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President Honors CRA-W for Mentoring Efforts

By Jan Cuny, Carla Ellis, and Mary Jean Harrold

President George W. Bush, on May 6, 2004, awarded the Computing Research Association's Committee on the Status of Women in Computing Research (CRA-W) a 2004 Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM) for "significant achievements in mentoring women across educational levels." Past CRA-W Co-Chair Dr. Jan Cuny and current Co-Chair Dr. Mary Jean Harrold participated in the awards event, which consisted of the PAESMEM Awards Ceremony and the PAESMEM Symposium.

White House Office of Science and Technology Policy Director John H. Marburger, III presented Drs. Cuny and Harrold with the citation at a ceremony in the Eisenhower Executive Office Building. CRA-W was one of just eight institutional winners of the annual award, given to those organizations identified as "exemplars" and leaders in the national effort to more fully develop the Nation's human resources in science, mathematics, and engineering. The award cites CRA-W's work providing "hands-on research experiences, mentoring, role models and information exchange to women pursuing careers in [the] field." A message from the President, read by Marburger, noted that new technology was redefining the American workplace and that, "in order to stay on the leading edge we must insure the participation of people from diverse backgrounds and experiences." More information about the PAESMEM program is available at *http://www.ehr.nsf.gov/EHR/HRD/paesmem.asp*.

Several "friends of CRA-W" joined Drs. Cuny and Harrold at the Awards ceremony: Dr. Peter Freeman, Assistant Director of the NSF for CISE; Peter Harsha, Director of Government Affairs, CRA; Dr. Maria Klawe, Dean of the College of Engineering and Applied Science, Princeton University and a CRA-W co-founder; Sarah Revi Sterling, University Relations, Microsoft, Inc.; and Dr. Caroline Wardle, Senior Science Advisor, Education and Workforce Cluster, NSF. The Awards Ceremony was followed by a reception in the Indian Treaty Room of the Eisenhower Executive Office Building.

Left to right: Peter Freeman, Jan Cuny, Maria Klawe, Revi Sterling, and Mary Jean Harrold

The PAESMEM Symposium, held on the following day at Decatur House, gave award recipients the opportunity to meet and discuss their programs. Dr. Cuny presented the CRA-W programs, focusing on a range of mentoring activities: the Distributed Mentoring (DMP) and Collaborative Research Experiences for Undergraduates (CREU) programs for undergraduates, the Grad Cohort Program for new graduate

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Old Challenges, New Opportunities

By Jim Foley, CRA Board Chair

We as a computing research community have challenges ahead—and opportunities to meet those challenges. The challenges are to attract the very best undergraduate and graduate students to meet the projected labor-force needs of the next decade, to relate computing to real-world needs, and to appropriately fund computing research to maintain and increase national well-being and economic competitiveness. These challenges have been developing for some years, and were brought into sharp focus at CRA's biennial conference at Snowbird in July, most notably in the opening plenary "Computing Après le Crash."

Because the challenges are critical to the entire field of computing, we convened the organizational leadership of the computing research community—CRA and our six affiliate societies (AAAI, ACM, CACS/AIC, IEEE CS, SIAM, and USENIX), CSTB, NSF, and PITAC—at the conference to: a) coordinate our current approaches to these challenges; b) develop a unified strategy for addressing them even more vigorously; and c) use that strategy to identify and undertake additional initiatives. We will be meeting frequently to continue this process. Our efforts focus on explaining what computing is all about, why it is important and interesting, and making three cases to the appropriate audiences:

1. The Case for Computing as an Undergrad Major/Minor
2. The Case for Graduate School
3. The Case for Computing Research Funding

At this coordinating meeting, each group reported on their own activities relating to these areas. CRA described our many ongoing activities, including CRA-W, CDC, and government relations, as well as three new activities that had been established at our Snowbird board meeting. The activities are:

- CRA-E, the CRA Committee on Graduate Education, which will be making the case for graduate education and assessing the state of graduate degree programs. Jack Stankovic (UVA) is one co-chair; the other co-chair position is being filled.
- The Industry Committee, recognizing that major companies are hiring many Ph.D.s to work in product development in addition to research labs, will be developing the case for industrial opportunities. Marc Snir (UIUC) and Dick Waters (MERL) are co-chairs.
- More and more faculty work in interdisciplinary areas of computing beyond core computer science. This is often essential in doing computing research related to current needs. At the same time, many departments are not well prepared to evaluate such faculty for promotion and tenure. An ad-hoc CRA committee, chaired by

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2005 CRA Outstanding Undergraduate Awards Deadline October 18

The Computing Research Association is pleased to announce the 11th annual CRA Outstanding Undergraduate Awards Program, recognizing undergraduate students who show outstanding research potential in an area of computing research.

To be eligible, nominees must attend a university or college located in the United States or Canada, and must be nominated by the department chair or a faculty member.

A cash prize of $1,000 will be awarded to each of two undergraduate student winners, one female and one male, who are majoring in computer science, computer engineering, or an equivalent program. A number of other outstanding candidates will be recognized with Honorable Mention. The awards will be presented at one of the major computing research conferences sponsored by CRA, ACM, the IEEE Computer Society, SIAM, AAAI, or USENIX. The two first-prize winners will receive financial assistance toward their travel to the conference. CRA encourages home departments to provide similar assistance to other students who are recognized.

CRA gratefully acknowledges the support of Microsoft Research and Mitsubishi Electric Research Labs who sponsor the Outstanding Undergraduate Awards Program in alternate years. Microsoft Research is this year's sponsor.

Additional information about the nomination procedure and criteria for selection are available on the CRA website: http://www.cra.org. All nominations must reach CRA by **October 18, 2004.** ∎

CRA 2004 Outstanding Undergrad Awards Presented

CRA's 2004 Outstanding Undergraduate Awards are being presented in two venues this year. The first presentations were made on July 21 by CRA board member, Professor Tim Finin, at the National Conference on Artificial Intelligence in San Jose. Other students will receive their awards at the Grace Hopper Conference in Chicago in October.

At the AAAI conference, seven students were presented Honorable Mention awards in the 2004 competition (see photo below). The Outstanding Male Undergraduate Award winner, Thuc Vu (Carnegie Mellon University), was unable to attend and received his award by mail.

Other awards, including the Outstanding Female Award, Female Runner-Up, and several Honorable Mentions, will be presented on October 7 at the Grace Hopper Conference banquet.

Left to right: Katherine Hirsch (UMBC), Cheuk Yiu Ip (Drexel), Michael Munie (Illinois at Urbana-Champaign), Matthew Rasmussen (University of Minnesota), Joseph Reisinger (University of Texas at Austin), Grant Schoenebeck (Harvard University), Erika Shehan (Purdue University), and Professor Tim Finin (UMBC).

Lazowska Completes 12-Year Term on CRA Board

Ed Lazowska, who holds the Bill and Melinda Gates Chair of Computer Science and Engineering at the University of Washington, completed his term on the CRA Board of Directors on June 30, 2004, after four terms as a member.

To all who know him, it will come as no surprise that Ed has served CRA and the computing research community well with his characteristic energy and enthusiasm. He has simply made a tremendous difference.

The good news is that CRA will continue to benefit from his experience, as he has agreed to continue to serve as a member of the Government Affairs Committee.

Ed has had an impressive array of public service achievements, including membership on the National Academies' Computer Science and Telecommunications Board and on the NSF CISE Advisory Board. Last year he was appointed a co-chair of the President's Information Technology Advisory Committee (PITAC).

Thanks to Ed from CRA's board, members, and staff for contributing his time and efforts to CRA and to the computing research community. ∎

The UK Grand Challenges Exercise

By Tony Hoare and Robin Milner

A Grand Challenge for scientific research pursues a goal that is announced one or two decades in advance; its achievement is a major milestone in the progress of knowledge or technology, celebrated not only by the researchers themselves but by the wider scientific community and by the general public. An essential part of the Challenge is that it should define its own clear criteria for success or failure. It has no guarantee of success. A Challenge that failed was Hilbert's programme, formulated in 1900, for the foundations of mathematics; nevertheless its failure inspired previously unimagined advances in logic and mathematics by Church, Gödel, and Turing. A Challenge that recently succeeded was the mapping of the human genome; it set directions and provided a completely new methodology for biology in the twenty-first century.

The technology of computing is distinguished both by the breakneck improvement of hardware capacity and performance, and by the world's voracious appetite for new applications. Against this background it is vitally important that the computing research community define the long-term aims and opportunities for their discipline, independently of the push of technology and the short-term pull of market demand. Inspired by a similar initiative of the Computing Research Association in the United States, the UK Computing Research Committee (UKCRC) mounted a Grand Challenges Exercise in 2002. Full details can be found on the website http://www.nesc.ac.uk/esi/events/Grand_Challenges/. The BCS will shortly produce a forty-page pamphlet summarizing the overall outcomes of the Exercise so far.

History of the Exercise

To ensure that the title 'Grand Challenge' is reserved for truly far-sighted and ambitious scientific goals, the UKCRC began the Exercise by defining a list of stringent criteria for judging the maturity of a Grand Challenge proposal. A Programme Committee was then appointed to organize and conduct the Exercise. It issued an open call to the UK academic computing research community to contribute ideas that would meet the criteria. The initial workshop was held in Edinburgh on November 2002, where 109 submissions were discussed. The workshop identified a set of possible topics for Grand Challenges, and these led, via panel discussions, to seven draft proposals. After the workshop these were mounted on the website for public email discussion, moderated by the champions for each proposal. The discussion is still open.

A primary principle of the Exercise is that, in formulating Grand Challenge proposals, no questions are raised about sources of funding. In this way the independence of pure scientific ideals and judgment can be maintained. A second principle is that the Exercise attributes no less importance to basic exploratory research and to research aimed at more immediate goals than to research associated with a Grand Challenge project. Such a project seeks to unite suitable research directions that contribute to the same long-term aspirations.

The next coordinated step in the Exercise was a Conference on *Grand Challenges for Computing Research*, held in Newcastle on 29-31 March 2004. Its stated aims were to:

- encourage UK researchers in computing to articulate their views about long-term prospects and progress in their academic discipline;
- discuss the possibility of speeding progress by broader collaboration, both nationally and with the international community;
- facilitate the pursuit of more ambitious scientific and engineering goals; and
- work towards the definition of a Grand Challenge project, where this is an appropriate means to achieve the goals.

Again an open call was issued for submissions. Some fifty were received (remarkably, almost all linked to an existing Challenge), and these were again the subject of panel discussions. The Conference attracted over 150 attendees. The keynote speaker was Anita Jones, who reported on the progress of the US Grand Challenges Exercise.

The Grand Challenge Proposals

The titles of the seven draft proposals are:

GC1 In Vivo–In Silico: The Virtual Worm, Weed and Bug
GC2 Science for Global Ubiquitous Computing
GC3 Memories for Life: Managing Information over a Human Lifetime
GC4 Scalable Ubiquitous Computing Systems
GC5 The Architecture of Brain and Mind
GC6 Dependable Systems Evolution
GC7 Journeys in Non-Classical Computation

Two of the Challenges, GC1 and GC5, aim at modeling life forms. GC1 seeks a detailed and predictive informatic model of plants and animals; it may lead to an understanding of developmental and regeneration processes in organisms, with potentially dramatic implications for disease and accident victims. GC5 tackles a long-established challenge to unify research on the relationship between the human mind and the brain; its discoveries may lead to radical advances in the benefits obtained from computers in society and in personal life. Both of these Challenges will involve close collaboration with life scientists. A third Challenge, GC3, also life-oriented, aims to equip people with personal digital memories; it includes many scientific issues, for example the retrieval of pictorial and musical information. It will explore means to help people manage and use such electronic memories; for example, it may answer an apparently simple request like 'find a picture of me playing with my nephew Peter when he was a toddler.'

Two Challenges, GC2 and GC4,

Grand Challenges
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Canadian News and Views

By Gord McCalla

It is time for the annual update on issues and activities in the Canadian computer science community. This year I'd like to talk about student enrolment trends, the research climate, and the ongoing software engineering dispute. I would like to close with a personal view about some trends in computer science both north and south of the border.

As in the United States, enrolment in Canadian computer science undergraduate programs continues to tail off. The main reason seems to be the same as in the United States: students don't think there will be a job waiting for them upon graduation. In Canada, this is mostly a result of perceptions in the wake of the dot-com bust. There seems to be much less concern about loss of jobs due to offshore outsourcing, in part because Canada has (so far) actually gained more than it has lost due to such outsourcing. A unique Canadian twist on the enrolment drop is the possibility that there may be a differentially severe drop in the number of undergraduates going into programs where French is the language of instruction and interaction. CACS/AIC is investigating whether this is actually true and, if so, what the reasons might be.

The situation at the graduate level is entirely different. The recent large growth in computer science faculty numbers across Canada has meant that there is a vastly increased capacity for graduate student supervision, thus enhancing the intake of graduate students each year. The length of time students spend in graduate degrees is also growing, due to increased expectations on the part of both faculty and students and the perceived lack of a job at the other end of the degree. The net result of these trends is that the number of students in Canadian computer science graduate programs continues to grow and is now at record levels. This is true in both the M.Sc. and Ph.D. programs.

The decline in enrolments at the undergraduate level suggests that the pressure for more faculty hiring will correspondingly decline. In fact, this was confirmed at a recent meeting of Canadian computer science Chairs, where the anticipated number of faculty to be hired in the near- and mid-term almost everywhere in the country is drastically down from the halcyon days of the late 1990s and early 2000s. With the record number of students in graduate programs, this sets up a potentially nasty situation where there will be few academic positions for an entire generation of young researchers graduating from Canadian computer science Ph.D. programs. In the short term this will likely lead to an increase in the demand for postdoctoral positions, resulting in consequent stress on research funding. In the longer term, the growth of interdisciplinary programs involving computer science may help to create some positions for faculty who have appropriately broad expertise. In any event, this issue is now being raised with the Natural Sciences and Engineering Research Council (NSERC), Canada's science research funding agency, which, when faced with a similar situation for other sciences in the 1970s and 1980s, was able to respond with special programs to encourage universities to hire professors in these areas.

In the area of research funding, the trends reported in last year's article continue. Canada's government remains seriously committed to science and engineering, and has once again increased NSERC's budget to reflect this commitment. The influx of new faculty into computer science over the past five years has created stress on the NSERC grant allocation system. Even this year, more than one-third of the applicants to the computer science funding committees were new faculty. However, this is likely the last year there will be such a huge number of new faculty, and the problem is now rapidly transforming from funding new faculty into how to fund

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CISE—Perspectives for the Coming Year

By Peter A. Freeman

My column in May 2004 provided a "looking back/looking forward" report. This column provides some perspectives that may be useful to you as we move forward in the directions outlined in May.

The objectives for CISE that I discussed in this column in May are still completely operative. Indeed, events and observations in the intervening four months only strengthen my belief that we are on the right course for the broad benefit of the country and of the field—you.

Nonetheless, as academe and the Federal Government start their respective 'new years,' it may be useful to you to consider some overarching factors that will impact what NSF—and others—does in the coming year. These, too, are based on events and observations of the past few months.

The most dramatic event has been the rapid change in the financial outlook for the U.S. Government and, thus, for NSF. As I wrote my column for the May issue, we still expected at least a modest increase in our budget for 2005. Although the process is not completed, the most recent actions of Congress now make that appear improbable, and the outlook for the next several years is sobering. At the same time, the demands on mission agencies continue to intensify, making their support for research ever more difficult.

This double bind—flat budgets coupled with greatly increased demand for research support—will directly affect every program in CISE. Indeed, it already has, with 'success rates' in FY04 probably being lower than ever before. This has obvious implications for all of us.

In the context of CISE's objectives, however, it makes it even more important that we be focused, strategic, and efficient in our operations. More than ever we need to strengthen core CS research because of its pervasive impact on all of IT, and to broaden participation in the field to ensure that the country has the workforce it needs.

One positive note on the resource input side is that CISE has been given several new staff positions. While the rapid growth of the CISE budget over the past five years means that we are still behind other areas of NSF in staff size, this increment will be a great help and will allow us to serve you better in the coming months and years. Some of these positions have been posted already and others will be in the coming months.

I have asserted that there is growing understanding of the importance of IT broadly and that at the core of all IT technically is computer science. As an example, the testimony I gave before a subcommittee of the House Government Reform Committee in July[1] could just as well have been given by Chairman Adam Putnam, whose introduction was a glowing endorsement of the value of IT. The presentations at Snowbird on the interactions between CS and other scientific disciplines illustrated well how essential IT has become to the conduct of all science and engineering research. A recent survey in *The Economist* on the state of health care pointedly observed that the health care industry was lagging in reaping the benefits of IT. Bureau of Labor Statistics estimates of job growth are largely based on growth in IT-related job categories. Many of the measures being employed for homeland security and national defense are heavily dependent on IT.

Essentially any example of the importance of IT (and thus of CS) that you want to pick is based on the *value* of IT to some **other** activity—health care, government operations, research in other disciplines. On the one hand, that is a very useful attribute in a time of restricted budgets because it helps support the case for additional funding for research. Obviously, that means that we must become more expert in connecting what we do to results that are of interest to society broadly.

I am *not* implying that all research needs to be motivated in that way; far from it. The possibility of future benefits may not be apparent when doing basic research; we must continue to do foundational work that provides a better understanding of all areas of computing. I *am* implying that we need to learn how to make a better case for the fundamental, investigator-driven research that has produced most of the IT advances to date, and to show how that research can eventually result in great benefits.

Conversely, the fact that the results of our research are usually viewed as enabling some other activity instead of being interesting in their own right (as is the case with mathematics or cosmology, for example) suggests to me that we still have a long way to go in becoming a 'real' science. Ultimately I believe we will be successful, but in spite of the rapid development of our field, achievement of that intellectual goal will take many years. In the shorter term, however, we can and must be more rigorous in providing evaluations of our work, in building a rigorous and referred-to body of knowledge, and in developing theoretical underpinnings for our work.

One thing I noted at the biennial Snowbird Conference this July was a feeling of increased maturity and confidence in the field. I heard many fewer plaints that we weren't taken seriously and many more comments about how you were adding substantively to important research projects in collaboration with other scientists and engineers. This attitude of equality and worth is important.

In the area of broadening participation, we have made some good strides just in the past few months in terms of supporting significant efforts in the community and in building up our staff in this area here at NSF. This will be a prime focus of my attention and I will provide updates from time to time.

So, overall, I am still optimistic about the future and the outlook for our field and for what it can contribute to society. There is no question that these are difficult times, but we are fortunate as researchers and educators in computing-related disciplines to be at the heart of many of the most important issues and to be able to contribute to them in such positive ways.

Unfortunately, CISE and the computer science community have suffered tragedy and great loss in the past few months. As many of you know, Dr. Frank Anger, Deputy Division Director of CCF, was killed in July on his way to Snowbird. His wife, Dr. Rita Rodriguez, a valued CISE program director, was gravely injured, but is recovering. Dr. Carl Smith, a long-time program director (most recently, part-time) died after an extended illness. Details on these tragedies can be found at www.cise.nsf.gov . We are looking forward to having Rita back at NSF when she recovers. The substantial contributions of Frank and Carl to their research fields and to NSF will be long remembered.

Peter A. Freeman is NSF Assistant Director for Computer and Information Science and Engineering. ∎

[1]<http://reform.house.gov/UploadedFiles/Freeman%20Testimony1.pdf>

House Panel Votes to Cut NSF, NASA Budgets for FY 05

By Peter Harsha

A House Appropriations subcommittee approved significant cuts in funding for the National Science Foundation (NSF) and the National Aeronautics and Space Administration (NASA) in July, making good on a warning issued earlier this year that science funding was going to be "challenging" given the budget constraints placed on the committee by the Administration and Congressional leadership.

The cuts were included in the VA-HUD-Independent Agencies appropriations bill—one of thirteen appropriations bills Congress must pass each year to fund the operations of government.

The bill calls for a $74 million cut to NSF's research account in FY 2005, a decrease of 1.7 percent from the FY 2004 appropriations and $194 million less than the President requested for the agency in February. NASA would see a $229 million decrease for FY 2005 compared with FY 2004, $1.1 billion below the President's request.

The panel achieves the bulk of the $74 million reduction to NSF's Research and Related Activities (R&RA) account by halting three programs the agency planned to start in FY 2005: the Workforce for the 21st Century program ($20 million in requested funding), a proposed new class of Science and Technology Centers ($30 million), and a newly proposed "Innovation Fund" ($5 million). The remaining $18.7 million would have to come from existing programs in R&RA.

Under the legislation, overall funding for NSF would decline 2 percent—$110 million—to $5.47 billion in FY 2005. R&RA would fall to $4.15 billion for FY 2005 from $4.89 billion in FY 2004.

The committee also included language in the legislative report accompanying the bill, urging continued research to "further the productivity growth in the information economy." The committee noted concerns that "researchers are reaching the physical limits of current complementary metal oxide semiconductor process technology," and that this will have significant implications for continued productivity growth.

But the committee also declined to specify appropriations amounts for each of the agency's research directorates as it has done in the past, instead taking NSF to task for failing to provide the committee with a budget justification with sufficient detail to make those decisions. The appropriations require NSF to submit

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CRA Policy Blog Available as an RSS Channel

By Tim Finin

The CRA Policy Blog [1] is now available as an RSS channel. CRA hopes to make more of its Web content available via RSS soon. If you use an RSS reader, you can just subscribe to the Policy Blog [2] and skip the rest of this article. If you are not sure how to spell RSS, keep reading to learn what it is and what it can do for you.

RSS (*Rich Site Summary*[1]) is a way to disseminate information on the Web that is somewhere between the push of email and the pull of browsing web portals. In that sense, it is like the venerable Unix newsgroups, but differs in that anyone can start an RSS channel by putting it on the Web and the content is under your complete control. RSS is viewed as a lightweight tool for the *syndication* of web site content to be incorporated into web pages, portals, and personalized information sources. As more and more information becomes available via RSS feeds, it is becoming a valuable tool to deal with the overwhelming amount of information available today.

How It Works

RSS is a XML standard for publishing 'summaries' of articles or news items—for example, a headline, date, short description, and a link to the full item. The full specifications define about 20 metadata fields and the XML encoding supports additional extensibility. Information providers, like the CRA, Slashdot, *The New York Times*, and bloggers publish RSS 'feeds' or 'channels' as XML files at an advertised URL. As the original content changes, for example, new stories are posted to Slashdot, the corresponding RSS channel is updated, typically including only the 10 or 15 most recent items. Most blogging systems can automatically update an RSS feed containing the summaries of recent items at the same time as it publishes the regular blog pages. RSS files are also easy to maintain with simple programs or to generate from other sources such as databases.

Information consumers use an RSS reader or *aggregator* program or web service to view items from the RSS channels to which they have subscribed, and subsequently read the full articles they find of interest. These client programs also help users discover new RSS channels, manage subscriptions, and organize them into categories. In a sense, RSS provides a way for you to construct a personalized news page that draws its content from just the RSS sources you want.

It is also possible to incorporate RSS headlines and links into HTML web pages. For example, your lab might publish an RSS feed of the 10 most recent publications which your lab's home pages include in an inset box. Most popular web portal systems, like PHP-Nuke and IBM's WebSphere, have facilities to include content from RSS feeds and there are simple Javascript programs to insert RSS content in an HTML page.

Getting Started

The best way to explore what is available and how you might use it is to get an RSS reader. Basic reader functions include finding channels based on key words, subscribing and unsubscribing, organizing your channels into hierarchies and, of course, browsing through the new items in your subscribed channels and reading some of them. More sophisticated readers have advanced functions, such as selecting or aggregating items and re-publishing them in your own channel. Some readers, like Bloglines [3], operate as web services and can be used from any browser, while others are programs you install and run on your local computer. NetNewsWire [4] is a simple yet powerful reader for MAC OS X, SharpReader [5] is a good choice for Windows, and Straw [6] works well on Linux under Gnome.

Once you see the volume and range of information that is readily available via RSS and find out how easy it is to access, you may want to publish your own RSS channel. You might, for example, have a channel of your lab's most recent publications or the upcoming seminars and talks you are hosting. The quickest way to experiment is to use a web-based system like RSS-xpress [7] to create and edit an RSS channel manually. Using a web-logging system like MovableType [8] is probably the easiest way to maintain a channel, but it is also relatively simple to generate RSS files from content in a database or even flat files using systems like PHP or JSP.

What Comes Next

RSS was first defined by David Winer in 1997 as an XML format for his UserLand software, and was quickly adopted by Netscape as the format for syndicating content in the Netcenter portal. It has evolved since then and currently exists in several versions (0.91, 1.0 and 2.0). RSS v1.0 is a W3C recommended standard [9], is based on the semantic web [10] language RDF [11], and opens up exiting opportunities that make RSS much more useful. Most clients can handle the basic operations on all three RSS formats, but intelligent clients can do much more with the RDF version.

RDF is an XML-based language to define computer-understandable vocabulary that people and programs can use to describe things of interest, such as web sites, newspaper articles, email messages, people, book, events, web services, and so on. RDF mimics human languages in that it allows one to introduce new terms (individuals, classes, and properties) that are defined (partially, at least) in terms of existing terms. The RDF-based Web Ontology Language OWL [12] supports advanced capabilities, such as logical inference and translating descriptions using different ontologies (e.g., mapping a location specified as a Zip code to one using latitude and longitude.) When used with RSS, RDF allows a channel publisher to include additional information about the items.

For example, suppose the *Baltimore Sun* publishes an RSS feed of events going on in Maryland. In addition to the basic RSS fields, the *Sun* could also include RDF descriptors for the type of event (e.g., concert, sports, or seminar), location (e.g., by zip code), or cost (e.g., minimum cost in US$.) While basic RSS clients might not understand these additional annotations and would thus choose to ignore them, a more sophisticated client could do interesting things if it understood the tags. You might configure such a client to display free or inexpensive concerts on a map and to insert them on your calendar.

For More Information

There is a lot of information on RSS available on the web, as well as several books. [13]

[1] http://www.cra.org/govaffairs/blog/
[2] http://www.cra.org/govaffairs/blog/index.rdf
[3] http://www.bloglines.com/
[4] http://ranchero.com/netnewswire/
[5] http://www.sharpreader.net/
[6] http://www.nongnu.org/straw/
[7] http://rssxpress.ukoln.ac.uk/
[8] http://www.movabletype.org/
[9] http://web.resource.org/rss/1.0/
[10] http://www.sciam.com/article.cfm?articleID=00048144-10D2-1C70-84A9809EC588EF21
[11] http://www.w3.org/RDF/
[12] http://www.w3.org/2001/sw/WebOnt/
[13] Ben Hammersley, *Content Syndication with RSS*, O'Reilly & Associates, 2003.

Tim Finin (finin@umbc.edu) is a Professor of Computer Science and Electrical Engineering at the University of Maryland, Baltimore County (UMBC). Professor Finin is the AAAI representative on CRA's Board of Directors. ∎

[1]Like many acronyms, the story has changed over the years. More recent explanations are Really Simple Syndication and RDF Site Summary. Using the wrong long form with the wrong person can lead to trouble, for reasons we won't go into here, so it is best just to stick with the acronym.

Klawe and Leveson Receive Habermann Award

Above (l-r) CRA Board Chair, Jim Foley; Nancy Leveson (MIT); Maria Klawe (Princeton); Board Vice Chair, Jan Cuny (University of Oregon); and CRA's Executive Director, Andy Bernat. Jan Cuny presented the CRA Habermann Award to the winners for co-founding CRA-W.

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students, the Career Mentoring Workshops for women making the transition to faculty positions, and the Cohort for Associate Professors Project (CAPP) for more senior women moving into leadership positions.

The DMP has provided undergraduate research experiences since 1994. It aims to increase the number of women entering Computer Science and Engineering (CS&E) graduate programs, building a cadre of women who will become visible leaders in their professional and academic careers and who will provide role models for future generations. The DMP matches outstanding female undergraduates with female faculty mentors for a summer of research at the mentor's institution. Students "try on" research and graduate life, and they benefit from a close mentoring relationship.

An independent, longitudinal evaluation in 1999 found that more than 50 percent of the DMP students who had graduated had already advanced to graduate school, and an even higher percentage of those who had not yet graduated were planning to advance. (In comparison, a 1994 Baccalaureate and Beyond study found that only 3 percent of females in CS with similar GPAs were in graduate school within a year after graduation.) The DMP draws from a large pool of students, many of whom have no other access to undergraduate research opportunities and only limited access to female role models. The program is so successful that it has been extended to an Affiliate DMP that provides some of the same benefits to students already paired with researchers at their home institution. The DMP is a popular program, with increasing numbers of applications from both students and mentors. Additional information is available at http://www.cra.org/craw/dmp/.

CRA-W, together with the Coalition to Diversify Computing, now runs a second undergraduate mentoring program, CREU, aimed at increasing graduate school participation by both women and minorities. Many students are put off by the stereotype of the computer scientist as a lone programmer, toiling away in a cubicle with little human contact. In reality, though, most computer science research is done by groups of people working together to solve a problem. To expose students to the energizing interactions of group projects, CREU supports teams of undergraduates pursuing joint research during the academic year at their home institution.

CREU teams provide participants with peer communities, close mentoring relationships, and hands-on research experience. According to an independent evaluation, students gain a broader understanding of computing, a stronger confidence in their own abilities, a decreased sense of isolation within their field, and an increased interest in pursuing similar work in graduate school. We hope to support 100 research teams (250 students) each year. More information on CREU is available at http://www.cra.org/craw/creu/.

This year CRA-W extended its mentoring activities to incoming graduate students with the Grad Cohort Program that aims to build and mentor a nationwide community of women through their graduate studies. The program begins with a two-day mentoring workshop for entering students. At the workshop, a number of prominent senior women act as role models, give practical advice and information, and provide personal insights on the challenges and rewards of their careers. Students make contacts and form peer networks that provide ongoing support for them over the course of the year. We hope to support their efforts with e-mail discussion lists, virtual online workshops, regional mini-conferences, and regular face-to-face meetings. Each fall, established cohorts will return to the mentoring workshop to get advice on the later stages of graduate school and to provide peer mentoring to the newest cohort. This year's Cohort program had more than twice as many applicants as could be accepted! See http://www.cra.org/craw/gradcohort for more information.

To assist students making the transition to academic careers, CRA-W has sponsored a very successful series of Career Mentoring Workshops since 1993. Women often find themselves a minority in their own departments, and the workshops bring them together with women already established in their fields who provide practical information, advice, and support. Typical sessions focus on getting a job, building a research career, networking, getting tenure, and managing career/family life. The workshops are associated with major professional meetings, providing attendees with the opportunity to hear technical talks and make contacts in their research areas. The workshops have been widely emulated. CRA-W now regularly runs a second version for faculty at the smaller schools, and a number of conferences have sponsored their own, shorter versions. Most importantly, in years that CRA-W is not running its workshop, the Computing Research Association now runs the workshop for both men and women. Many CSE departments routinely send all new faculty members to one of these workshops. Thus, CRA-W has changed the way departments support and mentor new faculty. More on the workshops, including a booklet with advice compiled from many of the speakers, is available at http://www.cra.org/Activities/craw/projects/mentoring/mentorWrkshp.

CRA-W's newest mentoring program, CAPP, targets the senior end of the academic pipeline, aiming to build a cohort of associate professors ready to move into leadership positions in the professional community. The program provides mentoring by a group of twelve very Distinguished CRA-W Professors, in addition to leadership training, encouragement, and ongoing peer-support activities. Key components of the program include a Professional Development Seminar, a series of smaller meetings in conjunction with technical conferences/seminars, and ongoing electronically based support activities.

Even though CRA-W programs have a proven track record of success in helping individual women advance through the stages of the research pipeline, there remains much to be done. We need to significantly scale up our efforts in order to achieve the goal of increasing the representation of women who can contribute to the CS&E research community. The problem is serious: unlike other sciences such as biology or chemistry, CS&E has failed to significantly increase the proportion of women among its Ph.D. graduates. Although female students are now the majority in high school advanced math classes, this source of talent is being lost at the undergraduate and graduate level to other sciences. This failure to exploit the experiences and perspectives of these talented women represents an opportunity cost for innovation in CS&E.

YOU CAN HELP! Any institution whose future depends on technical innovation in CS&E should become our partner in achieving CRA-W's goal. We are asking all CRA members to help. What can you do? To effect true change in the diversity of the research community, CRA-W needs sustained funding for our ongoing, long-term programs that have been proven to work. We are grateful for the support of past contributors, including NSF, Microsoft Research, Lucent Technologies, USENIX, ACM SIGs, AAAI, and the Luce Foundation. Please, help us find additional financial resources to sustain and scale up our programs! Beyond direct funding, CRA members can contribute by encouraging their women students, faculty (both male and female), and researchers to participate in CRA-W programs, and supporting and rewarding them when they do. You can share in CRA-W's future accomplishments.

Jan Cuny, University of Oregon, is CRA's Vice Chair and former Co-Chair of CRA-W. Carla Ellis (Duke University) and Mary Jean Harrold (Georgia Institute of Technology) are the Co-Chairs of CRA-W and CRA board members. ■

CRA Welcomes New Staff Member

We are extremely pleased to welcome Dr. Betsy Bizot to the CRA staff as our person handling surveys and evaluation.

Betsy even has a B.S. in Computer Science (Virginia Tech 1978); plus an MBA (Tulane 1984) and a Ph.D. in Industrial/Organizational Psychology (Tulsa 1988). She joined the staff a week before the Snowbird Conference, so was really thrown right into things.

Betsy's hiring represents a significant upgrade of this position, and we anticipate that she will be heavily involved in making sure that CRA's wide range of programs are having the desired impact in the most effective manner possible. ■

MAKING HISTORY

Grace Hopper Celebration of Women in Computing
2004 Conference
October 6-9, 2004—Chicago, Illinois
Details: http://www.gracehopper.org/cfp.html

2003-04 Computing Research Association Members

Arizona State University - CSE
Auburn University - CSSE
Ball State University - CS
Boston University - CS
Bowdoin College - CS
Bradley University - CS
Brandeis University - CS
Brigham Young University - CS
Brown University - CS
Bryn Mawr College - MCS
Bucknell University - CS
California Institute of Technology - CS
California Polytechnic State University - CS
California State University, Chico - CS
California State University, Hayward - MCS
Carnegie Mellon University - CS
Carnegie Mellon University - ECE
Case Western Reserve University - EECS
City University of New York, Grad. Center - CS*
Clemson University - CS
Colgate University - CS
College of Charleston - CS
College of William & Mary - CS
Colorado School of Mines - MCS
Colorado State University - CS
Columbia University - CS
Cornell University - CS
Cornell University - ECE
Dalhousie University - CS
Dartmouth College - CS
DePaul University - CS
Drexel University - CS
Duke University - CS
Emory University - MCS
Florida Atlantic University - CSE
Florida Institute of Technology - CS
Florida International University - CS
Florida State University - CS
Florida State University - IS
George Washington University - CS
Georgia Institute of Technology - CS
Georgia Institute of Technology - ECE
Georgia Southern University - IT
Georgia State University - CIS
Georgia State University - CS
Grinnell College - MCS
Harvard University - CS
Harvey Mudd College - CS
Illinois Institute of Technology - CS
Illinois State University - ACS
Indiana University - CS
Indiana University - I
Iowa State University - CS
Johns Hopkins University - CS
Johns Hopkins University - SI
Juniata College - IT
Kalamazoo College - MCS*
Kansas State University - CIS
Kent State University - CS
Lehigh University - CSE
Long Island University - ICS
Louisiana State University - CS
Loyola University, Chicago - CS*
Massachusetts Institute of Technology - EECS
Miami University - CS
Michigan State University - CS
Michigan Technological University - CS
Mississippi State University - CS
Montana State University - CS
National University of Singapore - CS/IS*
Naval Postgraduate School - MOVES/CS
New Jersey Institute of Technology - CCS
New Mexico State University - CS
New York University - CS
North Carolina State University - CS
Northeastern University - CIS
Northwestern University - ECE
Oakland University - CSE
Ohio State University - CIS
Ohio University - EECS
Oklahoma State University - CS
Old Dominion University - CS
Oregon Health & Science University - CSE
Oregon State University - CS
Pace University - CSIS
Pennsylvania State University - CSE
Pennsylvania State University - IST
Polytechnic University - CIS
Portland State University - CS
Princeton University - CS
Purdue University - CS
Purdue University - ECE
Rensselaer Polytechnic Institute - CS
Rice University - CS
Rochester Institute of Technology - CS
Roosevelt University - CS&T
Rutgers University, Busch Campus - CS
Santa Clara University - CE
Simon Fraser University - CS
Singapore Management University - IS
Southern Illinois University, Carbondale - CS
Southern Methodist University - CSE
Southern Polytechnic State University - CSE
Stanford University - CS
State University of New York, Albany - CS
State University of New York, Binghamton - CS
State University of New York, Stony Brook - CS
Stevens Institute of Technology - CS
Swarthmore College - CS
Syracuse University - IS
Temple University - CIS
Texas A&M University - CS
Tufts University - CS
Tulane - EECS*
University at Buffalo - CSE
University at Buffalo - IS
University of Alabama, Birmingham - CIS
University of Alabama, Tuscaloosa - CS
University of Alberta - CS*
University of Arizona - CS
University of Arkansas at Little Rock - I
University of Calgary - CS*
University of California, Berkeley - EECS
University of California, Berkeley - IMS
University of California, Davis - CS
University of California, Irvine - ICS
University of California, Los Angeles - CS
University of California, Riverside - CSE*
University of California, San Diego - CSE
University of California, Santa Barbara - CS
University of California, Santa Cruz - CE
University of California, Santa Cruz - CS
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University of Illinois, Urbana Champaign - CS
University of Iowa - CS
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University of Louisiana at Lafayette - CACS
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University of Maine - CS
University of Manitoba - CS
University of Maryland - CLIS*
University of Maryland - CS
University of Maryland, Baltimore Co - CSEE
University of Massachusetts, Amherst - CS
University of Michigan - EECS
University of Michigan - I
University of Michigan, Dearborn - CIS*
University of Minnesota - CSE
University of Mississippi - CIS
University of Missouri, Rolla - CS
University of Montana - CS*
University of Nebraska, Omaha - CS/IST*
University of Nebraska, Lincoln - CSE
University of Nevada, Las Vegas - CS
University of Nevada, Reno - CS
University of New Brunswick - CS
University of New Hampshire - CS
University of New Mexico - ECE*
University of North Carolina at Chapel Hill - CS
University of North Carolina, Charlotte - IT
University of North Dakota - CS
University of North Texas - CS
University of Notre Dame - CSE
University of Oklahoma - CS
University of Oregon - CIS
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University of Pittsburgh - CS
University of Pittsburgh - IS*
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University of South Alabama - CIS
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University of Texas, Arlington - CSE
University of Texas, Austin - CS
University of Texas, Dallas - CS
University of Texas, El Paso - CS
University of Toledo - EECS
University of Toronto - CS
University of Tulsa - MCS
University of Utah - CS
University of Virginia - CS
University of Washington - CSE
University of Washington - I
University of Washington, Bothell - CS
University of Washington, Tacoma - CSS
University of Waterloo - CS
University of Wisconsin, Madison - CS
University of Wisconsin, Milwaukee - EECS
University of Wyoming - CS
Utah State University - CS
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Virginia Tech - CS
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American Association for Artificial Intelligence

Association for Computing Machinery

Canadian Association of Computer Science (CACS/AIC)

IEEE Computer Society

Society for Industrial and Applied Mathematics

USENIX Association

*Indicates new members in 2003-04

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National Institutes of Health

Center for Bioinformatics & Computational Biology
http://www.nigms.nih.gov/biocomputing/fundig.html

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News and Views from Page 3

these new faculty as they progress through their careers and seek increasingly substantial grants. With relatively few retirements among computer science faculty projected over the next ten years in Canada, the usual way of funding grant increases through redistribution of the grants of faculty who have left the system would seem to be inadequate, especially with the likely increase in demand for funding to support postdoctoral students. Once again, the Canadian computer science community is working with NSERC to find ways of dealing with this situation, which is unique to computer science (and possibly computer engineering). Throughout its history, computer science always seems to be out of step with the other sciences!

A substantial portion of my report last year dealt with the ongoing dispute in Canada between the engineering profession and the computer science community over software engineering, which the engineering profession claims to be an exclusive area of engineering practice. There have been a few developments in this dispute. The Alberta professional engineering association, APEGGA, sued a person advertising MCSE credentials for violating APEGGA's 'right to title' in the use of the word 'engineering'; APEGGA lost the case in both the lower court and on appeal. On the other hand, in a similar lawsuit in Québec, the courts decided in favor of the profession, and an appeal has been launched but not yet decided.

In academe, engineering schools across Canada continue to create their own software engineering programs and to get them accredited by the Canadian Engineering Accreditation Board (CEAB). Currently there are eight such CEAB-accredited programs and an equal number of other programs awaiting accreditation. The computer science community has its own accreditation processes, managed by the Computer Science Accreditation Council (CSAC). To date, seven computer-science-based software engineering programs have been accredited by CSAC. The difference between the CEAB and CSAC programs is substantial. The CEAB programs are offered as part of a standard engineering degree, with students highly constrained in their options and with the focus heavily on specific software engineering topics. The CSAC programs are offered as variations of standard computer science programs, with more flexibility for student choice and with the focus on a wider range of applied computer science topics than just software engineering. Interestingly, in many (perhaps most) universities the actual software courses in both the CEAB and CSAC programs tend to be given by computer science faculty.

It is likely that over the next year more CEAB and CSAC programs will be accredited in the run-up to the end (in July 2005) of a five-year moratorium, imposed on legal action in the wake of the settlement of the lawsuit launched in the late 1990s by the engineering profession against Memorial University of Newfoundland for creating a software engineering program outside of the engineering school.

I would like to conclude this article with a personal view on the state of computer science. In both Canada and the United States, it would seem that computer science is entering a new, more parsimonious era after an unprecedented boom over the past five years or so. Enrolments are declining, academic positions are drying up, the job market for our graduates seems to be weak, and many other disciplines are starting to "invade" our territory. However, I don't believe we need to be pessimistic. Although enrolments are declining, computer science still remains one of the most popular choices of students in science and engineering. The job market is actually likely to be much better (as discussion in *CRN* over the past months indicates) than the negative perspectives promulgated in the media, with many projections suggesting that there will actually be more jobs in information and communications technology than in any other area of science and engineering.

In any event, an era of more stable enrolments and reduced faculty hiring can allow us to spend time on more creative activities than just keeping up with demand. With the new faculty hired during the boom gaining in confidence and experience, we can watch exciting new research programs mature, we can encourage productive research interactions among new and existing faculty, and we can devise new and innovative curricula. Moreover, as others become interested in our discipline, we can find the time to work with them to forge new interdisciplinary programs. In fact, such programs represent a huge and growing trend both north and south of the border. It may well lead to another boom before too long, as new perspectives lead to new ideas, new research, new programs, more faculty, and the increasing influence of computational ideas across most academic disciplines. The future could actually be even brighter than the past!

Gord McCalla is a Professor in the Department of Computer Science at the University of Saskatchewan in Saskatoon, Canada, and President of the Canadian Association of Computer Science/Association informatique canadienne (CACS/AIC). He can be reached at mccalla@cs.usask.ca. ∎

Distinguished Service Award Presented to Barbara Simons

CRA Board Chair, Jim Foley, presented a CRA Distinguished Service Award to Barbara Simons (Co-Chair, USACM) at the CRA Conference at Snowbird. She is pictured above with Jim Foley (l) and Andy Bernat (r).

Vint Cerf Guest Speaker at Snowbird

Internet pioneer Vint Cerf (MCI) is pictured giving the keynote address at CRA's Conference at Snowbird 2004.

The computing research community thanks the following non-board members who served on CRA committees from July 2003 to June 2004.

Al Aho (Columbia University)
Richard Alo (University of Houston, Downtown)
Nancy Amato (Texas A&M University)
James Aylor (UVA)
Sandra Johnson Baylor (IBM)
Eric Brittain (MIT)
Carla Brodley (Purdue University)
Sheila Castaneda (Clarke College)
Theresa Chatman (Rice University)
Allison Clark (NCSA)
Anne Condon (University of British Columbia)
Steve Crocker (Shinkuro, Inc.)
Rich DeMillo (Georgia Institute of Technology)
Scot Drysdale (Dartmouth College)
Gerald Engel (University of Connecticut)
David Farber (Carnegie Mellon University)
Faith Fich (University of Toronto)
Joan Francioni (Winona State University)
Virgil Gligor (University of Maryland)
Sy Goodman (Georgia Institute of Technology)
Barbara Gutek (University of Arizona)
Mary Jean Harrold (Georgia Institute of Technology)
Raquell Holmes (Boston University)
Andrew Hume (AT&T Labs - Research)
John Hurley (Boeing)
Mary Jane Irwin (Pennsylvania State University)
Charles Isbell (Georgia Institute of Technology)
Jolene Jesse (AAAS)
Anita Jones (University of Virginia)
Sid Karin (University of California, San Diego)
Charlotte Kuh (National Research Council)
Susan Landau (Sun Laboratories)
Cynthia Lanius (Rice University)
Andrea Lawrence (Spelman College)
Phoebe Lenear (NCSA)
Nancy Leveson (Massachusetts Institute of Technology)
Forbes Lewis (University of Kentucky)
Ran Libeskind-Hadas (Harvey Mudd College)
Monica Martinez-Canales (Sandia National Laboratory)
Juan Meza (Sandia National Laboratory)
J Moore (UT Austin)
James Morris (Carnegie Mellon University)
Radha Nandkumar (NCSA)
Peter Neumann (SRI)
David Novick (University of Texas at El Paso)
David Patterson (University of California, Berkeley)
Lori Pollock (University of Delaware)
Ann Redelfs (NPACI/SDSC)
Fred Schneider (Cornell University)
Gabby Silberman (IBM)
Barbara Simons (ACM)
Robert Sproull (Sun)
Valerie Taylor (Texas A&M)
Patricia Teller (University of Texas, El Paso)
Douglas Tygar (University of California, Berkeley)
Pamela Williams (Sandia National Laboratory)
William Wulf (National Academy of Engineering and University of Virginia)
Ellen Yoffa (IBM TJ Watson Research Center)
Bryant York (Portland State University)

UBC Professor Wins CRA-W Award

The Committee on the Status of Women in Computing Research (CRA-W) is pleased to announce the recipient of the 2004 Anita Borg Early Career Award that will be presented at the Grace Hopper Conference in Chicago, Illinois in October. This year's recipient is **Joanna McGrenere**, Assistant Professor at the University of British Columbia.

The award honors the late Anita Borg, who was an early member of CRA-W and an inspiration for her commitment in increasing the participation of women in computing research. Dr. McGrenere is the first recipient of this award to be given annually by CRA-W to a woman in computer science and/or engineering who has made significant research contributions and who has contributed to her profession, especially in the outreach to women. This award recognizes work in areas of academia and industrial research labs that has had a positive and significant impact on advancing women in the computing research community and is targeted at women who are relatively early in their careers (no more than 10 years past the Ph.D.).

Dr. McGrenere has made outstanding contributions to the field of Human Computer Interaction (HCI). Particularly relevant to this award is her leadership on the Aphasia Project—a large, multi-disciplinary effort spanning several academic fields, institutions, and organizations in participatory technology research and design. Anita Borg, who suffered from aphasia as a result of brain injury from her cancer, was the first participant of McGrenere's Aphasia project. The technology aided Anita (and now others suffering from aphasia) to continue with daily activities. Two of the ideas that Dr. McGrenere's group is developing are an icon-based recipe book and a digital planner.

In addition to Dr. McGrenere's research, she has also excelled at supporting women in computer science. As a master's student at UBC she worked with elementary teachers and young girls to learn how to make computing activities more attractive to young girls. As a Ph.D. student at Toronto she served as a speaker to promote computing careers to women and girls, organized a group to attend Grace Hopper, and set up a "buddy program" for entering women graduate students. As a junior faculty member at UBC, she continues to mentor and support women in computer science at the undergraduate and graduate levels, and chairs the department's Focus on Women in Computer Science committee. She is the only junior faculty member at UBC to chair a substantial departmental committee.

Transitions/Awards/News

The community mourns the death of NSF/CISE Deputy Division Director of CCF **Frank Anger** in an automobile accident in Wyoming on July 7. Our condolences go out to his wife, **Rita Rodriguez**, and to his family. Our best wishes to Rita, also an NSF/CISE Program Director, for a speedy recovery from serious injuries sustained in the accident.

Carl Smith, a Professor of Computer Science at the University of Maryland, College Park and a long-time Program Director at NSF/CISE, died on July 21 after a long illness.

The **Indiana School of Informatics** welcomes a number of new faculty. Among them are **Jean Camp**, Associate Professor; **Markus Jakobsson**, Associate Professor; **Luis Mateus Rocha**, Associate Professor; **Peter Todd**, Professor; **Alessandro Vesppignani**, Professor; and **Larry Yaeger**, Professor.

Mary Lou Soffa will become the Department Chair and Owen R. Cheatham Professor in the Department of Computer Science at the University of Virginia starting in September. She was previously Professor of Computer Science at the University of Pittsburgh.

Elaine Weyuker, AT&T Research, received the Harlan D Mills award from the IEEE Computer Society (at ICSE 2004). Dr. Weyuker and her mentee, **Yan Gu**, were the runners-up the the MentorNet Story Contest, which described why they were a successful e-mentoring pair. ▮

CRA Welcomes New Members

Academic Departments

Bowling Green State University (CS)
Pomona College (MCS)

Labs/Centers

Pacific Northwest National Laboratory

CRA Conference at Snowbird 2004

Program Slides Now Available at:

http://www.cra.org/Activities/snowbird/2004/index.html

Snowbird 2004

Pictured above with guest speaker Vint Cerf are (l to r): Alfred Spector (IBM), who introduced the speaker; Dick Waters (MERL), Snowbird Committee Co-Chair; Dr. Cerf; Moshe Vardi (Rice University), Snowbird Committee Co-Chair; Andy Bernat (CRA Executive Director); and Jim Foley (CRA Board Chair).

Old Challenges from Page 1

Dan Reed (UNC-Chapel Hill) is developing best-practices guidelines for evaluating such faculty.

The problems underlying these challenges have been brewing, in some cases for years, and are often interrelated. Some of the problems include:

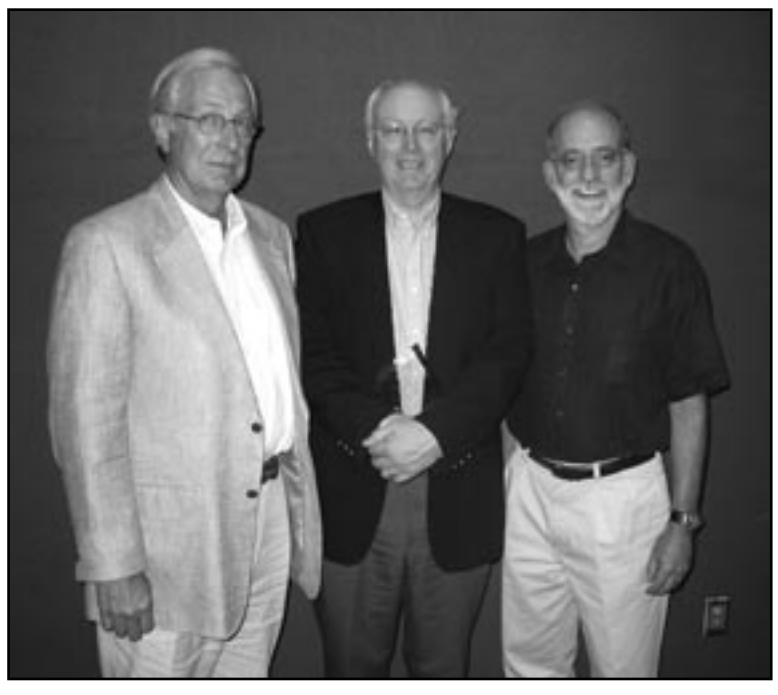
- The dot-com crash caused short-term job losses in computing, leading incoming undergraduates to turn away from computing as a major.
- Decreasing undergraduate enrollments have in some cases led to budget cuts, or threaten to do so.
- Offshoring has (incorrectly) enhanced the perception of computing as a dead-end career.
- The aftermath of 9/11 has made it difficult for some international students to study in the United States; at the same time, educational opportunities in other countries are becoming increasingly competitive with those in the United States.
- Pressures on the federal budget have prevented Congress and the Administration from following through on their authorizing a doubling of the NSF budget from 2003 to 2008. In fact, the NSF budget will likely decrease between 1 percent and 2 percent this coming year.
- Lack of understanding that the massive investments being made in life sciences research cannot be fully effective without further investment in computing research.
- Proposal success rates within NSF/CISE are often in the 5 percent range, compared with about 25 percent in other NSF directorates.
- Increasingly attractive employment opportunities for international students in their home countries are likely to deprive the United States of this important source of human resources. (Data do not yet support this widely expressed concern; many feel that it is just a matter of time.)
- The popular misperception that computing is just programming, and that programming is a solitary activity practiced solely by so-called "geeks." This is exacerbated by the emphasis on programming in the computer science AP exam.
- The small numbers of women and minorities who choose computing as a profession.

On the other hand, there is much to say about computing that is good. Part of the problem is that we as a community have not been saying it sufficiently strongly and effectively. Some of the good things include:

- Two-thirds of the US productivity gains since 1995 are due to IT—"Information Technology has been the distinguishing feature of this pivotal period in American economic history" (Alan Greenspan).
- The computing industry is a significant portion of the US economy; exports help moderate the deficit in balance of payments.
- The computing industry is a direct result of federally funded research.
- The Bureau of Labor Statistics projects a 10-year demand for IT jobs of 1.6 million (including replacement due to retirements, etc.)—far greater than the demand for engineers, life scientists, and physical scientists. (This is much higher than our current graduation rates.)
- Computing directly affects our national priorities of health care, defense, homeland security, and economic competitiveness.
- Computing has greatly enhanced the conduct of most scientific research.
- Computing is improving our lives.

The bottom line—we do have some problems, some of our own making, some imposed by external forces. CRA and the entire computing research establishment are already taking up the challenges presented by the problems, and will be working together even more than in the past. If you want to help, let me know (jim.foley@cc.gatech.edu). ▮

David Clark Receives Distinguished Service Award



Pictured above at CRA's Conference at Snowbird are: (l-r) CRA Board Chair, Jim Foley, who presented the award; award winner David Clark (MIT Computer Science and Artificial Intelligence Laboratory); and Andy Bernat, CRA Executive Director.

Grand Challenges from Page 3

are concerned with the science and engineering of 'the Global Ubiquitous Computer', a useful term to describe the worldwide interlinked informatic machine that we must expect in the next two decades. There will be computers everywhere, embedded even in our bodies; they will number in the billions, and their structure will evolve even after they are deployed in service. GC2 asks what scientific concepts will enable us to understand this entity well enough to control it; for example, how do we assemble models of trust, self-awareness, privacy, and knowledge into an understandable and controllable intellectual framework? GC4 approaches the same topic from a more empirical standpoint. It will formulate general design principles pertaining to all aspects of ubiquitous systems, and justify these principles by instantiation in successful real systems. These two projects will collaborate not only with each other and with GC6, but also with designers of new technologies—for example, wireless communication and sensors.

GC6 is a Challenge that links the theory of programming with its experimental validation and its practical application in software engineering. It aims to answer questions about the safety, soundness, and security of computer programs in general. It hopes to deliver its understanding in the form of software tools, such as a 'verifying compiler,' that enable the computer itself to guarantee correctness of its own programs; it aims not only to advance the logical foundations of computing, but also to apply this increased understanding to the problem of inadequate program testing, estimated in 2002 to cost the US economy tens of billions of dollars per year. Lastly, GC7 is a Challenge to explore and to integrate models of computing that depart from the classical von Neumann model; it will consider massive parallelism and nondeterminacy, information flow in biological organisms, and quantum computing. The aim is for a broad science of all these forms of computation.

Each of these Challenges is the subject of a proposal which can be found on the website. The goals of each Challenge are stated with precision and are distinct; yet many research topics will be shared among them. Each Challenge is a mountain peak; many routes to the peaks are in common. The Challenges will also provide stimulus for exploratory research, pursued for its own sake and not necessarily under the banner of long-term aspiration that characterizes a Grand Challenge.

Next Steps

The Grand Challenges Exercise has now reached a stage at which responsibility for further progress is distributed to individual steering committees for each Challenge theme. These seven committees will operate independently, with a small overarching committee to look after general issues. Exploration of each theme is likely to be pursued by a series of workshops, attended by the many specialists whose skills will need to be recruited to the project. The UKCRC will provide overall coordination where appropriate; for example, it may convene a conference every few years on the Newcastle model. This will keep the Grand Challenges Exercise as a whole in the sight of the whole community.

At the end of the next stage in the project, we hope that the proponents of each theme will produce a 'roadmap' of opportunities for future progress. Typically a roadmap will define initial projects in detail and later projects more conjecturally, depending on the outcome of earlier ones. For some of the themes a roadmap is already in sight; in other cases it is quite clear that exploratory projects are needed before even the definition of a roadmap is attempted.

No Grand Challenge proposal is guaranteed to mature into a Grand Challenge project. Even if it fails to define a roadmap, or succeeds in this but fails to achieve its ultimate goals, the Grand Challenges Exercise is providing a valuable opportunity for discussion of long-term aspirations for computing research, and for identifying its most promising directions and methods. Scientists who have devoted their effort to this Exercise have welcomed the opportunity to think deeply about such questions, and to take responsibility for the good health of future computing research.

Professor Tony Hoare (thoare@microsoft.com) is a Senior Researcher at Microsoft Research Ltd. in Cambridge, UK. Robin Milner is a Professor in the Cambridge University Computing Laboratory, Cambridge, UK. For additional information, see: http://www.nesc.ac.uk/esi/events/Grand_Challenges/ ■

House Panel Votes from Page 4

a detailed plan addressing the agency's "highest priority research requirements," the report noted. "In developing this plan, the Foundation is urged to be sensitive to maintaining the proper balance between the goal of stimulating interdisciplinary research and the need to maintain robust single-issue research in the core disciplines."

The NASA reductions are also gained at the expense of several new program starts for FY 2005, including $230 million from "Project Prometheus"—a part of the Jupiter Icy Moon Orbital mission—and $438 million in delaying the Crew Exploration Vehicle. The bill would fully fund the President's requests for Space Shuttle operations ($4.3 billion) and the President's mission to Mars program ($691 million) in FY 2005.

Though the House Appropriations subcommittee has approved the bill, it is uncertain when the bill will eventually receive the consideration of the full House. Because Congress failed to pass a joint Congressional Budget Resolution this year, the spending caps imposed on the appropriations committee by the Congressional leadership do not have the force of law. Without the budget resolution as a cap, each appropriations bill that comes to the floor is open to amendments that could potentially add new spending, forcing Members of Congress to vote up or down on each proposed increase—a situation the leadership hopes to avoid during this election year. As a result, it is likely that the VA-HUD bill will not receive consideration until a "lame duck" session of Congress after the November election, when it will be bundled with any other outstanding appropriations bills into one "omnibus" bill.

It is also not clear how the Senate will handle its version of the VA-HUD appropriations bill. One scenario floated by appropriations staffers would have the Senate Appropriations Committee declare Veterans Affairs funding in the VA-HUD bill "emergency funding," given the current operations in Afghanistan and Iraq. Such a move would remove the VA funding from the budget cap calculation, but would face resistance from deficit-minded members from both parties. It is also not clear that the Senate would use any of the freed-up funds to support increases at the science agencies, perhaps preferring to increase housing benefits through the Housing and Urban Development section of the bill.

Finally, to complicate the prognosis further, in an unusual step for the current Administration, the President has notified the House leadership that he is unhappy with the funding levels in the bill, specifically the insufficient amounts appropriated to NASA, and will veto it if passed in its current form. Congressman Tom Delay (R-TX)—an influential member of the House majority leadership who, as a result of redistricting, now represents NASA's Houston Space Center—is also opposed to the bill in its current form.

The concerns over NASA funding expressed by the President and Delay should also concern computing researchers, though for a different reason. If a compromise is reached to find additional funding for NASA in the bill, for jurisdictional reasons it will likely come from funding for other agencies within the bill. Rather than reduce funding for Veterans Affairs or low-income housing—both politically sensitive programs—it is quite possible that appropriators could look to the other science agencies in the bill to make up NASA's shortfall. NSF could see its budget decline even further in order to bump up funding for NASA.

CRA continues to monitor the appropriations process. For all the latest details, check the CRA Government Affairs web page at http://www.cra.org/govaffairs. For commentary on the latest developments, be sure to check CRA's Computing Research Policy Blog at http://www.cra.org/govaffairs/blog/. ■

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Columbia University
Center for Computational Learning Systems
Researcher Positions

The Center for Computational Learning Systems is seeking highly qualified researchers in machine learning with both strength in learning theory and algorithms, and experience in applying learning to one of our applications areas: biology and bioinformatics; natural language, speech, and text; systems security; and machine vision. An ideal candidate will have both theoretical strength and experience with applications to one or more of these specific areas, an entrepreneurial spirit, and the proven ability to develop and lead a successful research program. Candidates should have a Ph.D. in Computer Science or engineering discipline related to their research area. Candidates at all levels should have a strong record of publication in Center areas.

If currently at a university, candidates for Senior Research Scientist positions are expected to have a strong record of attracting research grant support and supervising graduate research. If at an industrial lab, SRS candidates should have management experience, patents and previous success at technology transfer. SRS candidates would typically have received prizes and been elected as a fellow or officer of a professional society.

Research Scientist candidates are expected to have the promise of growing to meet the requirements of a Senior Research Scientist. If from academia candidates are expected to have a strong record of attracting grant support and supervising graduate research. If from industry candidates should have a strong record of successful research and technology transfer along with management experience.

For Associate Researcher positions, candidates are expected to have demonstrated innovation and excellence in research, at least some publications in top journals and conferences, and the promise of growing to meet the requirements of a Senior Research Scientist.

Center members will be expected to seek support for their research, and will have considerable autonomy in creating their own research programs. The Center aims to provide support services that will allow researchers to do their best work. Members will supervise Columbia grad students in their projects. Members have the opportunity to teach but teaching is not required. Joint projects with CS as well as interdisciplinary activities with other Columbia University departments are strongly encouraged. Appointments to the Center will be for fixed renewable terms. Hiring is not necessarily synchronized with the academic year.

Qualified applicants should submit a CV and statement of research experience and goals to:

Center for Computational Learning Systems
Columbia University
500 W 120th St.
MC 4750
New York, NY 10027

Electronic applications can be sent to: center-jobs@cs.columbia.edu.

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

Cornell University
School of Operations Research & Industrial Engineering
Director

The School of Operations Research and Industrial Engineering at Cornell University is initiating an external search for a senior faculty member to serve as its next Director. This individual should be of stature commensurate with the School's reputation, with the requisite skills to lead the School over the next several years, starting by the summer of 2005.

Interested parties should contact current faculty of the School, the search committee's co-chairs, Professors Robin Roundy and David Shmoys, or send email to:

director-search@orie.cornell.edu.

More information about the School can be found at:

http://www.orie.cornell.edu.

Women and minority candidates are especially encouraged to apply.

Cornell University is an AA/EOE.

Jackson Foundation
Bioinformatics Cell, Frederick, Maryland
Computer Science Positions (Software Developer & Data Analysis)

We are looking for candidates (B.S., postdocs, senior researchers) to fill the following two research positions in support of the U.S. Army biomedical & bioinformatics program:

Software Developer:

To transition proof of concept software prototypes to production quality systems for research applications. The individual should have substantial experience developing Web enabled client/server systems with a database backend. A strong knowledge of servelets, CGI, HTML, JavaScript, SQL, XML, Java applets, and GNU tools is desirable. Must know C and possess good knowledge of OO, MySQL/Oracle, and Python/Ruby/LISP. Operating system knowledge should include Unix variants (BSD's, GNU/Linux) and Windows OS. Matlab and time-series data mining experience is a plus.

Data Analysis and Mining:

The candidate must have a Ph.D. in statistics, computer science, engineering, or related discipline and expertise in developing tools for data analysis and mining. In particular, the candidate should have experience in developing statistical and/or mathematics-based algorithms, machine-learning algorithms (e.g., artificial neural networks, support vector machines), and statistical pattern recognition algorithms, to help provide insight and analysis of physiologic, genomics, and proteomics data. Experience in the analysis of physiologic, time-series data is highly desirable, but not required. Experience with Matlab as well as the ability to clearly report research results is necessary.

To apply send resume to:
Jaques Reifman, Ph.D.
reifman@tatrc.org
301-619-7915

NEC Laboratories America
Broadband and Mobile Networking
Research Staff Member

NEC Laboratories America, a premier research facility of NEC, located in Princeton, NJ, is encouraging researchers to apply for positions in its Broadband and Mobile Networking department. We are looking for exceptional and highly motivated individuals with PhD/MS in Computer Science and Electrical Engineering having excellent academic credentials.

Candidates must have advanced experience, skills and knowledge in the areas of large distributed system architecture, design and implementation and application-level networking. Candidates must be pro-active and assume technical leadership in developing novel technologies including advanced prototyping leading to demonstration in an industry environment. The following broad research challenges are being addressed at NEC Laboratories America within the scope of the projects:

- Distributed P2P data management and processing
- Over the network large distributed system architecture
- Application-level overlay network protocol design and optimization
- Event-driven communication (publish and subscribe) system design
- Large content distribution and media delivery

Please direct applications to:
NEC Laboratories America, Inc.
Human Resources, Attn. Debora Mansour
4 Independence Way
Princeton, NJ 08540
Email: recruit@nec-labs.com
Reference BMN-DNT in the subject line.

Prairie View A&M University
Department of Computer Science
Head

The College of Engineering at Prairie View A&M University invites applications for the position of Head, Department of Computer Science.

Prairie View A&M University, a part of the Texas A&M University System, is located 45 miles northwest of downtown Houston. It is a comprehensive university with over 7,800 students. The department of Computer Science offers an ABET, Inc. accredited B.S. degree in Computer Science. Additionally, the Department offers masters degrees in computer science and computer information systems.

The candidates are expected to have a doctorate degree in computer science or closely related area and qualify for tenure position at the associate or full professor rank. Demonstrated experience in obtaining funding support from industry and government agencies is highly desirable. The appointee will be a dynamic and innovative leader with strong management skills and a commitment to the faculty as well as College and University strategic objectives. The successful applicant will be expected to provide leadership in teaching programs and research activities.

Salary is highly competitive and commensurate with teaching, research experience, and other scholarly activity. For full consideration, candidates should submit their application by August 1, 2004. Review of applications will begin immediately and continue until the position is filled. The position is currently available.

Applicants should submit a letter of application, curriculum vitae, and representative publications, a statement of research interests and plans, description of teaching philosophy, three letters of professional reference, and a copy of all official transcripts to:

Chair, Computer Science Department
Head Search Committee
Prairie View A&M University
P.O. Box 5
Prairie View, TX 77446

Prairie View A&M University is an affirmative action/equal opportunity employer.

Rensselaer Polytechnic Institute
Department of Computer Science
Tenure-Track position

The Department of Computer Science at Rensselaer Polytechnic Institute (RPI) invites applications for a tenure-track position at the Assistant Professor level; exceptional candidates at all professorial levels will be considered.

The department has special interest in the following research areas: security, data mining, bioinformatics, human-computer interaction, databases, and computer architecture. Applicants should hold a PhD 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 vitae 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 should be submitted by October 15, 2004.

RPI'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 RPI's focus in the IT area. The CS department currently has 25 full-time faculty members of international renown (e.g, fellows of professional societies, editors of journals, six 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 PhD degree programs.

Faculty are strongly encouraged to participate in collaborative research across disciplines, especially those critical to biotechnology and information technology.

Rensselaer Polytechnic Institute is an Affirmative Action/Equal Opportunity Employer.

Rutgers University
Psycholinguist or Computational Linguist

The Rutgers Center for Cognitive Science together with the Computer Science, Linguistics and Psychology Departments at Rutgers, New Brunswick, seeks a psycholinguist and/or a computational linguist, whose research spans at least two of the three disciplines, for a tenure-track appointment at either the advanced Assistant or beginning Associate Professor level.

A successful applicant should have an outstanding research program, a serious commitment to teaching, grant procurement potential, and a strong commitment to interdisciplinary research and scholarship in a rich and supportive cognitive science environment. Please send a vita and a personal statement outlining your research agenda and teaching philosophy, and three letters of recommendation to:

Chair of the Language Search Committee
Rutgers Center for Cognitive Science
152 Frelinghuysen Road
Piscataway, New Jersey, 088540
or langsearch@ruccs.rutgers.edu.

Invitations to interview will begin to be issued in late October.

Rutgers is an equal opportunity employer. It strongly encourages applications from women and members of underrepresented groups.

Singapore Management University
The School of Information Systems
Advertised position: Open

The School of Information Systems (SIS) at the Singapore Management University invites applications from candidates with teaching and research interests in the following areas of specialty: e-Business Technology and Management, Information Security Technology and Management, Architecture and Software, and Information Systems Management (with emphasis on Cost, Value and Risk Analysis).

Tenure-track applicants must have a PhD from an internationally recognized university in the areas of Information Systems, Information Technology, Computer Science or related disciplines and an outstanding record of academic research and journal publishing that is commensurate with their desired rank. Tenure-track faculty must also demonstrate a strong interest in research oriented business applications in the targeted industry sectors.

Practice-track faculty applicants must also have a PhD in the related IT disciplines from an internationally recognized university, an outstanding record of participating in leading-edge applications that impact business practice, and a record of professionally relevant publications in applied magazines or conferences.

Qualified candidates should submit a cover letter, curriculum vitae, and three letters of recommendation and samples of published work. All candidates please submit electronically or hardcopy to:

Dr. Steven Miller, Dean, SIS
c/o Office of Faculty Administration
Singapore Management University
469 Bukit Timah Road
Singapore 259756
Email: siscv@smu.edu.sg

Selected candidates will be asked to interview at Carnegie Mellon University. Our recruitment announcement can be viewed at: http://www.sis.smu.edu.sg/Faculty_Recruitment/SMU-SIS-Faculty-Recruiting-Annoucement-2004-Jan.pdf.

Our faculty recruiting brochure: http://www.sis.smu.edu.sg/Faculty_Recruitment/sis%20brochure.pdf.

Singapore Management University
School of Information Systems
Associate Dean

The School of Information Systems at Singapore Management University invites nominations and applications for the position of Associate Dean.

Incorporated in January 2000, Singapore Management University holds the position of being the first private university to be funded by the government. The mission of Singapore Management University is to generate leading edge research with global impact as well as to produce broad-based, creative and entrepreneurial leaders for the knowledge-based economy.

Today, Singapore Management University is home to 2,200 students and comprises four schools: the School of Business; the School of Accountancy; the School of Economics and Social Sciences; and the School of Information Systems, which has a partnership with Carnegie Mellon University. The size of the undergraduate population is anticipated to reach 3,000 for the 2004 academic year and 6,200 by 2012. To deliver the world-class curriculum, an outstanding faculty has been handpicked to advance knowledge in teaching and research.

The University's new campus, located in the heart of Singapore and due for completion in 2005, is designed to inject vibrancy and life into the civic district and its vicinity. In an era of exacting global competition for skills and innovations, Singapore Management University is primed to deliver the nurturing of diverse and relevant talents in a borderless world.

Recently launched by SMU in 2003, the School of Information Systems was created to establish strong research and education capabilities for the University in the area of business-focused information technology, systems and applications. With respect to its research and education strategy, SIS concentrates on four main areas: e-business technology and applications, information security and trust, architecture and software engineering, and information systems management. SIS is combining strength in technology and design with a focus on innovative applications in various business sectors of the economy, especially financial services, supply chain and logistical services, manufacturing business processes, health and medical services, and public sector e-government services. Therefore, a successful candidate should have a history of research accomplishments that demonstrate strong interest in working at the intersection of technology design and applications across industry level business processes.

The Associate Dean of SIS will have responsibility for developing faculty research and educational capabilities within the School. Leading candidates must possess an earned doctorate and an internationally recognized record of research and teaching that merits appointment as a full professor with

Professional Opportunities

tenure in SIS. The ability to develop faculty research and teaching is essential.

Singapore Management University is being assisted in its search by Heidrick & Struggles, Inc. For more information about Singapore Management University and the School of Information Systems, please visit Singapore Management University's homepage at www.smu.edu.sg. Inquiries, nominations and applications should be directed to:

SMU School of Information Systems
Associate Dean Search
Heidrick & Struggles, Inc.
Attn: Ellen E. Brown
303 Peachtree Street, Suite 4300
Atlanta, GA 30308
Phone: 404-577-2410; Fax: 404-577-4048
Email: smu@heidrick.com

University of California at Santa Barbara

Linguistics Department

The Linguistics Department of the University of California, Santa Barbara seeks to hire a specialist in computational and/or corpus linguistic approaches to language. The appointment will be tenure-track at the Assistant Professor level, effective July 1, 2005.

We are especially interested in candidates whose research shows theoretical implications bridging computational and/or corpus linguistics and general linguistics, and who can interact with colleagues and students across disciplinary boundaries at UCSB. Candidates will be preferred whose research engages with the departmental focus on functional and usage-based approaches to explaining language.

Research experience with corpora of naturally occurring language use is required. Candidates must have demonstrated excellence in teaching, and will be expected to teach a range of graduate and undergraduate courses in both computational/corpus linguistics and general linguistics. Ph.D. in linguistics or a related field such as cognitive science or computer science is required. Ph.D. normally required by the time of appointment. Applicants should submit hard copy of curriculum vitae, statement of research interests, 1-2 writing samples, and full contact information for three academic references to the:

Search Committee
Linguistics Department
UCSB
Santa Barbara, CA 93106-3100

Fax and email applications not accepted.

Inquiries may be addressed to the above address or via email to:

lingsearch@linguistics.ucsb.edu.

Tentative deadline is November 12, 2004. However, the position will remain open until filled. Preliminary interviews will be conducted at the Linguistic Society of America, although attendance is not required for consideration. The department is especially interested in candidates who can contribute to the diversity and excellence of the academic community through research, teaching and service.

UCSB is an Equal Opportunity/ Affirmative Action employer.

University of California, San Diego

California Institute for Telecommunications and Information Technology [Cal-(IT)^2]

Researchers and Project Scientists

The California Institute for Telecommunications and Information Technology [Cal-(IT)^2] (http://www.calit2.net) at the University of California, San Diego, solicits applicants for researchers and project scientists at all levels in various areas related to the institute's mission. Areas of particular interest include wireless networking, telecommunications, computing, software development, visualization, and data and analysis, particularly for applications in environmental science, civil infrastructure, intelligent transportation and telematics, genomic medicine, the new media arts, and educational practices.

A background in related academic disciplines is required and a commitment to interdisciplinary research is strongly preferred. To apply: please send CV and list of publications, and arrange to have three (3) letters of reference sent under separate cover to:

Megan Laver
University of California, San Diego
Cal-(IT)^2
9500 Gilman Drive
La Jolla, CA 92093-0436

Review of applications will begin on 5/15/04 and will continue until positions are filled. Salary based on UC pay scales. UCSD is an affirmative action/equal opportunity employer with a strong institutional commitment to excellence through diversity.

Inquiries: please contact:
Megan Laver at
Email: melaver@soe.ucsd.edu
Phone: 858-534-0180

University of Leicester

Department of Computer Science

Reader in Software Engineering

Available from 1 September 2004
£37,558 to £42,573 pa (Aug 2004 rates)
Ref: A1028

Preference will be given to applicants who can build upon, and extend, the existing research in the Department in the general area of Software Specification and Design; candidates with research strengths in fields such as collaborative systems, domain modelling, embedded systems, re-engineering, requirements engineering, service-oriented software development, software architectures, software evolution and software reliability are particularly encouraged to apply. However, outstanding applicants with expertise in any related area of Software Engineering are most welcome.

Downloadable application forms and further particulars are available from www.le.ac.uk/personnel/jobs or from the Personnel Office:

Tel: 0116 252 5114, fax: 0116 252 5140, email: jobs@le.ac.uk.

Please note that CV's will only be accepted in support of a fully completed application form.

Closing date: Friday 16 July 2004.

Promoting equality of opportunity throughout the University.

University of North Carolina at Charlotte

Computer Science Department

Positions in Visualization

The Department of Computer Science (www.cs.uncc.edu) at the University of North Carolina at Charlotte is seeking outstanding candidates for two tenure track positions at the level of Assistant Professor.

At least one candidate will have a research focus in information visualization and will have worked with large and multivariate data. Both faculty members will be part of a new Visualization Research Center being established in the College of Information Technology. There will be an opportunity to work with colleagues in data visualization, 3D interaction, virtual environments, multimedia databases, computer vision, and other areas on exciting problems in the perceptual foundations of data analysis, business visualization, weather and geospatial analysis, homeland security, bioinformatics, mobile visualization, and other applications.

Applicants must have an earned doctorate in Computer Science, Computer Engineering, Information Technology, or a related field. Priority will be given to applicants with a demonstrated potential to excel in collaborative research and in teaching.

Applicants should send a letter of application together with their curriculum vitae, and the names and contact information of at least four references to coit-cs-search@listserv.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 both positions are filled. UNC Charlotte is an equal opportunity employer. Applications are encouraged from minorities, persons with disabilities and women.

University of Pennsylvania

Department of Computer and Information Science

Faculty Positions

The University of Pennsylvania invites applicants for tenure-track appointments in both experimental and theoretical computer science to start July 1, 2005. Tenured appointments will also be considered. Faculty duties include teaching undergraduate and graduate students and conducting high-quality research.

Successful applicants will find Penn to be a stimulating environment conducive to professional growth. The Department of Computer and Information Science is undergoing a major expansion, including new faculty positions and a new building, Levine Hall, which was opened in April 2003. Over the last three years, we have successfully recruited faculty in artificial intelligence, computer architecture, databases, machine vision, programming languages, and security. We are now especially interested in candidates in graphics and animation, systems and networking, bioinformatics and computational biology, and security, although outstanding candidates in other areas might also be considered.

The University of Pennsylvania is an Ivy League University located near the center of Philadelphia, the 5th largest city in the US. Within walking distance of each other are its Schools of Arts and Sciences, Engineering, Medicine, the Wharton School, the Annenberg School of Communication, Nursing, Law, and Fine Arts. The University campus and the Philadelphia area support a rich diversity of scientific, educational, and cultural opportunities, major technology-driven industries such as pharmaceuticals and aerospace, as well as attractive urban and suburban residential neighborhoods. Princeton and New York City are within commuting distance.

To apply, please complete the form located on the Faculty Recruitment Web Site at: http://www.cis.upenn.edu/positions/faculty_application.html

Electronic applications are strongly preferred, but hard-copy applications (including the names of at least four references) may alternatively be sent to:

Chair, Faculty Search Committee
Department of Computer and Information Science
School of Engineering and Applied Science
University of Pennsylvania
Philadelphia, PA 19104-6389

Applications should be received by January 15, 2005 to be assured full consideration. Applications will be accepted until positions are filled. Questions can be addressed to *faculty-search@central.cis.upenn.edu*.

The University of Pennsylvania values diversity and seeks talented students, faculty and staff from diverse backgrounds. The University of Pennsylvania does not discriminate on the basis of race, sex, sexual orientation, gender identity, religion, color, national or ethnic origin, age, disability, or status as a Vietnam Era Veteran or disabled veteran in the administration of educational policies, programs or activities; admissions policies; scholarship and loan awards; athletic, or other University administered programs or employment.

The Penn CIS Faculty is sensitive to "two –body problems" and would be pleased to assist with opportunities in the Philadelphia region.

University of Saskatchewan

Department of Computer Science

Tenure-Track and Limited-Term Faculty Positions

Applications are invited for tenure-track and limited-term faculty positions at the Assistant or Associate Professor level in several areas of Computer Science. We are seeking outstanding entry-level candidates, especially those with strong research records in the areas of bioinformatics, software engineering, programming languages, hardware systems/computer engineering and database. Applicants should have a Ph.D. in computer science or equivalent.

The friendly, supportive and collegial environment, combined with our excellent research reputation, makes the Department an ideal place to launch and develop a successful academic career. Our Department offers graduate programs at the M.Sc. and Ph.D. levels and has a vibrant undergraduate program. Please consult http://www.cs.usask.ca/faculty_positions.shtml for more information.

Send curriculum vitae and the names and addresses of three references to:

Professor Jim Greer, Head
Department of Computer Science
57 Campus Drive
University of Saskatchewan
Saskatoon, SK Canada S7N 5A9
greer@cs.usask.ca

Members of designated groups (women, aboriginal people, people with disabilities, and visible minorities) are encouraged to self-identify. All qualified candidates are encouraged to apply, however, Canadians and permanent residents will be given priority. Special efforts will be made to assist with locating positions for spouses.

U.S. Naval Academy

Computer Science Department

Tenure-Track positions

The U.S. Naval Academy's Computer Science Department invites applications for one or more tenure-track positions at the rank of Assistant or Associate Professor. These positions are anticipated to begin as early as January of 2005. A Ph.D. in Computer Science is required.

The Computer Science Department offers an ABET accredited major in Computer Science and a recently established major in Information Technology. All faculty teach courses in both majors. We currently have 140 IT majors, 105 CS majors and a faculty of 17. In the summer of 2004, the department moved into a newly renovated building overlooking the scenic Severn River. Our new home provides outstanding office and laboratory facilities for both students and faculty, including specialized labs for robotics, networking, information assurance, and architecture in addition to three micro-computing labs and two high performance computing labs.

Applicants must have a dedication to teaching, broad teaching interests, and a strong research program. Preference will be given to candidates with experience in Architecture, Databases, Information Assurance, Internet Computing, Networks, or Systems Analysis and Design. Applicants for the Associate Professor rank must have an established teaching and research record commensurate with the rank, at least six years experience at the assistant/associate level, plus the ability to immediately assume a leadership role in the Information Technology major.

The Naval Academy is an undergraduate institution located in historic downtown Annapolis, MD on the Chesapeake Bay. Roughly half of its faculty are tenured or tenure-track civilian professors with PhDs who balance teaching excellence with internationally recognized research programs. The remaining faculty are active duty military officers with Masters or Doctoral degrees. Each year the academy graduates roughly 1000 undergraduate students with majors in the sciences, engineering, and humanities.

Applicants should send a cover letter, teaching and research statements, a curriculum vitae, transcripts of graduate work, and three letters of recommendation that address both teaching and research abilities to the following address.

Computer Science Department
Faculty Search Committee
U.S. Naval Academy
572M Holloway Road, Stop 9F
Annapolis, Maryland 21402-5002
search_committee@cs.usna.edu
http://www.cs.usna.edu

The United States Naval Academy is an Affirmative Action/Equal Opportunity Employer. This agency provides reasonable accommodations to applicants with disabilities. This position is subject to the availability of funds.

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. 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, including a letter of application and a statement of the candidate's philosophy with respect to research, teaching and administration; curriculum vitae; and names and contact information for five references, 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 November 1, 2004.

WSU is an EEO/AA Employer. Protected group members are encouraged to apply.