Congress appears favorably inclined to approve significant increases to some key science agencies next fiscal year, based on early action by both the House and Senate Appropriations Committees.

Before the August recess both of the House and Senate Commerce, Justice, Science Appropriations subcommittees approved increases for the National Science Foundation and National Institute of Standards and Technology that were at or just below the significant increases requested by President Obama in his FY 2011 budget request in February.

Also significant was House passage of a reauthorization of the America COMPETES Act that would authorize a continued path to doubling the budgets of NSF, NIST and DOE’s Office of Science over seven years—though the bill’s path to passage was not without some drama.

In all, the early action suggests that Congress remains supportive of investments in the “physical sciences—which, in D.C., parlance, include computing—despite growing concerns about federal spending, the increasing deficit, and an election season which had dramatically altered the political calculus in Washington.

In June, members of the House Commerce, Justice, Science Appropriations subcommittee “marked up” their version of the appropriations bill containing funding for NSF, NIST, NOAA, and NASA, and included an 8 percent increase for NSF in FY 2011 compared to the FY 2010 level—essentially matching the President’s requested budget for the agency. The appropriators did alter the President’s priorities slightly, however, reducing the agency’s request for its Research and Related Activities account by $58 million and increasing the agency’s Education and Human Resources request amount by $66 million.

The committee mark funds NSF at $5.96 billion in FY 2011, an increase of $343 million over FY 2010. EHR would see an increase of $86 million to $958 million in FY 2011. The committee also-approved an increase to NIST’s overall budget for FY 2011. Under the committee mark, NIST’s budget would increase to $883 million in FY 2011, up $26 million from $857 million in FY 2010.

The Senate Commerce, Justice, Science Appropriations subcommittee adopted similar numbers for NSF as the House, a fact which may bode well as the appropriations process continues. The Senate committee approved an overall budget of $7.35 billion for NSF in FY 2011, an increase of $427 million above the FY 2010 level. The total includes $6 billion for research funding and $892 million for NSF’s EHR directorate.

The Committee on Education and Human Resources of the House Appropriations Committee (EHR) was tasked with finding ways for CRA to take additional responsibility for the continued flow of quality researchers into the field. In the summer of 2008, Andy van Dam from Brown University convened CRA-E—the Mark I committee as it has become known. Mark I was a panel of world-class computing researchers and educators who were asked to identify and recommend best practices for preparing undergraduates for research careers in computing.

At an inaugural meeting at the 2008 Conference at Snowbird, the committee developed its mission statement: “Our charter is to explore the issues of undergraduate education in computing and computational thinking for those who will do research in disciplines from the sciences to the humanities. As technology and teaching methodologies continue to evolve, how should programs in computer science, computational science, and information science co-evolve? Can we communicate a core set of ideas, principles, and methodologies that is domain-independent?”

The committee’s subsequent work produced a White Paper that was released at CRA’s Conference at Snowbird in July. The paper documents best practices and provides six recommendations for institutional structures, principles, and mechanisms to support undergraduates in acquiring the skills needed for computationally oriented research in all fields. The recommendations are arranged into three thematic groups: 1) foundational computational thinking courses, including contextualized versions that address current student interests; 2) approaches that combine a less-than-traditional “core” with...
Expanding the Pipeline

Advancing Women in Engineering at the University of Pennsylvania

By Susan Davidson, Michele Grab, and Rita Powell

Attracting women to study computer science and engineering is an ongoing challenge at colleges and universities across the nation. In the fall of 2007, women in the School of Engineering and Applied Science (SEAS) at the University of Pennsylvania made up 30 percent of the undergraduate population. This was better than the national average (largely due to the popularity of bioengineering as a major), but was nevertheless a figure that we wished to improve. Needing a generous alumnus donation, the Advancing Women in Engineering (AWE) program was therefore launched to recruit and retain women in engineering. This comprehensive program of outreach targets middle school all the way through graduate students in an effort to address this national problem on a local level.

Middle School Outreach—PennGEMS

Reaching out to middle school students is primarily accomplished through PennGEMS, a week-long day camp for girls who have just completed grades 6, 7, and 8. Our goal is to influence their conceptions of who can be an engineer or computer scientist and what engineers actually do, as well as to excite them about studying math, science, and technology/engineering. Students participate in a variety of activities in bioengineering, nanotechnology, mechanical engineering, computer science and materials science through catchy themes for the course, such as "Glow in the Dark Science," "How Stuff Works" and "Imagination to Animation." In our end-of-program survey, one participant wrote, "I now realize that engineering involves so many things I didn’t know it did before." This was echoed by many others in the program. To date, more than 120 girls have participated in PennGEMS, and the demand exceeds our capacity. Scholarships for this program are provided using corporate and private support.

High School Outreach—WICS High School Day for Girls, Guidance Counselor and Teacher Day to Encourage Women in Computer Science, and Boot Up! Camp

Before AWE was established, undergraduate women in the Computer and Information Science department (CIS) organized Women in Computer Science (WICS) to raise awareness and foster communication in CIS around the issues that women face, as well as to create a sense of community amongst students who encourage women to pursue a computer science degree and career. A graduate student group called CiSTers was similarly created to connect women from different research areas in computer science. Individually, as well as collectively, these groups promote a variety of social, professional, and outreach activities. One is the WICS High School Day for Girls, which has been offered since 2007 with an average of 80 students per year. The program brings high school students interested in computer science to campus, where they hear about the excitement, breadth and societal impact of computer science, see demonstrations of exciting research projects in our robotics, graphics and embedded systems laboratories, experience hands-on programming using Scratch in our newly renovated computer classrooms, and learn about the college admissions process.

Observing the interest of teachers who accompanied the girls to campus, in 2009 we expanded our outreach to 30 area high school guidance counselors and teachers by creating a separate day for them to visit campus. In addition to the activities provided for high school girls, we discuss how guidance counselors and teachers can help encourage girls to study computer science, what skills/knowledge best prepare students for success in computer science, and what a college curriculum in computer science entails. A high note of the day for this group is a lunchtime panel of WICS and CiSTers students who speak about what it is like to be a (female) college student in computer science and what was helpful to them from their high school preparations. These programs were funded by grants from Microsoft Research and the NSF-funded National Center for Women & Information Technology (NCWIT). CIS faculty also mentor high school teachers through ACM Computer Science Teacher Association (CSTA) workshops and through a Google CS4HS@Penn workshop.

Undergraduate Programs

AWE’s pre-orientation program for incoming women engineers has been one of our most successful initiatives. Students are invited to move into the dorms early, meet upper-class students and faculty, and get support and advice for being successful in college. As one student said, “Coming in... as a freshman without the... Program, I would have been frightened, friendless, confused, and pretty unaware of the amazing community of women in engineering here at Penn.” We are so thankful for the opportunity AWE Pre-Orientation provided.” The program grew from 19 to 51 students in one year. The year after, the program grew to 66 students, nearly 50 percent of the women in the incoming class. To date, only 3 students who attended preorientation have transferred out of engineering. Scholarships for the preorientation program have been made possible through industry.

Other undergraduate initiatives focus on retention, and include a peer mentoring program, major- and career-related programs, and support for travel to professional conferences such as the Grace Hopper Women in Computing Conference and the Society of Women Engineers national meeting.

Cascading Mentoring Model

Partnering with Dr. Yasmin Kafai and Quinn Burke from Penn's School of Education, as well as Jean Griffin (CIS), Dr. Joe Sun (SEAS) and Michelle Slattery (Peak Research), in spring 2010 we were awarded an NSF grant for Broadening Participation in Computing. In this project, we are implementing a cascading mentoring model through a service learning course (SLC), a summer camp for students in grades 9 and 10 (Boot Up!), and after-school programs and PennGEMS for middle school students. Penn undergraduates who have previously participated in Boot Up! (largely from the NSF grant) can enroll in the SLC and obtain academic credit for learning how to teach computational thinking to high school students who, in turn, help teach middle school students. The tools used in the SLC include Scratch (scratch.mit.edu), Python, and computational textiles.

From our initial offering in June 2010, it is clear that the high school students and undergraduates relate strongly and benefit from each other. The high school students indicated that the undergraduates were the most significant influence on their learning. In turn, the undergraduates found that their experience as mentors reinforced their own learning of computer science principles. The feedback from the high school students was also enormously encouraging for our undergraduates. One SLC student recently wrote, “Thanks for sending me the feedback from the camp. I can’t express how fulfilled I feel right now.” While not specifically targeting women, both SLC and Boot Up! have attracted a disproportionate number of women and minorities, and are therefore an important component of AWE.

Graduate Programs

Our focus at the graduate level has been to help create a community for women in Penn’s CSE departments across SEAS to come together around common issues. In particular, we have sponsored two successful book discussions on topics related to graduate education and preparation.

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Reinvigorating the Field

By Eric Grimson, CRA Board Chair

A few weeks ago, members of the computing research community assembled for the 19th biennial Conference at Snowbird, the flagship conference for chairs of Ph.D.-granting departments of computing and allied fields and leaders from U.S. industrial and government computing research laboratories and centers. Here are some observations on trends in the field evident during the meeting.

Throughout the conference, I was struck by a sense of cautious optimism and renewed energy shared among department chairs. Challenges remain, but the perception that key aspects of the field are slowly, yet steadily, improving was evident throughout the conference:

- Funding for computing research is increasing, and sources of funding seem to be stabilizing.
- There is a concern that computing and information technology remains a “poor cousin” of the sciences in the eyes of national agencies for computing research. Other major funding sources—industry and government—will tackle compelling challenges in security, energy, environmental science, and information technology.
- Despite significant efforts by many members of the CRA community, there is a clear sense that computation curricula have evolved: of the research community to tackle difficult problems without onerous bureaucratic constraints on reporting and deliverables with the need to serve DARPA’s core mission to national security. DARPA is clearly committed to a major shift in its interactions with academic research. Other major funding agencies for computing research similarly show signs of growth, as highlighted by Peter Harsha’s plenary presentation on CRA-government affairs committee’s interactions with Congress. Over the past 10 years, government funding of IT R&D has doubled; a very encouraging sign.
- Enrollments in computer science, computer engineering, and information science are stable and slowly rising, as documented in CRA’s most recent Taullibe Report. New majors have been slowly rising since 2005; while we are still below our peak, we are on a positive trend.

The second instance of shared community emerged during a session on faculty hiring practices. While every institution is governed by local nuances, and must act to best serve its needs, what emerged from this session was a conviction that coordination among departments can improve the hiring process for everyone.

There was also a growing sense of shared community among department heads. One instance emerged in the discussions and presentations of the CRA-E committees. The first version of the CRA Education group, chaired by Andy van Dam, released its final report, articulating a vision of how computer curricula have evolved: more flexible, better integrated with other disciplines, yet still providing a foundational mode of thinking that supports other intellectual disciplines. Their report, discussed in this issue of CRN, provides a valuable roadmap of alternatives being explored at multiple institutions, and articulates a vision for further evolution of curricular material. The second instantiation of CRA-E formally launched its activities at Snowbird during a packed breakfast meeting where the committee laid out plans and goals (as articulated elsewhere in this issue of CRN). Clearly there is a shared sense in the community of the need to adapt our curriculum to meet the interests of today’s students, and to develop a new generation of researchers who will tackle compelling challenges in security, energy, environmental sustainability, finance, health care, and information technology.

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New CRA Board Member

CRA is pleased to welcome Ran Libeskind-Hadas, Professor of Computer Science and Associate Dean of Faculty, Harvey Mudd College, to its Board of Directors, effective August 30, 2010. He was appointed by CRA Board Chair Eric Grimson to complete the term of Susanne Hambrusch, Purdue University, who resigned from the Board when she became Director of the NSF CISE Division of Computing and Communication Foundations (CCF) on August 30, 2010. Hambrusch was elected to the Board in 2006, and has served as Board Secretary since July 2009. Martha E. Pollack, Vice Provost for Academic and Budgetary Affairs and Professor of Information and of CSE at the University of Michigan, will replace her as Board Secretary.

Note to Department Chairs:

Taullibe Survey 2009-10

Coming Soon!

If you have a new chair, please advise membership@cra.org to ensure the survey is properly addressed.

Musings from the Chair

September 2010

Computing Research News
Goal
The overall goal of this White Paper is to provide guidance that will help institutions create an undergraduate environment that supports the acquisition and internalization of the computationally-oriented researcher mindset. We addressed overall directions rather than comprehensive details, not a curriculum design. The committee tried not to duplicate work being done by related efforts such as ACM/IEEE Computer Science Curricula 2001 report/2008 update, or any effort having to do with K-12 education such as ACM’s Model Curriculum for K-12 Computer Science and NSF’s CS/10K Project, whose goal is the revision of the AP Science and NSF’s CS/10K Project, whose goal is the revision of the AP

Mechanisms
Three major mechanisms for meeting this goal are: 1) develop flexible curricular structures that can more easily reflect and adapt to change, 2) provide a “research-oriented” environment in the undergraduate program, and 3) support the assimilation and putting into practice of enduring cognitive skills and core concepts over four years and different contexts through the deepening process of building mastery.

Themes
We encode these mechanisms into six recommendations, arranged into three thematic groups: (1) Introduce students to computational thinking by foundational courses that address student interests within the fundamental range of computational thinking concepts and skills, (2) Refactor computer science curricula to provide a flexible and adaptable range of options for computationally-oriented directions in any domain, (3) Identify cognitive, mastery, and research skills that should pervade the entire curriculum, from introductory courses through the advanced courses taken by seniors heading to graduate school.

Recommendations
Computationally-Oriented Foundations
1. Introductory Courses—addressing a broad range of student interests: Address student interests while at the same time ensuring that these courses address a significant subset of the fundamental range of concepts and skills that comprise computational thinking. Use these courses to instill a set of cognitive skills such as learning how to create, validate, and establish relationships among abstractions from data and information on hand, a key skill in effective modeling, simulation, and validation. This skill in working with abstractions, in turn, undergirds both the scientific method and computational thinking, and should be a part of every computationally-oriented course. The differences among such courses help to reinforce the underlying skills as students meet the same concepts in different contexts. Other examples of cognitive skills include: working with the tradeoffs involved with different representations; moving, where appropriate, from a declarative understanding of a problem to an imperative understanding of that problem; reducing computationally intractable problems to related tractable problems and building, simulating, and validating computational models that shed light on important questions.

Refactoring Computer Science Curricula
2. Core/Foundation for All Computer Science Graduates—lean core focuses on enduring concepts, techniques, and skills:
A relatively lean core emphasizes foundational concepts and skills while allowing students more time to explore areas in depth, both by taking courses and by engaging in undergraduate research. Additionally, a lean core makes it easier for students with multidisciplinary interests to pursue a joint major (See Recommendation 4: Specialization: Integrated Joint Majors) while still sharing a common experience with each other.

3. Specialization: Tracks, Threads, and Vectors—flexible approaches to gaining understanding and skills.
Define sets of meaningful specializations to permit students to pursue their interests in a context that guides their development while providing strong motivation. Ensure that these ‘tracks’ are specialized enough that a core sequence can lead to a student attaining some reasonable depth in the area, but broad enough that someone in a company or graduate school will be able to fit it into their institutional context.

Coherent, integrated multidisciplinary, interdepartmental joint majors provide a balanced approach that addresses the differences in intellectual culture, content, and strategies between different fields by establishing the common ground between them. Use these integrated joint majors to provide a creative synthesis beyond which can be provided by a computer science department alone, one that blends the cultures and mindsets of multiple departments and synergistically establishes new techniques for problem solving.

Establishing Mastery across the Curriculum
5. Design Under Constraints and the Gaining of Mastery—deepening the skill set:
Provide students the ability to attain mastery by gaining experience in learning new technologies and techniques, building and analyzing artifacts, and learning to understand design as an iterative process that involves evaluating tradeoffs and constructing system performance, and testing at each step. Create design and development experiences that tap into the actual interests of the students within a structure that both rewards effort and requires debugging/dealing with the uncertainties and approximations of real-world non-determinism.

6. Attracting, Selecting, and Preparing Students for Research Careers—developing computationally-oriented researchers.
Skilledly introduce research problems and their intellectual
New Activities of the CRA Mark II Working Group on Education (CRA-E)

By Rich DeMillo, Georgia Institute of Technology

In the summer of 2008, Andries van Dam of Brown University convened the CRA-E committee—the Mark I committee as it has become known. Mark I was a panel of world-class computing researchers and educators who were asked to identify and recommend best practices for preparing undergraduates for research careers in computing. A summary of their findings and recommendations appears elsewhere in this issue of Computing Research News.

At the 2010 Conference at Snowbird, the van Dam committee report was turned over to CRA-E Mark II, chaired by Georgia Tech’s Rich DeMillo. The objective of the Mark II committee is to make use of these and other recommendations to establish ongoing programs and projects and to seek the broadest possible engagement from CRA members, educational institutions that prepare students for research careers, and other professional societies. It will not advocate for particular educational approaches, whose viability is in part subjective and dependent on the value and extent to which the best students are engaged. Nonetheless, the CRA-E committee, like its predecessor, is an important face of CRA to the broader computing community, an important source of guidance and policy development for the board of directors, and a window into the future of the field. One task of CRA-E is to begin the development of a dashboard that provides answers to such basic questions. Collaboration with other data-gathering projects aimed at undergraduate institutions has already begun.

The impact of an effective dashboard could be immediate. For example, the committee has heard about the positive effect of Research Experience for Undergraduates (REU) supplements to NSF grants. Pipeline data might show, for example, the effect of changes in the mix of R1 and non-doctoral recipients of REU funds. Or the data might suggest more productive ways for research and non-research departments to collaborate in REU projects.

CRA-E is seeking your help and input. Comments as well as ideas for projects, workshops, and seminars may be sent to CRA-E chair Rich DeMillo (rad@gatech.edu). An online community for CRA-E will be operational in the next few weeks and will be accessible from the CRA website.

Rich DeMillo, Distinguished Professor of Computing at the Georgia Institute of Technology, is a member of the CRA Board of Directors and Chair of CRA-E.

2010 Undergraduate Researcher Awards Presented

CRA’s 2010 Outstanding Undergraduate Researcher Awards were recognized in several venues this year.

- Female winner, Justine Sherry (University of Washington), received her award at the 7th USENIX Symposium on Networked Systems Design and Implementation in San Jose in April. The Vice Chair of the CRA Board of Directors, Laura Haas, made the presentation.
- Male winner Matt McCutchen (University of Maryland) received his award at a CS departmental reception on March 1. John Silberholz, Finalist, and Allison Hoch, Honorable Mention, were also recognized. CRA Board Member, Jeff Hollingsworth, made the presentations.
- Male winner, Elyot Grant (University of Waterloo) was honored at a departmental reception in April and later recognized on June 6 at STOC in Cambridge, MA.
- At Pomona College, Lucy Vasserman, Runner-Up Award, received her award at the CS departmental reception for graduating seniors in May.

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NSF’s Broader Impact Criterion

By Andrew Bernat, Kathleen Fisher, Susanne Hambrusch, and Jim Kurose

NSF proposals must address, and are evaluated according to, two fundamental criteria: Intellectual Merit and Broader Impact. Intellectual Merit is well understood (if frequently argued)—how well does the proposed research advance the field? Broader Impact, however, is not nearly as well understood and consequently often has played a more minor role in the review process. This might very well be changing. The purpose of this article is to provide context and information around recent discussions of Broader Impact, and to identify issues that the CISE academic research community may soon face.

CISE and NSF want to be out front on the issue of Broader Impact (BI). As part of the process of understanding the criterion and how BI should be evaluated, CISE funded a workshop to gather community input. The Broader Impacts for Research and Discovery Summit was held in June 2010. CRA Board members Kathleen Fisher, Susanne Hambrusch and Jim Kurose and CRA Executive Director Andy Bernat were invited to attend. The report of the workshop organizers is/will be posted at http://cisebroadereffects.org.

At the workshop, it was noted that, beyond the prodding of Congress, there are many reasons to care about BI and to connect science to society in order to:

- Ensure better public understanding of science and engineering.
- Inspire the young to enter science and engineering. It was also noted that researchers supported by NSF have a long-standing, implicit compact with the public to pursue avenues that will, in the aggregate, ultimately benefit society. Broader Impact seeks to ensure that this commitment is met.

At the BIRDS workshop, participants discussed examples of broader impact activities lying within the context of the COMPETES language. These included:

- Develop educational materials for elementary, high-school and undergraduate students.
- Develop exhibits in partnership with museums.
- Form start-up companies.
- Involve high-school and undergraduate students in research where appropriate.
- Create or participate in existing effective mentoring programs.
- Develop, maintain and operate a shared research infrastructure.
- Establish international, industrial or government collaborations.
- Start up companies.
- Present research results to non-scientific audiences from policymakers to average citizens.
- Give presentations about the field to the public to foster lifelong learning.
- Develop exhibits in partnership with museums.
- These examples include not only the “traditional” activities, but also those focused on improving the infrastructure for research, with multiplicative effects. As is clear from these examples, broader impact activities are typically more focused on direct impact than the “innovation” that is a hallmark of intellectual merit. Indeed, it is often preferable to leverage current validated efforts than to attempt new ones for the sake of BI innovation.

As CISE develops its understanding of broader impact, based on community advice, there are many issues to raise and to address. For example:

- Does the measure of broader impact depend on the level of effort involved, on the impact, or on some other measure?
- How should reviewers evaluate broader impact statements?
- How much should broader impact “count” compared to intellectual merit?
- How should NSF monitor progress of broader impact statements?
- How should PIs be held accountable for their current and past statements?
- How does one measure the success of a broader impact activities?
- What is the cost of broader impacts and where should funding come from? Line item in budget! Separate program?

The House version of America COMPETES has potential implications for CS departments and their institutions as well, as it “requires principal investigators applying for Foundation research grants to provide evidence of institutional support for the portion of the investigator’s proposal designed to satisfy the Broader Impacts Review Criterion, including evidence of relevant training, programs, and other institutional resources available to the investigator from either their home institution or organization or another institution or organization with relevant expertise.”

This suggests that departments, universities and professional organizations could look more closely at existing or future activities that can be strengthened by faculty involvement and which translate to broader impact activities. NSF CISE is interested in beginning a dialogue with departments planning to provide such opportunities for their faculty; for more information, contact Jim Cuny (jcuny@nsf.gov).

The discussions regarding Broader Impact are ongoing, with even the final legislative wording to be determined. As the representative of the computing research community, CRA intends to remain engaged in this process of exploring the Broader Impact criterion, to raise relevant issues, and to advocate for review and implementation processes that work to improve the health of the computing research system.

Andrew Bernat is CRA’s Executive Director. Kathleen Fisher (AT&T Labs Research), Susanne Hambrusch (Purdue University), and Jim Kurose (Member of CRA’s Board of Directors).
CCC: Audacious Visioning for the Future
By Erwin P. Gianchandani and Ed Lazowska, Computing Community Consortium

“The Computing Community Consortium (CCC) has played an important role in identifying and promoting exciting research visions for the future of information technology (IT) research,” Tom Kalil, the Deputy Director for Policy in the White House Office of Science and Technology Policy (OSTP), recently blogged. “[These] ideas ... have the potential to attract the best and brightest to the field, drive economic growth, and address national challenges in areas such as health, energy, and education.”1 Kalil’s comments serve as renewed inspiration for our efforts.

As we have reported in previous issues of the Computing Research News, the CCC was established in 2006 through a cooperative agreement between the National Science Foundation and the Computing Research Association. A council of experts drawn from and chosen by the computing research community, the CCC seeks to mobilize the community to debate long-range research challenges, to build consensus around specific research visions, and to articulate those visions, including developing the best and brightest to the field, ideas … have the potential to attract the best and brightest to the field, driving economic growth, and addressing national challenges in areas such as health, energy, and education.”1 As we have reported in previous issues of the Computing Research News, the CCC was established in 2006 through a cooperative agreement between the National Science Foundation and the Computing Research Association. A council of experts drawn from and chosen by the computing research community, the CCC seeks to mobilize the community to debate long-range research challenges, to build consensus around specific research visions, and to articulate those visions, including developing truly game-changing contributions that undergraduate and graduate students have made in the course of their studies.2 The timing of the list coincided with the leadership transition at the Defense Advanced Research Projects Agency (DARPA), and emphasized the tremendous value in Federal funding for education in computing. The CCC has funded over a dozen community-initiated workshops to define new research directions. Last fall, CCC Council vice-chair Susan Graham (University of California-Berkeley) organized a workshop on health information technology; the workshop report (“Information Technology Research Challenges for Healthcare: From Discovery to Delivery”) describes basic R&D challenges in the space, and it has helped NSF establish a new FY 2011 program on “Smart Health and Wellbeing.” In the past year, Beverly Woolf (University of Massachusetts-Amherst) organized a series of workshops and drafted a Roadmap for Education Technology describing the role and impact of computing and technology in education. Woolf has already received enthusiastic feedback on the roadmap from NSF and the U.S. Department of Education’s Institute of Education Sciences. In addition, CCC-led efforts have yielded outstanding visions for the theoretical computer science (led by Salil Vadhan at Harvard University) and global development (led by Tapan Parikh at the University of California-Berkeley), and they are catalyzing Federal investment in robotics (Henrik Christensen, Georgia Institute of Technology).

This spring, the CCC commissioned a series of fast White Papers on data analytics,3 including data mining, machine learning, predictive modeling, knowledge discovery in databases, and others. These short reports—on topics such as eHealthcare, new biology, intelligence, energy, transportation, and education—specifically link data analytics to the missions of the corresponding Federal funding agencies.

The CCC website includes special features such as “Computing Research Highlight of the Week”4—allowing individual researchers to showcase breakthroughs to the community and beyond—and a newly published “Undergraduate Research Opportunities (URO) Zone”5—explaining computing research opportunities for undergraduates throughout the United States. The CCC Blog6 is an increasingly followed resource for the computing research community, highlighting landmark research advances, new funding opportunities, and news and information about Federal agencies. In addition, the CCC Blog serves as a voice for the community—for example, recently calling for a large-scale, comprehensive, coordinated, collaborative, and multi-disciplinary basic research investment in health information technology by the Federal government.7

To learn more about the CCC, please visit our website today: http://www.cra.org/ccc. We enthusiastically welcome your involvement!

Dr. Erwin Gianchandani is the Director of the Computing Community Consortium (CCC) and the Computing Innovation Fellows Project (E-mail: egin@cra.org; Phone: 202-266-2936; Fax: 202-667-1066). Ed Lazowska is Chair of the CCC Council and Bill & Melinda Gates Chair in Computer Science & Engineering at the University of Washington.

Notes
1 http://www.whitehouse.gov/blog/2010/06/02/setting-21st-century-research-agenda.
2 http://www.cifellows.org.
8 http://cra.org/ccc/robotics.php.
13 http://www.cccblog.org/2010/06/14/taking-on-healthcare-the-time-is-now.

Nominees Sought for CRA Board

The Computing Research Association seeks your help in suggesting nominations for its Board of Directors. The deadline for receipt of nominations is December 1, 2010.

Each spring CRA’s member organizations elect about one-third of the association’s board members to three-year terms. It is important that the CRA Board represents the interests of the entire computing research community, and it is CRA’s policy to solicit a broad range of candidates. Candidates are not required to be affiliated with CRA member organizations.

• On January 7, 2011, from the nominations received, the Elections Committee will announce its candidates for the ballot.
• On February 7, 2011, nominations are due for candidates nominated by petition signed by the heads of at least 10 Constituent Member Organizations that are current in dues payment.

The CRA board is a working board, and all members are expected to actively participate. CRA has a relatively small professional staff, and board members have detailed involvement in all major projects. Recent and current projects include:

• Working with the computing research community to envision the future.
• Planning the biennial CRA Conference at Snowbird.
• Conducting the annual CRA Taubllee Survey.
• Conducting other surveys (e.g., departmental budgets, space, personnel).
• Developing workshops on critical policy issues for computing research.
• Thinking strategically about the future of computing education.
• Planning workshops on academic and industrial careers.
• Increasing the participation of women and minorities in computing research, with the help of National Science Foundation grants.
• Improving public and policymaker understanding of the importance of computing and computing research in society.

Additional information on CRA and its activities is available on the Web at http://www.cra.org.

In addition to actively participating in board projects, board members are asked to attend two board meetings per year and pay their travel and hotel costs.

Please contact the person you are nominating before submitting his or her name to ensure that the nominee is willing to stand for election to the board. Those who are nominated are required to write a brief statement (not to exceed 100 words) supporting their nominations. Questions about the nomination and election process, as well as requests for a nomination form, can be sent to election@cra.org. Nominations must reach CRA by December 1, 2010.
NSF Funds Second Cohort of Computing Innovation Fellows

By Erwin P. Gianchandani

Earlier this spring, the National Science Foundation awarded the Computing Research Association a new grant for a “Second CIFellows Project,” enabling a new cohort of 47 recent Ph.D.s to be supported as Computing Innovation Fellows beginning this fall. These CIFellows follow 60 other exceptional young researchers who were awarded one- to two-year postdoctoral positions at research institutions throughout the country last fall—as part of a unique partnership between NSF and CRA to retain new Ph.D.s in computing research and teaching during difficult economic times.

For the initial cohort of 2009 CIFellows, the project has already proved worthwhile, offering them uniquely independent research experiences that have helped them sharpen their skills and enhance their credentials. The (CIFellows Project was first described in the September 2009 issue of CRN3, and we provided an update on the first cohort of CIFellows in the March 2010 CRN4). The new call for 2010 CIFellows was announced to the community via the CIFellows Project website5 in mid-April, with applications due by mid-May. A total of 121 applications from 78 U.S.-based Ph.D.-granting colleges and universities were submitted, and the applicants listed prospective mentors from 105 organizations, including a diverse range of industry affiliations.

Under the leadership of Dr. Greg Andrews, PI of the new award, a 25-person Selection Committee was assembled and rigorously reviewed all applications over a two-week period. A separate 9-person Steering Committee affirmed the Selection Committee’s recommendations. Applicants were notified of their status in early July, and we expect to be able to announce our 2010 CIFellows by early October after all arrangements are finalized.

As with last year’s application and review process, we sought to ensure that the 2010 CIFellows would be broadly distributed. Awards are being made to CIFellow/mentor pairs; each candidate was allowed to specify between one and three potential mentors, each of whom had to provide a specific mentoring plan for the candidate. This process worked well for the 2009 CIFellows, ensuring highly productive experiences for both CIFellows and their mentors.

In addition, to ensure broad participation and to build bridges between diverse institutions and CIFellows, no more than two awardees earned their Ph.D.s from the same university, and no more than two awardees were assigned to the same host organization. Diversity of other forms—including research areas and individuals, etc.—was also encouraged. About 36 percent of the 2010 CIFellows are women.

Meanwhile, the 2009 CIFellows have continued to enjoy rewarding experiences, achieving tremendous successes over the first year of their CIFellowships. Of the 60 who started last fall, 37 have found other opportunities—including tenure-track faculty positions and permanent jobs at industrial research labs—and will not be continuing in the project for a second year. Among them, three were offered positions by their host organizations. In several of these cases, the postdoctoral experiences clearly benefitted the CIFellows, markedly enhancing their skills, credentials, and already stellar resumes. For example, one CIFellow demonstrated his capabilities through the development of a novel algorithm later featured in *The Los Angeles Times*; the algorithm uses Twitter to gauge real-time interest in movies and accurately predict how they will perform at the box office on opening weekend. In another case, the chair of a faculty search committee wrote, “As the hiring officer for this [tenure-track] position, I can attest that [the CIFellow’s] postdoctoral experience … enhanced [the candidate’s] attractiveness to us.”

Three CIFellows—Dr. Miriah Meyer (Harvard University), Andrew McPherson (Drexel University), and Antonina Mitrofanova (Columbia University)—shared their experiences at CRA’s biennial Conference at Snowbird in mid-July. Dr. Meyer, a Ph.D. from the University of Utah, described how the CIFellows Project enabled her to obtain funds to pursue a new research area for which she would have been unlikely to obtain grant support, given the initial stage of the project. Meyer is developing new ways to visualize genomics data that do not have any inherent spatial or temporal characteristics. For example, she has implemented “Pathline,” which simultaneously overlays gene expression data on multiple molecular pathways and across multiple species. Andrew McPherson, a Ph.D. from the University of Pennsylvania, shared his work on bringing a computational approach to issues of creative expression, enabling new knowledge about human-computer interactions for computer scientists and new tools that go beyond any existing instrument for musical performers and composers. Mitrofanova, a Ph.D. from New York University, presented her research on assembling and mining noisy, poorly annotated regulatory networks for prostate cancer. All three described how the CIFellows Project offered them a unique level of independence and autonomy, as compared to other postdoctoral positions. “Because I write the proposal, the [CIFellowship] gives me a tremendous amount of flexibility to define my own research,” McPherson said.

Meyer, McPherson, and Mitrofanova are among 43 current CIFellows who have accepted a second year of support, bringing the total number of CIFellows to be funded in 2010 to 110.

Dr. Erwin Gianchandani is the Director of the Computing Community Consortium (CCC) and the Computing Innovation Fellows Project. E-mail: erwin@cra.org; Phone: (202) 266-2936; Fax: (202) 667-1066.

Notes:
1. http://www.cra.org/resources/crnarchive/view-detail/the_computing_innovation_fellows_project_strengthening_the_field/

The response to this book club has been extraordinarily positive. More than 40 students participated each time, and found the experience very beneficial to their graduate experience. Having professors share their personal challenges and help navigate solutions is extremely important to our women graduate students.

In addition to community building, we encourage our Ph.D. students to become faculty members by giving them opportunities to hear from current SEAS faculty through panel discussions, such as “What it’s like to be a faculty member in engineering.” We have offered this program yearly, and it is highly valued by our students.

Conclusions

Much of the success of AWE has been due to our ability to hire a full-time staff member as director, catalyzing and centralizing a number of outlying efforts. Drs. Miriah Meyer, a Ph.D. from the University of Utah, described how the CIFellows Project enabled her to obtain funds to pursue a new research area for which she would have been unlikely to obtain grant support, given the initial stage of the project. Meyer is developing new ways to visualize genomics data that do not have any inherent spatial or temporal characteristics. For example, she has implemented “Pathline,” which simultaneously overlays gene expression data on multiple molecular pathways and across multiple species. Andrew McPherson, a Ph.D. from the University of Pennsylvania, shared his work on bringing a computational approach to issues of creative expression, enabling new knowledge about human-computer interactions for computer scientists and new tools that go beyond any existing instrument for musical performers and composers. Antonina Mitrofanova, a Ph.D. from New York University, presented her research on assembling and mining noisy, poorly annotated regulatory networks for prostate cancer. All three described how the CIFellows Project offered them a unique level of independence and autonomy, as compared to other postdoctoral positions. “Because I write the proposal, the [CIFellowship] gives me a tremendous amount of flexibility to define my own research,” McPherson said.

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could spend such a large increase
committee had doubts that the agency
money—in a timely way, and that the
its budget—that is, spending all its
by noting that DARPA has, in recent
authorizers defended the reductions
requested by the President. The
would still leave these accounts with
Computing efforts. The reductions
for the Defense Research Sciences
million from increases requested
FY 2011 that would trim $140
(DARPA) may see big increases
with a higher allocation, there are
Water appropriations bill. But even
Senate numbers will be slightly
Act.) There is some hope that the
$400 million in the FY 2009
Agency (ARPA-E), which would
DOE's Advanced Research Projects
requested. Also funded in the bill is
Department of Defense Appropriations
2011, essentially flat compared to
and parliamentary one-upmanship
move in two weeks of political maneuvering
they oppose the motion and voted
of Democrats were fearful of being
federal agencies from paying the
language that would have prohibited
impact, both the House and Senate
that threatened to derail the bill
and the National Nanotechnology
through a party-line vote for passage.3
of the importance of increasing the
Congress and the Administration
of several years of effort to convince
COMPETES Act was originally passed
of new programs to help enable
innovational innovation” that the
Senate bill doesn’t contain a bill
with two other formerly freestanding
bills: the Networking and
Information Technology R&D Act1
and the National Nanotechnology
Initiative Act. The Senate bill is
much leaner and also contains some
additional cyber security R&D
language taken from a much larger
comprehensive cyber security bill
introduced by Senators Rockefeller
and Snowe (S. 773).

The House version of the bill has
already received passage by the full
House, though not without quite a
bit of controversy. The Republican
minority successfully detailed the
initial consideration of the bill on the
House floor by crafting a motion that
both gutted the original bill and added
language that would have prohibited
federal agencies from paying the
salaries of any federal employees
who had been disciplined for having
viewed pornography on their federal
computers. A sufficient number of
Democrats were fearful of being
cast as “pro-pornography” should
they oppose the motion and voted
instead to adopt it. This set in motion
two weeks of political maneuvering
and parliamentary one-upmanship
that threatened to derail the bill
completely, but ultimately resulted in
a party-line vote for passage.3

It is not clear how the differences in
the two bills will get resolved in
conference. It is also possible that
Congress will run out of legislative
days before adjourning to finish their
negotiations on the bill.

It is also not clear how the
appropriations process will finally
resolve either, though it is very clear
that the vast majority of bills will not be
finished by November’s election.
It is more likely that Congress will
decide to put aside consideration
of the bills until after the election,
at which time it will consider them
en masse as one giant omnibus
bill. But whether that vote comes in
November, December or next
February under the new Congress is
anybody’s guess at this time. Until
then, federal agencies will operate
under what is called a “continuing
resolution”—essentially an order that
keeps them funded at some specified
rate, usually a continuation of the
current fiscal year pace. This can
have significant consequences for
federal science agencies as it can delay
or cancel new program starts and,
in some cases, prevent them from
hiring new personnel. In the case of
an agency like ARPA-E, which has a
special appropriation, it could shut
the agency down until appropriations
are resolved.

In any case, we will have all the
latest information at the Computing

Notes:
1 See “AAAS Report Finds NSF
Alliance Initiative Boosts Computing
Degrees; Minority Participation”
at: http://www.aaas.org/news/
releases/2010/0728computing.shtml
2 “You can read more about the
NITRD Act at: http://www.cra.org/
govaffairs/blog/2010/05/computes-
reauthorization-on-floor-today-cra-
endorses-ball.”
3 “More on the derailment, see:
http://www.cra.org/govaffairs/
blog/2010/05/computes-gets-derailed-
temporarily.”

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January 28 Deadline for CRA Service Award Nominations

The Computing Research
Association invites nominations for
the CRA Distinguished Service Award and
the A. Nico Habermann Award for
2011.

Distinguished Service Award
CRA makes an award, usually
annually, to a person who has made
an outstanding service contribution to
the computing research community.
This award recognizes work in areas of
government affairs, professional
societies, publications or conferences,
that has had a major impact on
computing research. See “Guidelines for Nominators” at:
http://www.cra.org/Activities/ awards/service/guidelines.html

A. Nico Habermann Award
CRA makes an award, usually
annually, to a person who has made
outstanding contributions aimed at
increasing the numbers and/
or successes of underrepresented
groups in the computing research
community. This award recognizes
work in areas of government affairs,
educational programs, professional
societies, public awareness, and
leadership that has a major impact on
advancing these groups in the
computing research community.
Recognized contributions can be
directed at the research level or at
its immediate precursors, namely
students at the undergraduate or
graduate levels. See “Guidelines for
Nominators” at: http://www.cra.org/ Activities/ awards/habermann/ guidelines.html

For a list of previous recipients of
these two awards, see: http://www. cra. org/main/cra.awards.html

Nomination Process
Send a nomination letter (no
longer than two pages) that describes
the contributions on which the
nomination is based to awards@cra.org. Refer
to the appropriate “Guidelines for
Nominators” for the award. Include
the candidate’s current curriculum
vitae. Questions or comments may be
addressed to awards@cra.org.

Nominators are responsible for
collating the nomination materials
before e-mailing the complete
package to: awards@cra.org. The
deadline for receipt of nominations is
January 28, 2011.

Current names of the CRA Board of
Directors (http://www.cra.org/main/cra. personnel.html) are not eligible for these
awards, nor can they submit nominations
or letters of support for nominees.

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Professional Opportunities

Accenture Technology Labs Technology Researchers

Accenture is a global management consulting, technology services and outsourcing company with offices and operations in more than 50 countries. Our clients span the full range of industries around the world and include 95 of Fortune 100 and three-quarters of the Fortune 500.

Accenture Technology Labs does R&D, explores advancing in technology and inventing new solutions that will shape the future. Accenture's clients, it is a great place for researchers interested in working at the intersection of technical, cultural and societal issues, fundamental problems in areas such as software engineering, hardware, software, and data management; human-computer interaction; analytics; and cyber security.

We currently have open positions for Researchers with a Ph.D. in computer science or a related field, capable of defining and executing strong research programs in areas like those outlined above.

For more information and to formally apply for this position, please visit the following website: http://careers3.accenture.com/jobs/jhtml. Enter job code: J97385

Arizona State University Engineering Faculty Openings in Human Activity Capture and Analysis

The School of Arts, Media and Engineering (AME) and the School of Electrical, Computer, and Energy Engineering (ECEE) at Arizona State University are seeking a jointly appointed faculty member. Of particular interest is the area of Human Activity Capture, and Analysis with emphasis on health, education, and cultural applications. Candidates are sought at the assistant, associate or full professor level.

The School of Arts, Media, and Engineering (AME—http://ame.asu.edu/), at the Herberger Institute for Design and the Arts and the Fulton School of Engineering, is a leading transdisciplinary program in media arts and sciences. It offers B.A., M.A. and M.F.A. degrees in media studies and design. Significant federal, private foundation and industry support along with strong, educational and cultural partnerships contribute to the development and deployment of innovative media systems.

The School of Electrical, Computer, and Energy Engineering leads academic programs with more than 50 faculty members, 550 undergraduates and 700 graduate students. The school’s programs include extramural research funding of more than $100 million, and more than 3000 undergraduate and graduate students. The school’s research centers and institutes are recognized world-wide for their excellence in focusing on critical issues facing society.

Application deadline: November 1, 2010. For complete position details and application process, please visit: http://ame.asu.edu/about/employment.php

Auburn University Department of Computer Science and Software Engineering Assistant/Associate Professor of Human-Centered Computing

The Department of Computer Science and Software Engineering (CSSE) invites applications for a new full-time, tenure-track faculty position at the Assistant/Associate Professor level to begin Spring 2011 or Fall 2011. We encourage candidates from all academic areas of computer science and software engineering to apply. We are especially interested in candidates specializing in software engineering and cyber security. We are also interested in candidates for these positions must be able to meet eligibility requirements to work in the United States at the time of appointment. We are scheduled to begin and continue working legally for the proposed term of employment; excellent communication skills are required.

Applicants should submit a current curriculum vitae, research vision, teaching philosophy, and a list of significant publications and addressers of three references to Kai H. Chang, Professor and Chair, kjchang@eng.auburn.edu (with copy to cpe@auburn.edu). The application review process will begin October 15, 2010. Detailed announcement of this position can be found at: http://www.eng.auburn.edu/ame/Auburn/ArizonaStateUniversityisAnAffirmativeAction/EmploymentOpportunity. Women and minorities are encouraged to apply.

Cal Poly State University Computing and Computational Tenure Track Position—Forbes Professor of Computer Engineering

The Computing and Computer Science Department and Computer Engineering Program at Cal Poly, San Luis Obispo, invite applications for a full-time, 9-month, academic year tenure-track Computer Engineering faculty position at the Assistant or Associate Professor rank, beginning no later than Fall 2011. The appointment will be designated as the “Forbes Professor of Computer Engineering.” Duties include teaching core undergraduate courses and upper-division and master’s level courses in a specialty area; performing research in an area of computer engineering; and service to the department, the university, and the community.

Applicants from all mainstream areas of computer engineering are encouraged to apply. A doctorate in Computer Engineering, Computer Science, Electrical Engineering, or a closely related field is required. Salary is commensurate with qualifications and experience.

Candidates in the areas of Computer Security, Parallel and Distributed Computing, Autonomous Systems, Biomedical Engineering, and Sustainable Computing are strongly encouraged to apply. Industry experience and willingness to teach in multiple areas of the undergraduate curriculum is desirable. Candidates must have a strong commitment to excellence in teaching and scholarship and a broad-based knowledge of computer engineering. Demonstrated ability in written and oral use of the English language is required.

Cal Poly offers Bachelor’s Degrees in Computer Science and Computer Engineering, Software Engineering and Electrical Engineering, and Master’s Degrees in Computer Science and Electrical Engineering. Computer Engineering is a joint program between the Departments of Computer Science and Electrical Engineering. Cal Poly emphasizes “learn by doing” which involves extensive hands-on lab work and projects in support of theoretical knowledge. The available computing facilities for instructional and faculty support are modern and extensive.

To apply, please visit www.calpolyjobs.org and complete a required online faculty application, and reference letters (http://jobopenings.cas.asu.edu/281222). Review of applications will begin January 7, 2011; applications received after that date will also be considered. For more information or to answer questions, contact Cindy Rito at (650) 376-7229 or email: crito@calpoly.edu. Please include recruitment number in all correspondence.

For further information about the department and its programs, see www.cse.calpoly.edu and www.cpp.calpoly.edu. Cal Poly is strongly committed to achieving excellence through cultural diversity. The university actively encourages applications and nominations of all qualified individuals. EEO

Cal Poly, San Luis Obispo Electrical and Computer Engineering Tenure Track Faculty Position

Electrical & Computer Engineering—Tenure track faculty positions in Electrical and Computer Engineering at Cal Poly, San Luis Obispo, California, beginning September 2011. For details, qualifications, and selection instructions (online application required), visit www.calpolyjobs.org and apply to position #010119.

Application review begins January 1, 2011. EEO/AA

Cornell University Department of Computer Science Multiple Faculty Positions

Multiple faculty positions are available at Cornell’s Department of Computer Science. Candidates are invited to apply at all levels including tenured, tenure-track, or visiting. We are interested in applications from any area of computer science, including artificial intelligence, computational biology, cryptography, databases, game design, graphics, machine learning, networking, programming languages, robotics, security, scientific computing, systems, and theory of computation. To ensure full consideration, applications should be received by December 1, 2010, but will be accepted until all positions are filled. Applicants should submit a curriculum vitae, brief statement of research and teaching interests through the web at http://www.cs.cornell.edu/faculty and arrange to have at least three references uploaded on the web.

Cornell University is an Affirmative Action/Equal Opportunity Employer and Educator.

Furman University Computer Science Department Assistant Professor of Computer Science

The Department of Computer Science invites applications for a tenure-track position at the Assistant Professor level to begin in the fall of 2011. Candidates must have a Ph.D. in Computer Science or a closely related field. The position requires teaching excellence, effective student advising, and the ability to work with colleagues across disciplines. An ability to develop a program of scholarship and professional activity involving undergraduates is a priority. Research specialty areas being sought include (but are not limited to) high performance computing, computational science, mathematical modeling, and biomathematics. Of particular interest are candidates willing to engage in collaborative research that bridges the computational and medical sciences.

The position will be initially funded by and is expected to contribute to a major multidisciplinary and multiaorganizational statewide initiative aimed at bioinformatics of tissues and organisms.

Furman is a highly selective, independent, top 40 undergraduate liberal arts institution with an enrollment of approximately 2000 students. The university is located in the vibrant and beautiful upstate region of South Carolina, offers generous benefits to its faculty and staff, and subscribes to a problem-solving, project-oriented, entrepreneurial-based approach to education that is referred to as Engaged Learning. The Department of Computer Science confers the B.S. degree with majors in Computer Science, Information Technology, and Computer Science/Mathematics. The successful candidate will have the opportunity to teach Furman’s First Year Seminar program.

Furman University is an equal-opportunity/affirmative action institution and underrepresented minorities are strongly encouraged to apply. For the complete ad, please contact csjobs@furman.edu.

Applicants should submit a curriculum vitae, statement of teaching philosophy, description of research interests, and at least three letters of recommendation sent separately. Please send all materials to:

Dr. Kevin Teo. Chair
Department of Computer Science
Furman University
300 Peel Street
Greenville, SC 29613

Materials may also be sent in PDF format to: kevin.teo@furman.edu.

Furman University is an equal-opportunity/affirmative action institution and underrepresented minorities will continue until the position is filled.

George Mason University Computer Science Department Faculty Positions

The Department of Computer Science in the Volgenau School of Information Technology at George Mason University invites applications for a faculty position at the rank of Full Professor beginning Fall 2010 or Spring 2011 or beginning in Spring 2011 or until the position is filled.

The School is in information security and assurance, Minimum qualifications for the position include a Ph.D. in Computer Science or a related field, demonstrated potential for excellence and productivity in research, and a commitment to high quality teaching.

Applicants for a senior position need a well-established track record of substantial research contributions to their field, externally funded research, and leadership.

For full consideration please submit application and application materials online at: http://jobs.gmu.edu (position number F9349Z). To apply, you will need a statement of professional goals including your perspective on teaching and research, a complete C.V. with publications, and two letters of recommendation. The review of applications will begin immediately and will continue until the positions are filled. For more information about our department, visit our Web site: http://cs.gmu.edu/.

GMC is an equal opportunity/affirmative action employer. Women and minorities strongly encouraged.

Masdar Institute of Science and Technology, Abu Dhabi Computing and Information Science Faculty Positions

Masdar Institute of Science and Technology, located in Abu Dhabi, UAE, is a graduate-level, research-driven institute developed with the support and cooperation of the Massachusetts Institute of Technology (MIT). The goal of the Institute is to develop, over a period of years, into a leading Ph.D. and capacity in Abu Dhabi, addressing issues of importance in the region in critical areas such as renewable energy, sustainability, environment, water resources and microelectronics. The Institute offers graduate courses and provides a broad-based knowledge of computing and engineering disciplines with a focus on advanced energy and sustainable technologies (www.masdar.ac.ae and www.mit.ae). The review of applications will begin immediately and will continue until the positions are filled. For more information about our department, visit our Web site: http://cits.mitm.ae/.

GMC is an equal opportunity/affirmative action employer. Women and minorities strongly encouraged.

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for such research, and participate in the Institute’s events and committees. Qualifications: The Computing and Information Science program at the Masdar Institute of Science and Technology (Masdar) is seeking candidates with demonstrated research and teaching capability in one or more computer science subfields. We formally encourage applications from candidates with background in any area of computer science, and welcome calls for algorithms, networking, cryptography, computer security, and human-computer interaction. Please express an interest in applying their research to areas related to advanced energy and sustainability. Examples of relevant research applications include software for green buildings, standards for intelligent infrastructure, intelligent transportation systems, smart power grids, largescale scientific databases, etc. The applicants must be fluent in English. A doctoral degree in computer science or a related field is required, and a demonstrated industry or industrial research experience is a plus.

Application submission information: The Department of Computer Science at Masdar Institute of Science and Technology is assisting Masdar Institute in the search. Initial screening of applications will begin immediately and the search will remain open until filled. Application materials should include candidate name and contact information, a curriculum vitae, statements of research and teaching interests, an application letter describing the applicant’s experience, and how his/her experience matches the position requirements, and email contact information at last three references. Materials must be submitted electronically to masdar-faculty-applications@odu.edu.

Nec Laboratories America, Inc. (http://www.nec-labs.com) Research Staff Member–Distributed Systems

Nec Laboratories America, Inc. (http://www.nec-labs.com) conducts research to support its parent company NEC USA and global businesses. The research program covers all areas of computer science and engineering of NEC business–and maintains a balanced mix of fundamental and applied research. The Distributed Systems group conducts advanced research in the area of design, analysis, modeling and evaluation of distributed systems. Our current focus is to create innovative technologies to build next generation large-scale computing platforms and to simplify and automate the management of complex IT systems and services. Our researchers have expertise in networking, statistics, modeling, distributed systems, and operations research. Our group has many ongoing projects, especially in the emerging Cloud Computing area. The group strongly believes in publishing our research and advancing the state-of-the-art. We also build technologies that solve real-world problems and ultimately help improve people’s everyday lives. Many of our research results have been/will be transferred into industry products.

The candidate is expected to work in the area of distributed systems. The candidate must have deep knowledge and extensive experience in concurrent system design and implementation. He/she must have a PhD in CS/CE with strong publications records in distributed systems. The candidate must have good familiarity with general distributed systems, virtualization, resource provisioning performance, reliability, dependability and security data centers and cloud computing. For consideration, please forward your resume and a research statement to recruit@nec-labs.com and reference “ASDS-RSM” in the subject line.

Nec Laboratories America Systems Research Staff Positions

Nec Laboratories America, a premier research facility of NEC Corporation, has multiple openings in the Systems Architecture Department located in Princeton, NJ. We invite applications from experienced candidates (senior level or junior level) for research staff (RSM) and associate research staff (ARSM) positions. The Systems Architecture department’s mission is to innovate, design, evaluate and deliver parallel systems for high-performance, energy-efficient enterprise computing.

Candidates for the RSM position must have a PhD in CS, EE, or EE, strong research record and excellent credentials in the international research community. Associate Research Staff members must be able to propose and execute innovative research projects, including prototyping efforts. Successful candidates will demonstrate leadership in an environment industry. Applicants must demonstrate competence in one or more parallel computing technologies to accelerate performance and power lower consumption of enterprise applications on heterogeneous clusters. Knowledge of parallel systems, experience in designing parallel software on shared and distributed memory models, and exposure to enterprise workloads and cloud computing is desirable. The current focus is on accelerating enterprise workloads on computing clusters that include various types of heterogeneity in computing, networking, and storage units.

Candidates for the ARSM position must have a PhD in CS, EE, or EE, with a strong motivation and skill set to prototype/transfer innovative research results into industry practice. Expertise in one or more of the above parallel computing areas is desirable. Strong interest and aptitude for research is necessary.

Nec Laboratories America Inc. is a United States subsidiary that is part of NEC Corporation’s global network of research laboratories. For more information, please visit http://www.nec-labs.com and http://www.nec.com. Interested applicants should send their resume and a short description of research interests to recruit@nec-labs.com and reference “Systems Architecture” in the subject line.

National Institutes of Health Department of Health and Human Services Scientific Executive

Associate Director for Health Information Programs Development National Library of Medicine

The National Library of Medicine (NLM), a major component of the National Institutes of Health (NIH), is seeking a senior candidate for the position of Associate Director for Health Information Programs Development. The NLM is responsible for collecting, preserving, and promoting the dissemination of information important to the progress of medicine and public health, both nationally and internationally. The NLM is the world’s largest medical library, and it expands and conducts research in a wide range of biomedical communication modalities with a goal of linking the activities in such as biomedical informatics, genomics, toxicology and environmental health, HIV/AIDS, consumer health informatics, international programs, and outreach to underserved populations, particularly communities and special populations. The Associate Director for Health Information Programs Development, who reports to the NLM Director, serves as principal advisor to the Director for all matters concerning biomedical communication programs dealing with large-scale information technology interventions, science communication, policy issues, and the strategic and evaluative oversight of the Library’s research and service initiatives, especially those relating to information technology advances, development of new national outreach programming; and management of NLM’s international programs. The Associate Director is the principal official leading the Library’s long-range planning function on behalf of the NLM Board of Regents; the principal NLM liaison with the 20-member National Institutes of Health MedLinePLUS steering group; a principal NLM liaison with the 20-member National Institutes of Health MedLinePLUS steering group; and the principal NLM liaison with the 20-member National Institutes of Health MedLinePLUS steering group.

Qualifications required: Applicants must possess a PhD, M.D., or equivalent degree in a scientific discipline related to communication research, evaluation research, information science, informatics research, behavioral and social sciences or related field. Applicants must have a proven track record in research, a demonstrated record of management experience, and a commitment to excellence and innovation. The successful candidate will demonstrate the following skills and attributes:

1. Knowledgeable and experienced in the scientific discipline of communication research, evaluation research, information science, informatics research, behavioral and social sciences or related field, as well as a deep understanding of current information handling and dissemination methods.

2. Ability to provide leadership, administration, and broad vision to a planning and evaluation, outreach, and international initiatives program with an extensive managerial and executive leadership responsibility (i.e., training, resources, strategic planning, budgeting, and human resource management) in a diverse organization.

3. Skill in leadership, enabling, and defending change on complex scientific topics through effective written communication formats for a diverse scientific and non-scientific audience.

4. Ability to advise senior and evidenced staff within and outside of the organization on complex scientific topics.

5. Skill in the leadership of long range planning activities that guide resource allocation and program direction for a major organization in the health or medical sciences.

Salary: This position is an excepted service position. Applicants selected for this position are at a level commensurate with the background of the selected candidate depending on qualifications and experience. Endorsement for the position is依然 available including retirement, health and life insurance, long-term care insurance, leave, and savings plan (401K equivalent). Please submit a cover letter that discusses your interest in and vision for the position, a statement of your experience, and a resume.

Meredith A. Sevi
Office of Human Resources
National Institutes of Health
2115 East Jefferson Street
Rockville, MD 20852
Phone: 301-402-3012
Fax: 301-402-3121
Applications may also be sent via e-mail to recruit@nih.gov. Questions should be directed to 301-402-1992. Any questions, please call 301-402-3121.

NIH and NLM are an Equal Opportunity Employer.

Old Dominion University Tereau Track Faculty, Computer Engineering Assistant/Associate Professor

The Department of Electrical and Computer Engineering at Old Dominion University invites applications for a tenure track position at the assistant/ associate professor level. The successful candidate is expected to have a strong commitment to teaching undergraduate and graduate courses in core areas of computer engineering. Additionally, candidates are expected to develop an externally funded research program. A Ph.D. degree in electrical engineering, computer engineering, or a related area is required.

For more information on the Electrical and Computer Engineering Department, visit http://ece.odu.edu. Interested candidates should send a letter of application, a CV, contact information for at least 4 technical references and a statement of teaching philosophy to namcom@odu.edu.

For further information please contact Dr. Lee Befolz, Search Chair, at lbefolz@odu.edu or 757-683-6172. All applications will begin on July 15, 2010 and continue until the position is filled.

Old Dominion University is an affirmative action/equal opportunity institution and requires compliance with the Immigration Reform and Control Act of 1986.

Princeton University Computer Science Department Assistant/Associate Professor, Tenure-Track Positions

The Department of Computer Science at Princeton University invites applications for tenure-track positions at the assistant/associate professor level. We are accepting applications in all areas of Computer Science.

Applicants must demonstrate superior research and scholarship potential as well as a commitment to teaching.

A Ph.D in Computer Science or a related area is required.

Successful candidates are expected to pursue an active research program and to contribute significantly to the teaching programs of the department. Applicants should include a resume contact information for at least three people who can comment on the applicant’s professional qualifications.

There is no deadline, but review of applications will start in December 2010; the review of applicants in the field of theoretical computer science will begin as early as December 2010.

Princeton University is an equal opportunity employer and complies with all applicable EEO and affirmative action regulations. You may apply online at:

http://www.cs.princeton.edu/jobs

Job Requisition Numbers: 102550

Purdue University School of Science School of Science Informational Science & Technology Managing Lecturer

The Managing Director for the Science of Information (SCI) at Purdue University is seeking for the day-to-day management of all non-research related aspects of running a...
In one year there are about 3,600 serious cybercrime attacks on U.S. government agencies. That’s why the National Security Agency needs you to help protect classified and sensitive information stored on or sent through U.S. government equipment.

If you want to protect the Nation from the ramifications of information warfare, apply to NSA.

At NSA you will work with some of the most innovative people in the intelligence business, as well as cutting-edge commercial partners. You’ll enjoy an incredible benefits package, collaborative work environment, and working with the latest technology every day.

Come explore the exciting career opportunities at NSA. You won’t find them anywhere else.
Continued on page 16
The Dwight Look College of Engineering at Texas A&M University invites nominations and applications for the position of Head of the Department of Computer Science and Engineering. Texas A&M, a land-grant, sea-grant, and space-grant institution, is one of the six largest universities in the United States and has over 48,000 students. Today, the Dwight Look College of Engineering is one of the largest and best endowed in the nation, and it ranks among the top institutions in every significant national poll, including #8 for graduate programs and #9 for undergraduate programs in the recent US News and World report ranking of public institutions. It has long enjoyed national leadership status in engineering education, and currently has over 10,000 engineering students in twelve departments. Approximately 25 percent of the engineering students are graduate students.

The Department of Computer Science and Engineering has recently gone through an expansion with the hiring of 21 faculty members in the past eight years. It now has 38 tenured and tenure-track faculty members and four full-time lecturers. The Department currently has one National Academy of Engineering member, one Association for the Advancement of Science Fellow, seven IEEE Fellows, two ACM Fellows, and one ACM Distinguished Scientist; 40 percent of the faculty are holders of NSF CAREER/NYI/PYI awards. The faculty holds over 60 important and influential professional positions, including editorships for scientific journals and general chairs of technical conferences. The faculty is also well-recognized for contributions to their fields, with research known throughout the international academic community and global industry alike. The Department’s annual research budget for 2009 was $10,000,000. The Department offers B.S., Master’s, and Ph.D. degrees in computer science and, jointly with the Department of Electrical and Computer Engineering, in computer engineering, to roughly 350 graduate and 600 undergraduate students.

In recent years, the Department has built a strong national reputation based on the quality of its faculty and programs; its graduate computer engineering program was ranked #13 and its graduate computer science #27 in the recent US News and World report ranking of public institutions. More information is available at http://www.cse.tamu.edu.

In the next few years, the Department is expected to add faculty positions at both the junior and senior level. The Department is playing an active role in many campus-wide and System-wide initiatives, including in half of the eight multidisciplinary research directions identified in the recently completed University Academic Master Plan and in the newly established Energy Engineering Institute.

We are looking for an innovative thinker with a strategic vision for guiding the Department to a higher level of excellence who can communicate this vision to a constituency that includes academia, government, industry, and alumni. Candidates should possess proven leadership and administrative skills, and an established reputation as a scholar consistent with an appointment to the rank of Professor of Computer Science and Engineering with tenure.

Letters of application should include
(1) a full curriculum vitae,
(2) a two-page statement summarizing the candidate’s vision and goals for the Department and leadership philosophy, and
(3) the names and addresses of at least five references.

Applications will be accepted until the position is filled; screening will begin immediately. Nominations or applications should be sent to csechair@tamu.edu.

Texas A&M University is an Equal Opportunity / Affirmative Action Employer. Women and minorities are encouraged to apply. Employer paid advertisement.
Tenure-Track Faculty Position
Focus on Software Engineering
Department of Computer Science
The University of Alabama

The Department of Computer Science at the University of Alabama invites applications for a new tenure-track Assistant Professor position to begin August 2011. The general area of interest is in software engineering, with a high priority area in model-driven engineering.

Candidates must have an earned Ph.D. in computer science or a related field, with solid evidence of superior research and scholarly accomplishments that are appropriate for the desired level of appointment, as well as quality teaching abilities. Applicants who specialize in software engineering are encouraged to apply. A high priority area for this search is model-driven engineering and software language engineering (e.g., domain-specific modeling and languages, metamodeling, model transformation, application of model engineering to software product lines and mobile software development).

About the University, College, and Department:
The University of Alabama, located in Tuscaloosa, is considered the Capstone of higher education in Alabama and is also the largest institution in the State. The University is listed by US News and World Report as one of the top-50 public universities in the United States. The Department of Computer Science, housed in the College of Engineering, currently has twenty-three faculty members (16 tenured/tenure track faculty, 6 of whom have interests in software engineering), roughly 200 undergraduates in an ABET accredited B.S. degree program, and approximately 60 M.S. and Ph.D. students. Beginning Fall 2010, two postdocs in software engineering will be supported in the Department.

The Department and College of Engineering are undergoing a period of growth. The Department is housed in a new, opened August 2009) state-of-the-art complex. Within a ten-year period, the University will complete construction of the science and engineering complex. The four buildings under construction are focused on the expansion of research in engineering and the sciences. Over 3000 square feet of new research space has been constructed to support the efforts of the software engineering faculty.

The software engineering faculty in the Department are responsible for $3.25M in active funding. Current sponsors include Google, NSP, US Department of Homeland Security, and the National Highway Traffic Safety Administration. Past sponsors include Microsoft Research, IBM, DARPA, US Army Research Laboratory, and NASA.

Application Information:
Details regarding the procedure for applying for this position will be announced in early Fall 2010 and will be available from the department website. For additional information about the Department and future opportunities, please visit http://cse.ua.edu. For information about the future position, please contact the Search Committee at faculty-search@cse.ua.edu.

Review of applications will begin late-Fall 2010 and will continue until the position is filled. The University of Alabama is an equal opportunity/affirmative action employer. Women and minority applicants are particularly encouraged to apply.

University Awards from NEC Labs Data Management Call for Proposals
The Data Management Department of NEC Labs Americas is calling for research proposals. NEC Labs conducts high-impact research and development by building upon NEC’s long history of innovation. The purpose of this program is to identify and support world-class research projects at universities and facilitate industry-academia research collaborations. The awards through this selective program are typically for one year in the range of $40,000-$50,000, and in the form of unrestricted grants. For detailed information please go to http://www.nulabs.com/researches/Call_for_proposal_DM.php