).

Complete applications consist of (a) a curriculum vitae, including a list of publications, (b) forward-looking research and teaching statements. Complete applications for Instructor and Assistant Professor positions also require (c) three letters of recommendation sent to: recommend-074375@mailman.cs.uchicago.edu or to the above postal address, including one that addresses teaching ability.

Applicants must have completed, or will soon complete, a doctorate degree. We will begin screening applications on March 1, 2007. Screening will continue until all available positions are filled.

The University of Chicago is an equal opportunity/affirmative action employer.

University of Missouri-Rolla

Computer Science Department
Chair

The Department of Computer Science at the University of Missouri-Rolla is seeking qualified applicants for the position of Department Chair.

The successful candidate will assume a leadership role in the department to strengthen and expand the department's research and teaching missions. Candidates must have a Ph.D. or equivalent with preference given to those in Computer Science and have the qualifications and standing to be appointed as a tenured full professor.

The candidate should have a strong record of research and teaching at a university, but candidates from industry with a strong research record coupled with academic experience and administrative experience are encouraged to apply. The successful candidate must have strong interpersonal skills and have demonstrated, or have the potential for, strong academic leadership and be committed to promoting the department in its areas of excellence.

The department has three areas of excellence: (1) software engineering with a newly created chaired professorship, (2) all aspects of critical infrastructure protection with emphasis on distributed and embedded systems, networking, and computer security, and (3) bioinformatics. Departmental activities and research are detailed further on our web site, www.cs.umr.edu. The department has 16 full-time faculty and some joint appointments, and grants the BS, MS and Ph. D. degrees. Many of our faculty participate in interdisciplinary research with several campus research centers and departments. The University of Missouri-Rolla is Missouri's premier technological research university and part of the University of Missouri system. It is situated in the beautiful Ozark woodlands with abundant opportunities for outdoor activities. The urban environment of St. Louis is 90 minutes away via interstate highway.

The committee will begin reviewing applications on March 1, 2007. Applications will be accepted until the position is filled. Applicants must send 1) a vitae, 2) statements of leadership philosophy and research and teaching interests, 3) evidence of teaching, research, and communications skills and 4) the names of five references who will be contacted if the candidate is selected for interview to:

Human Resources (hrsinfo@umr.edu)
Reference Number: 00030918
University of Missouri-Rolla
113 University Center
1870 Miner Circle
Rolla, MO 65409-1050

UMR is an AA/EEO employer. Females, minorities, dual career couples, and persons with disabilities are encouraged to apply.

University of New Orleans

Computer Science Department
Computational Biology or Biomedical Informatics
Tenure-Track Position

The Department of Computer Science at the University of New Orleans and the Research Institute for Children invite applications for a tenure-track position. We seek an individual who combines strong computer science background with laboratory expertise, and who is addressing a problem of biomedical importance. The appointment will be at the rank of Assistant Professor of Computer Science, although higher rank may be considered for outstanding senior candidates. A very a competitive salary, excellent benefits, appropriate startup funds, and ongoing seed support are offered.

Qualifications for this position include a Ph.D. or post-doctoral experience in Computer Science or a closely related field, in addition to having strong practical skills in the biological laboratory. Responsibilities include teaching at the B.S., M.S., and Ph.D. levels, supervision of

(continued)

VCU

Virginia Commonwealth University

Computer Science Faculty

School of Engineering

The Virginia Commonwealth University Department of Computer Science invites applications for a faculty position at the Associate or Full Professor level. The computer science program has offered baccalaureate, certificate, and master's degrees for over 20 years. The baccalaureate program was the first in the state to become accredited by ABET in 1988. In fall 2001 the computer science program became part of the School of Engineering. At that time it became possible for computer science students to pursue a Ph.D. in Engineering. Computer science, one of six programs of study offered by the VCU School of Engineering, currently has ten faculty members with research interests in the areas of software engineering, human-computer interfaces, software testing, networking, medical applications, database, neural networks, parallel programming, programming languages, and bioinformatics. The Department of Computer Science has strong ties to the bioinformatics program in VCU Life Sciences and to the computer engineering program. We are currently developing a joint M.S. program in computer and information systems security in collaboration with the Department of Information Systems. The department has a strong history of excellence in teaching and strives for increased research productivity. We are seeking a faculty member who will provide leadership in the effort to expand our research program.

Candidates for this position must be eligible for employment in the United States and indicate their citizenship or visa status. A Ph.D. in computer science or related field is required. Candidates for this position must display a strong record of research in computer science, a demonstrated ability to secure external funding, and an enthusiasm for leading the department in its efforts to expand its research program.

Applicants should submit a statement of their teaching and research interests, curriculum vitae and contact information for at least four references to: **Dr. Lorraine Parker, Chair of the Search Committee, Computer Science, School of Engineering, P.O. Box 843068, Richmond, VA 23284-3068**

For additional information contact: **Dr. Lorraine Parker, lparker@vcu.edu,** Phone: **(804) 440-6718**, Fax: **(804) 828-2771,** Web: **www.egr.vcu.edu**

Virginia Commonwealth University is an equal opportunity/affirmative action employer. Women, minorities and persons with disabilities are encouraged to apply.

Why not change the world?

ASSISTANT PROFESSOR

Department of Computer Science

The Department of Computer Science at Rensselaer Polytechnic Institute (RPI) invites applications for one or more tenure-track positions at the Assistant Professor level; exceptional candidates at all professorial levels will be considered. While all research areas of computer science will be considered, the department has special interest in security, cryptography, scientific computation, data science (mining, handling and visualization) and bioinformatics. Applicants should hold a Ph.D. in Computer Science or in a closely allied field, have substantial research accomplishments for the professorial level sought, and demonstrate a strong commitment to teaching. Applicants should submit a vita with a list of publications, a statement describing current and planned research, and a statement describing teaching philosophy via **http://www.cs.rpi.edu/application/**. Applicants should also arrange to have at least three letters of recommendation submitted through the same web site. The search will continue until the positions are filled, but to ensure full consideration, all application materials including letters should be submitted by February 1, 2007.

Rensselaer's strategic plan, the Rensselaer Plan (see **www.rpi.edu/web/President/Plan/index.html**), calls for significantly expanded research activities in two primary focal areas: biotechnology and information technology (IT). The CS department is anticipated to be a significant beneficiary of Rensselaer's focus in the IT area. The CS department currently has 26 full-time faculty members of international renown (e.g, fellows of professional societies, editors of journals, four active NSF CAREER Awards); it has excellent computing facilities that support a vigorous growing research program; and it has a modern curriculum supporting BS, MS and Ph.D. degree programs. Faculty are strongly encouraged to participate in collaborative research across disciplines, especially those critical to biotechnology and information technology.

Rensselaer

We welcome candidates who will bring diverse intellectual, geographical, gender and ethnic perspectives to Rensselaer's work and campus communities. Rensselaer Polytechnic Institute is an Affirmative Action/Equal Opportunity Employer.

Professional Opportunities

graduate students, securing external funding, and publication of research results.

The University of New Orleans (UNO) is an urban public university, with $40 million/year in sponsored research funding. The Computer Science Department has over 250 undergraduate majors, 60 masters and 16 doctoral students. We have state-of-the-art instructional and research laboratories, including a Beowulf High Performance class system dedicated to research.

The Research Institute for Children, located on the Uptown campus of Children's Hospital, is an independent Institute within the LSU system, housing faculty from both UNO and LSU Health Sciences Center. Areas of active research include host-pathogen interactions, mycology, microbial ecology, and diabetes. First class facilities include mass spectrometry, confocal microscopy, and flow cytometry.

Applicants should respond by e-mail by sending a resume, a statement of research interests, and the names of at least three references to:

search@cs.uno.edu.

Applications will be accepted until the position is filled. Women and minorities are especially encouraged to apply.

The University of New Orleans and Children's Hospital are Equal Opportunity/Affirmative Action Employers.

University of Waterloo

Department of Electrical and Computer Engineering

Faculty positions

The Department of Electrical and Computer Engineering invites applications for faculty positions in most areas of computer engineering, software engineering, and nanotechnology engineering, and in VLSI/circuits, information security, photonics, MEMS, control/mechatronics, signal/image processing, and quantum computing. The University has been named the "Best Overall" university by reputation in Canada. For more information and online application, please visit:

https://eceadmin.uwaterloo.ca/DACA

University of Wisconsin–Milwaukee

Computer Science Program

Faculty Recruitment

We invite applications for a tenure-track faculty position in Software Engineering. Candidates should have a PhD in Software Engineering, Computer Science or in a closely related field and have a demonstrated promise of excellence in research and a strong commitment to teaching. Senior candidates should have an excellent research record that includes strong extramural funding as well as leadership qualities. This recruitment is part of a broader effort by the department and the University to develop enhanced research and curricular programs in Software Engineering in collaboration with industry.

We have established a very good record in recruiting outstanding junior faculty and in providing them with a nurturing and stimulating environment for career development. Several of our faculty, for example, have received the NSF Early CAREER Award. The Computer Science faculty are engaged in research in many areas including Artificial Intelligence, Theory, Cryptography and Data Security, Distributed Systems, Networks, Programming Languages, Software Engineering, and Medical Informatics.

Our university is located in a pleasant residential neighborhood of Milwaukee close to the shores of Lake Michigan. The metropolitan location of our campus affords us easy interactions with the many industries and businesses located in this region.

The University of New Mexico

Great people doing great things

LECTURER II, NON-TENURE TRACK

Department of Computer Science, School of Engineering

We invite applications for a non-tenured position of Lecturer II in the Computer Science Department. The department is committed to excellence in both undergraduate and graduate education, with an ABET-accredited B.S. degree program in computer science, as well as M.S. and Ph.D. programs involving students in leading edge research. This position is available on a yearly contract dependent on funding.

The Department of Computer Science seeks an individual who has an earned Master of Science in Computer Science, Computer Engineering, or closely related field and proven teaching skills in undergraduate education. The successful candidate should have a commitment to undergraduate teaching and ability to teach computer sciences courses in areas of department needs. An earned Ph.D. in Computer Science, Computer Engineering, or closely related field is preferred.

Please submit applications to: **Computer Science Search Committee, University of New Mexico, MSC 01 1130, Albuquerque, NM, 87131.** Applications should be accompanied by a signed letter of interest, detailed resume, teaching statement, transcripts, and teaching evaluations, along with the names and addresses of five individuals who have been asked to provide letters of reference. For best consideration, applications should be received by March 30, 2007, although we will continue to accept applications until the position is filled.

New Mexico has a rich and varied culture, and representatives of all underrepresented groups are encouraged to apply. The University of New Mexico, which is both a Carnegie Doctoral/Research University-Extensive and a Minority Institution, is an equal opportunity/affirmative action employer and educator.

Applicants should send a hard copy of a vitae by post or by Fax, along with a statement of plans for research and teaching in Software Engineering. We also request that at least three references be asked to send letters to:

Faculty Recruitment Coordinator for Software Engineering
Department of Electrical Engineering and Computer Science
University of Wisconsin–Milwaukee
3200 N Cramer Street
Milwaukee, WI 53211-3029
Telephone: 414-229-4677
Fax: 414-229-6958

Evaluation of applicants will begin February 1, 2007 and will continue until the position is filled. Women and minority candidates are strongly encouraged to apply. Additional information about our Computer Science Program can be found at

http://www.cs.uwm.edu.

UWM is an AA/EEO employer.

Call for Proposals

CRA-W/CDC Discipline Specific Workshops

CRA-W and CDC are jointly soliciting proposals for discipline-specific mentoring workshops in the broad field of computing, with a deadline of **September 1** for submission.

The goal of these discipline-specific mentoring workshops is to increase participation of members of underrepresented groups within a specific research area by providing career mentoring advice and discipline specific overviews of past accomplishments and future research directions. Specifically, the workshop should focus on helping young researchers at the graduate or post-graduate level become interested in and knowledgeable about the research and research paradigms of a specific discipline.

Prospective workshop organizers are requested to submit a proposal *at least 9 months prior to the proposed workshop date*. The format for workshop submissions is left unspecified, but we recommend that organizers include at least the following information:

- Full contact information for the organizers—the team of organizers should include members of underrepresented groups.
- Research focus area of the workshop.
- Proposed dates for the workshop.
- Proposed workshop agenda.
- Organizational time table, including arrangements for the venue, hotel, advertising, meals, panelist invitations, selection process, follow-up activities.
- Estimated number of workshop participants.
- Advertising plans, especially plans for reaching out to underrepresented groups.
- Proposed budget and requested support from CRA-W and CDC.
- Fundraising plans

Please submit proposals by **September 1** for consideration. The results of the review process will be made available by mid-September.

For more information go to: http://www.cra.org/Activities/craw/cdc/ ▮

Call for Participation

2007 Richard Tapia Celebration of Diversity in Computing Conference

Dates:	October 14-17, 2007
Location:	Orlando, Florida
Website:	http://www.richardtapia.org
Conference Theme:	"Passion in Computing, Diversity in Innovation"

Organized by the Coalition to Diversify Computing, the 2007 Richard Tapia Celebration of Diversity in Computing Conference is co-sponsored by the Association for Computing Machinery and the IEEE-Computer Society, in cooperation with the Computing Research Association.

The Tapia Conference is a celebration of the diversity of the researchers in the field of computing. This conference will bring together diverse leading researchers from around the world to present state-of-the-art topics in the field of computing.

The Tapia 2007 organizing committee invites researchers to contribute technical papers in the following areas:

- Information Security
- Intelligent Systems
- Human Centered Computing
- Computational Math and Science

Submissions from other areas of computing research will also be considered. In addition to technical papers, the technical program committee welcomes submissions for panels, workshops, and birds-of-feather that reflect the conference's highlighted technical areas, national policy topics such as the American Competitiveness Initiative, or that reflect aspects of the conference theme.

Moreover, undergraduate and graduate students are encouraged to additionally participate it the ACM SRC poster competition, the robotics competition, and in the Doctoral Consortium.

More information can be found at:
http://www.richardtapia.org/Participating.html ▮