

Computing Research Association

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COMPUTING RESEARCH ASSOCIATION, UNITING INDUSTRY, ACADEMIA AND GOVERNMENT TO ADVANCE COMPUTING RESEARCH AND CHANGE THE WORLD.

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Computing Researchers Get 'Schooled' on Science Policy at LiSPI 2015

By Peter Harsha and Fred B. Schneider

As part of its mission to develop a next generation of leaders in the computing research community, the Computing Research Association's Computing Community Consortium recently held its third Leadership in Science Policy Institute (LiSPI) on April 27-28 in Washington, D.C. This one-and-a-half day workshop intended to educate a cadre of computing researchers on how science policy in the U.S. is formulated and how our government works. Participants heard candid and "off the record" views from people who are currently or previously involved in science policy. Thirty-six computer scientists and engineers from 30 different universities and research organizations attended.

The workshop offered sessions on: interacting with Federal science agencies, how new initiatives are created within agencies, the role of Federal advisory committees, the Federal budget process, embedding scientists in non-science agencies, the arguments for supporting research in computing, how to talk to policymakers, and a rather candid discussion from staffers on the House Science, Space and Technology committee and the Senate Armed Services Committee. LiSPI participants were required to complete both pre- and post-workshop homework assignments.

LiSPI co-organizer Fred B. Schneider started the day by laying out goals of the workshop and workshop co-organizer Peter Harsha followed by outlining "the case" for computing research investments in Washington. Kei Koizumi, from the White House's Office of Science and Technology Policy, led participants through a primer on the Federal R&D budget process, including key milestones and inflection points in the process. He also explained impacts of the current political and fiscal situation in Congress and how this might affect Federal science budgets in the future.

Participants then heard from

representatives of two key science agencies: Angelos Keromytis, a former program manager at the National Science Foundation, now a program manager at the Department of Defense's Defense Advanced Research Projects Agency, and Farnam Jahanian, former assistant director for Computer and Information Science and Engineering at the NSF, now provost at Carnegie Mellon University. This panel explained that influencing policy decisions at a Federal agency involves a somewhat different skill set and somewhat different approach than influencing faculty peers, Congress, or the White House. The panelists also discussed how agencies provide opportunities for researchers to shape Federal policy in their fields – by serving on advisory committees and by taking rotations as program managers, division directors, or office directors. Keromytis and Jahanian also discussed how new agency initiatives get started, focusing on the culture and traditions that create the lens through which agencies view themselves and are viewed by others.

In the next session, Annie Antón, from Georgia Tech, Ed Lazowska, from the University of Washington (and former Chair of CCC), and Lynette Millett, from the National Academies' Computer Science and Telecommunications Board (CSTB), described the role and dynamics of advisory committees that are found at nearly every level of the Federal government. The speakers discussed how those committees work (in theory and practice), why they sometimes do not work, how members are chosen, and who they are intended to influence (as well as who they actually influence). Lazowska and Antón have served on a variety of Federal advisory committees, and Millett has staffed many CSTB



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studies, so these speakers were particularly well qualified to discuss how issues get raised and vetted, how outcomes get finalized and disseminated, how committees do their jobs, and how members of the community can be effective when serving on these committees.

Practical advice on "having the conversation" with policymakers was offered by a former congressional staffer and current member of the Microsoft Technology and Civic Engagement Group, Elizabeth Grossman. Grossman described how policymakers approach meetings with researchers and how researchers might be best prepared to provide useful input. Grossman also charged the attendees with coming up with a pitch – a 3-5 minute introduction to a hypothetical policymaker or answering a tough question a policymaker might pose - honing it as "homework" during the first night of the workshop and then presenting it to a "murder board" of public policy professionals (Grossman, Cameron Wilson of code.org, and Harsha of CRA, all former congressional committee professional staff) for constructive advice on the second day of the workshop. This practicum was perhaps the highest rated of the workshop, and participants got a good sense of how a conversation might go, as well as how it could be most productive.

Ending the first day's sessions, current congressional staff members Dahlia Sokolov, from the House Science, Space, and Technology committee minority, and Arun Seraphin, from the Senate Armed Services Committee minority, took to the podium to describe the unique difficulties of communicating the value of research to elected officials and the difficulties of prioritizing science investments in the current political and fiscal climate. Both Seraphin and Sokolov spoke candidly about challenges they face in an increasingly polarized Congress and about the importance of getting feedback from the computer science community on their efforts. featured a panel focused on computer scientists who have taken policy positions in non-research agencies or the White House. Edward Felten, former CTO for the Federal Trade Commission (the first CTO in the agency's history), Randy Bryant, on detail at the White House Office of Science and Technology Policy, and Stephanie Forrest, who recently completed a one-year fellowship at the Department of State, all spoke about their experiences incorporating technical expertise in these rather non-technical environments and how important it is that these non-science mission-oriented agencies establish a good connection to the research community. Peter Swire, former chief counselor for Privacy at the White House Office of Management and Budget in the Clinton Administration, and a privacy lawyer and professor at Georgia Tech, made the case that computer scientists need to take advantage of opportunities to serve policy roles beyond those just focused on research funding. Technical expertise is valued throughout D.C. policymaking, but too few computing researchers make themselves available for such service

Schneider wrapped up the workshop with a session about serving as a witness at a congressional hearing. He played a videotaped highlight from a recent hearing on the Federal Networking and Information Technology R&D program. Participants viewed the opening five-minute statement from CCC's Lazowska presenting a "case for funding computing research" as an exemplar of how a good opening statement might sound. Schneider then put a question to the participants about how they might respond if asked, as witnesses at a congressional hearing, about a particular science policy bill. Participants were asked to craft one-minute answers to the question as their "final exam" for the day.

Feedback from the attendees was quite positive. Slides from the speakers are posted on the web (http://www.cra. org/ccc/leadership/leadership-in-science-policy-institute) for interested CRN readers. The chances are quite good that CRA will present similar programs in the future, since there is an acute need to develop a community of computer scientists who can participate in science policy. If you would like to be considered for participation in those programs, keep an eye on the Computing Research Policy Blog (http://cra.org/blog) and the CCC Blog (http://cccblog.org) for the next announcement.

In addition to the practicum, day two of the workshop



CS in DC: Profiles of Computing Researchers in Policy Roles in the Nation's Capital

As part of CRA's mission to help the computing research community become more engaged in policymaking and programmatic roles in D.C., we've embarked on a new effort to highlight the work of members of the computing research community who have taken the plunge and chosen to serve the nation in policymaking roles. This new column—which will become part of CRA's new website to be launched this summer—will provide these policymaking researchers an opportunity to highlight work that the community should know about, as well as raise awareness of the types of opportunities that are available to those interested in serving.

Randy Bryant is currently the Assistant Director, Information Technology Research and Development at the White House Office of Science and Technology Policy (OSTP). While at OSTP, Bryant is on sabbatical from Carnegie Mellon University, where he is a University Professor in the

Computer Science Department (with a courtesy appointment in the Electrical and Computer Engineering Department). He served as dean of the School of Computer Science from 2004 to 2014.

Bryant has been at OSTP since August 2014.

What do you do in your current position? What do you hope to accomplish in your time in D.C.?

OSTP has two concerns: the technology and science behind government policy (e.g., what should the government do about climate change) and the policy behind science and technology (e.g., working with the National Science Foundation on its budget priorities). My role at OSTP concerns the latter. I'm working on initiatives in high-performance computing and big data.

Since I'm at OSTP for only 11 months, I feel the best way for me to have a lasting impact is to work with other people in OSTP on existing initiatives. If something comes out where I can identify tangible contributions I've been able to make, I will consider the year to be a success.

How did you find out about the opportunity, and how were you chosen?

I volunteered! I first came to know about OSTP by serving on the Council of CRA's Computing Community Consortium (CCC). The CCC received requests by people in President Obama's transition team to write white papers on the impact that big data could have on different aspects of government and society. I got involved in writing some of those papers, and that led to my interest in government policy and my contacts within OSTP.

How can the computing community participate in your work?

I'm hoping some of the initiatives that I'm working on will lead to important research opportunities in the coming decade. I'd like to see the computing research community get involved in defining future generations of high-performance computing systems and addressing challenges in both the hardware and the software.

What are your thoughts on the experience so far?

I've found people in government to be remarkably generous in their time and attention. Beyond my own field, it's been an opportunity to learn about the issues being faced in domains ranging from high-energy physics to infectious disease.



NSF-Funded Robotic System Excites Capitol Hill Attendees at CNSF Exhibition

By Brian Mosley

On April 29th, the Coalition for National Science Funding (CNSF), an alliance of more than 140 professional organizations, universities, and businesses, held their 21st Annual Capitol Hill Exhibition. CNSF supports the goal of increasing the Federal investment in the National Science Foundation's research and education programs, and the exhibition itself is a great way to show members of Congress and their staff what research the American people have funded.

This year the Computing Research Association, a member of CNSF, sponsored three students – two Ph.D. candidates and a defended Ph.D. candidate – from Johns Hopkins University to come to Washington to demonstrate their work. Kelleher Guerin (the defended Ph.D. candidate) and Amanda Edwards demonstrated their collaborative robot for manufacturing, called CoSTAR; while Colin Lea demonstrated a virtual reality interface that can be used to more easily program robots by



Greg Hager, (left) of Johns Hopkins University and the Computing Community Consortium, explains aspects of his students' research to NSF Director France Cordóva.



Amanda Edwards (left) demonstrates the CoSTAR system to Deborah Lockhart of NSF.

novice, non-technical users. All three young researchers are advised by Greg Hager, professor and chair of the Department of Computer Science at Johns Hopkins University and Chair of the Computing Community Consortium; Hager also attended the event and fielded questions.

CoSTAR, a system for human instruction and collaboration with robotic systems, has been developed to enable experts skilled at a task, but not skilled with programming, to instruct the robot as an apprentice. In apprenticeship, a teacher understands the capabilities of the apprentice and builds on those capabilities until the apprentice can perform the desired tasks. Their system allows for a similar instruction of robots by representing the capabilities of a robot as a set of easy-to-understand building blocks. A novice end-user can then enlist these building blocks to create a plan, which the robot follows to accomplish a task. This also allows for the

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Kelleher Guerin explains his work on the CoSTAR system to an exhibition attendee.

robot to reuse information it is taught across many different tasks. Their system also allows for the robot to collaborate with humans and respond to dynamic events like a human would. In addition, they showed how advances in virtual reality could provide an environment for intuitive robot interaction and teaching.

With regard to Lea's virtual reality interface, it was noted that most robots used in factories are old and not intended to be used directly with humans. Users must stand behind shielding where they spend a substantial amount of time programming the robot. The researchers' work showed how advances in virtual reality could provide an environment for intuitive robot interaction and teaching. Using a virtual reality headset and a pair of 3D joysticks, a user can virtually move the robot as if they were performing the task themselves. All of this work is supported from the CISE directorate at NSF. Both projects were well received by the attendees of the exhibition; in fact, the students fielded questions from members of Congress, congressional staffers, NSF program officers, and even the NSF Director France Córdova.

A number of other organizations presented displays and demonstrated their NSF-funded research at the event. From the University of Illinois' National Center for Supercomputing Applications "NSF Blue Water" supercomputer, to the American Political Science Association's "American National Election Studies: Understanding the Changing American Electorate," to the American Astronomical Society's "Disruptive Technology & Cosmology at 17,000 Feet," the exhibition was a great display of the different types of research being supported by NSF. Look here for a list of some of the participating organizations and presentations by some of the exhibitors.



Colin Lea explains the virtual reality interface to Anita Benjamin of the American Mathematical Society.



June 2015 CERP Infographic

By Jane Stout, CERP Director

Terminal M.S. Students Who Participate in the CRA-W's Grad Cohort Show Increased Interest in Pursuing a Ph.D.



Note: During the spring of 2015, 63 Terminal Masters students who had participated in the CRA-W's annual Grad Cohort mentoring event for women graduate students responded to the following question: *How interested are you in ultimately pursuing a Ph.D. in a computing field?* Respondents answered this question two weeks prior to and two weeks after the Grad Cohort using the following scale: *Not at all, A little, Somewhat, Quite a bit, Extremely.* Sixty-eight percent of women indicated that they were at least "Somewhat" interested in pursuing a Ph.D. in a computing field prior to Grad Cohort compared to 82% of women after Grad Cohort. This I4% increase suggests that Grad Cohort may be a viable way of increasing women's participation in computing research at the Ph.D. level.



This infographic is brought to you by the CRA's Center for Evaluating the Research Pipeline (CERP). CERP provides social science research and comparative evaluation for the computing community. To learn more about CERP, visit our website at http://cra.org/cerp/.



Expanding the Pipeline

10 Years of RESPECT for Diversity: The 10th anniversary of the STARS Celebration and the First Annual RESPECT conference on Broadening Participation

By Tiffany Barnes, Jamie Payton, George Thiruvathukal, and Quincy Brown



There is an increasingly urgent need to engage people in computing, not only to satisfy growing workforce demands, but also to empower people to create and control the devices we use in our dayto-day lives. In computing, broadening the participation of persons from underrepresented groups is a matter of

equity. Globally, underrepresentation differs regionally and culturally by gender, race, ethnicity, socio-economic advantage, physical or mental impairment, and LGBT status.

With funding from the National Science Foundation, from 2006-2015, the annual STARS Celebration conference has convened the STARS Computing Corps, inspiring more than 2,300 new student and faculty leaders from 52 colleges and universities to engage in student-led regional projects to broaden participation in computing. The STARS Celebration builds capacity for leadership and technical skills and creates a community for professional advancement. At the Celebration, students and faculty present the results of their STARS service and civic engagement projects, attend workshops on best practices and curricula for computing outreach and service, and build community centered around the common mission to broadening participation in computing.

Inspired by the success of STARS and its effectiveness for supporting the careers of computing faculty while also promoting work to broaden participation, Teresa Dahlberg and George Thiruvathukal formed the new IEEE Computer Special Technical Community on Broadening Participation (stcbp. org) to create a collective global strategy and community to research and improve participation and inclusion in computing. This year, we are launching a new RESPECT research-oriented conference to be co-located with the leadership-oriented STARS Celebration.

"10 Years of RESPECT for Diversity" is the theme for this year's STARS Celebration to be held in Charlotte, NC, USA, from August 13-15. We are inviting researchers in broadening participation to join us there for the first annual conference on Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT), just after the International Computing Education Research (ICER) conference.

We hope you will get involved by joining stcbp.org, submitting posters to stcbp.org/RESPECT (due June 30), attending the co-located RESPECT 2015 and 2015 STARS Celebration conferences in Charlotte, NC, August 13-15, and help us build a strong foundation for the next 10 years of respect for diversity in computing.



Expanding the Pipeline

The 2015 CAHSI Summit: Preparing a diverse and innovative computing workforce

Ann Q. Gates, University of Texas at El Paso Nestor Rodriguez, University of Puerto Rico Mayaguez Malek Adjouadi, Florida International University Mohsen Beheshti, California State University-Dominguez Hills Ahmed Mahdy, Texas A&M Corpus Christi Enrico Pontelli, New Mexico State University Nayda Santiago, University of Puerto Rico Mayaguez

The Computing Alliance of Hispanic-Serving Institutions (CAHSI) announces the launch of the CAHSI Summit to be held in San Juan, Puerto Rico, on September 10-13. The CAHSI Summit is an extension of the CAHSI annual meeting that has provided professional development to students and faculty and served as a forum to disseminate undergraduate and graduate research efforts, CAHSI effective practices, and emerging practices that target recruitment, retention, and advancement. The CAHSI Summit will extend the focus of the annual meeting to include involvement of industry professionals in workshops that expose students to cutting-edge technologies. The new format will also provide sessions on innovation and opportunities to engage academic administrators and industry leaders in provocative discussions about industry needs and the status of Hispanics in computing, informed by data and the literature. The overarching goal is to buttress CAHSI's unified effort to address America's competitiveness.

Past CAHSI annual meetings have been held at Google and Microsoft headquarters and have been co-located with the SACNAS National Conference, where the workshops, technical panels, and poster sessions were integrated into the SACNAS conference program. The due date for student papers and posters is June 14. CAHSI is also seeking the involvement of industry and faculty who share CAHSI's core purpose and desire to prepare students who are qualified to enter the workforce with knowledge and experiences in areas of critical need. To learn more about the CAHSI Summit, visit the CAHSI website, www.cahsi.org, or contact CAHSI's project manager, Claudia Casas at ccasas@utep.edu.

About CAHSI: The Computing Alliance of Hispanic-Serving Institutions was formed in 2004 with the core purpose of creating a unified voice to consolidate the strengths and resources of Hispanic-Serving Institutions and other groups committed to increasing the number of Hispanics in all computing areas. The member institutions are from the Commonwealth of Puerto Rico and California, Texas, New Mexico, Florida, and Illinois, which represent the states that have some of the highest Hispanic K-12 and undergraduate enrollments. CAHSI's educational innovations have increased student retention and success, and CAHSI students' research experiences have socialized them into the knowledge, skills, and values of the profession. CAHSI is funded by the National Science Foundation's Broadening Participation in Computing program in the Directorate for Computer and Information Science and Engineering (CISE).



CCC Community Report for a National Privacy Research Strategy

From the CCC Blog

Consortium Catalyst

In April, the Computing Community Consortium (CCC) commissioned members of the privacy research community to generate a short report to help guide strategic thinking in this space. The effort aimed to complement and synthesize other recent documents, including the White Computing Community House BIG DATA: Seizing Opportunities, Preserving Values Report and the Report to the President on Big Data and Privacy: A **Technological Perspective.**

Today, the CCC is releasing the resultant community report, Towards a Privacy Research Roadmap for the **Computing Community:**

Great advances in computing and communication technology are bringing many benefits to society, with transformative changes and financial opportunities being created in health care, transportation, education, law enforcement, national security, commerce, and social interactions. Many of these benefits, however, involve the use of sensitive personal data, and thereby raise concerns about privacy. Failure to address these concerns can lead to a loss of trust in the private and public institutions that handle personal data, and can stifle the independent thought and expression that is needed for our democracy to flourish.

This report, sponsored by the Computing Community Consortium (CCC), suggests a roadmap for privacy research over the next decade, aimed at enabling society to appropriately control threats to privacy while enjoying the benefits of information technology and data science. We hope that it will be useful to the agencies of the Federal Networking and Information Technology Research and Development (NITRD)

Program as they develop a joint National Privacy Research Strategy over the coming months. The report synthesizes input drawn from the privacy and computing communities submitted to both the CCC and NITRD, as well as past reports on the topic.

Privacy is a broad topic, encompassing a variety of issues in many different contexts. Our focus is on concerns raised by the collection, sharing, analysis, and use of personal data in information systems. Even with this bounded scope, the privacy concerns in consideration are manifold, including (but not limited to) unwanted disclosure of personal information, lack of transparency and control around how one's information is used, and discrimination based on personal information...

The editors of the paper go on to describe a research agenda that seeks to lead the community to a state where:

- We have a rigorous science of privacy that applies across different application domains;
- We understand the needs, expectations, and incentives of the humans who use information systems, and can design systems that are sensitive to them;
- Privacy technology research and privacy policy objectives are informed by and aligned with each other: and
- We can engineer systems that enable us to enjoy both privacy and the benefits of data use to the maximum extent possible, showing that the tradeoff between the two can be much less stark than our current approaches offer:

To reach this state, the editors believe that the research strategy needs to:

Emphasize understanding, defining, and measuring the privacy of information systems;



- Recognize and support the many stages and dimensions of privacy research;
- **)** Enable interdisciplinary research strategies; and
- ▶ Foster a technology-policy dialogue

The report was presented to the NITRD Privacy Research and Development Working Group on Friday, May 9. We encourage everyone to read the report and view the presentation.

And on behalf of the CCC, we thank our colleagues in the privacy research community for providing a clear, thoughtful, and compelling report in very short order! (The names of all the contributors appear on the final page of the report.) Special kudos to Tal Rabin of IBM Research and Salil Vadhan of Harvard University for their extraordinary job chairing this effort and to Lorrie Cranor of Carnegie Mellon University, Vitaly Shmatikov of University of Texas at Austin, and Danny Weitzner of Massachusetts Institute of Technology for their time and effort in writing this report.





Update from CISE: *Highlighting CISE's Commitment to Early-Career Faculty*

By Jim Kurose, Assistant Director (AD), National Science Foundation (NSF), Computer & Information Science & Engineering (CISE)

As I enter my sixth month at NSF, my colleagues here tell me that I'm no longer allowed to introduce myself as "the new AD." In fact, many actually say I lost that privilege after my first six weeks. In that short amount of time, I testified before Congress, presented to the National Science Board, and rolled out our 2016 budget request-three activities that my predecessor, Farnam Jahanian, had told me were among the most challenging in the CISE AD job.

Although the first six months have been a whirlwind, there have been several clear constants from the start-the passion, experience, wisdom, and vision of the CISE staff (and, more broadly, of NSF leadership, including the ADs of the other NSF directorates, with whom I've been working very closely), and the tremendously important role and opportunities in our CISE discipline.

Another constant has been our dedication to inspiring and retaining talented individuals to the CISE field. I want to take this opportunity to highlight just a few activities that CISE supports to help nurture early career faculty: the CAREER program, the CISE Research Initiation Initiative, and meetings and workshops specifically for early-career faculty.

▶ The Faculty Early Career Development (CAREER) Program is a NSF-wide activity that offers one of the Foundation's most prestigious awards for faculty members beginning their independent careers. The program aims to support junior faculty who exemplify the role of teacher-scholar through outstanding research, excellent education, and the integration of education and research within the context of the mission of their organization. The program provides a minimum award of \$400,000 over five years.

CISE supports CAREER awards across all of computer and information science and engineering, as well as the broader community of scientists, engineers, and educators involved with cyberinfrastructure research. For example, we recently issued a Dear Colleague Letter (NSF 15-072) to raise awareness of CAREER in the cyberinfrastructure research community. Additional information about ACI's interests in CAREER can be found in "Cyberinfrastructure Framework for 21st Century Science and Engineering (CIF21)" and in the CAREER Frequently



Asked Questions (FAQs) document (see question 34). CAREER proposals are due this year on July 21.

- ▶ The CISE Research Initiation Initiative (CRII), now in its second year, was created to initiate computer and information science and engineering research activities for individuals who, after attaining their Ph.D., are in their first academic position. CRII encourages research independence by providing the opportunity for early-career researchers to recruit and mentor their first graduate students, enabling a subsequent stream of projects, discoveries, students, and publications. Eligible applicants must not have received any other grants or contracts in the PI role from any federal department, agency, or institution (see the solicitation for certain exceptions). Project budgets are not to exceed \$175,000 for up to two years. Proposals may address any area of CISE research and are typically due in late September. The deadline for proposals this year is September 30.
- CISE hosts several meetings and workshops throughout the year to help acquaint early-career faculty to NSF's programs, solicitation requirements, and merit review process. Examples include the CISE CAREER proposal writing workshop, aspiring PI meetings, and early-career investigators workshops.

The CISE CAREER proposal writing workshop is typically held in the Washington, D.C. area in March of each year.



and is tailored to help attendees with CAREER proposal submissions (e.g., see the agenda and documents from the workshop that took place this past March).

Aspiring PI meetings and early-career investigators workshops are generally discipline- or program-specific and are usually held in conjunction with appropriate professional society meetings. Aspiring PI meetings have been or are planned to be held for the Secure and Trustworthy Cyberspace (SaTC), Cyber-Physical Systems (CPS), and Smart and Connected Health (SCH) programs. They are specifically designed for researchers who aspire to participate in these programs and provide an understanding of what NSF (and NSF review panels) consider when reviewing proposals submitted to these programs.

Early-career investigators meetings often include a wider range of researchers (e.g., senior Ph.D. candidates, postdoctoral fellows, research scientists, and assistant professors) and have some portion of the meeting dedicated to discussion of future research directions for that particular community.

These programs demonstrate CISE's commitment to supporting the growth and development of future generations of scientists and engineers who will dedicate their careers to advancing research and education in computer and information science and engineering and to developing the use of cyberinfrastructure across the science and engineering enterprise.

During my visits to universities since joining NSF, I've had the opportunity to meet with a number of faculty, particularly early-career faculty, who have told me how important and valuable these programs have been to them.

Finally, I want to highlight an important change that will affect proposal submissions to many CISE programs this fall. CISE has revised the submission windows for its core programs and the Secure and Trustworthy Cyberspace (SaTC) program for the 2015-2016 academic year:

- Medium and large proposals, September 2015;
- Small proposals, November 2015.

These changes are being made to ease the burden for the CISE community – those who submit proposals and those who participate in the merit review process – and for NSF

staff processing proposals prior to the end of the fiscal year. Note that these revised windows will not apply to the Faculty Early Career Development (CAREER) or CISE Research Initiation Initiative (CRII) programs. For complete details, please see a Dear Colleague Letter (NSF 15-079) published on May 13, 2015, as well as the program solicitations.

I am even more convinced now than ever that the impacts of CISE are motivating profound changes in the conduct of science and engineering research and education broadly and in society more generally. I invite you to continue to work with CISE to nurture the next generation of researchers and to continue to advance the frontiers of knowledge, discovery, and innovation. It is truly an amazing time to be involved in computing!



Announcements

Informatics Europe Endorses CRA Recommendations for Hiring, Promotion and Tenure

Recently on its website, Informatics Europe released a statement endorsing CRA's latest Best Practices Memo, Incentivizing Quality and Impact: Evaluating Scholarship in Hiring, Tenure, and Promotion. The memo advocates adjustments to hiring, promotion, and tenure practices, as well as to the publication culture.

"Informatics Europe fully endorses the recommendations published by CRA in this document and believes European Computer and Information Sciences departments should also have the quality (and not quantity!) of a researcher's work and contributions as the primary factor for consideration in hiring, promotion and tenure."

Click here to view the full article text.

The CRA 2013-14 Annual Report is Now Available!

Learn about the impacts of CRA's activities in our mission areas of leadership, policy, and talent development.

Click here to download our annual report.



Congrats to Laura Haas who recently received the 2015 Edgar Codd award from SIGMOD!

"For innovative and highly significant contributions of enduring value to the development, understanding, or use of database systems and databases."





CRA and CERP Welcome New Staff Member

In May, CRA welcomed a new staff member to the Center for Evaluating the Research Pipeline, Burçin Tamer, Ph.D.

Tamer recently completed a dual-doctoral program in Political Science and Women's Studies at the Pennsylvania State University with a strong emphasis on quantitative data management and analysis. At CERP, she will use her quantitative expertise to help evaluate programs aimed at promoting diversity in computing fields.

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Column Editor

Expanding the Pipeline Patty Lopez, Intel

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Professional Opportunities

AT&T Labs

Researchers and Research Engineers

AT&T Labs, one of the world's premier R&D Labs, is looking for passionate, talented and inventive scientists and engineers to join our team full-time. Of particular interest are candidates with backgrounds in the areas of cloud computing, virtualization, software defined networking (SDN), Network Function Virtualization (NFV), Network Virtualization (NV), mobile computing, service quality management, optimization, machine and online learning, big data and largescale distributed computing, stream data management, data quality, visualization, and large-volume stream analytics systems. Specific expertise of interest includes, but is not limited to, the following:

- Big Data and Data Science Research: Massive data analytics; machine learning and statistical computing; data visualization; database management; data quality and streaming data systems
- Cloud Technologies & Services Research: Compute, storage, network virtualization; Distributed storage, databases; Cloud Quality of Service (QoS) methods; Resource scheduling, placement, optimization; hypervisors; security
- Intelligent Services and Platform Research: intelligent systems, machine learning and autonomous technologies for driving enterprise, IoT and mobility services
- Networking and Service Quality
 Management (SQM) Research: SQM for cloud-based services and beyond; Crosslayer analytics and design in a mobile, virtualized and SDN-controlled world
- Optimization for Network and Virtualized Services: Optimization, reliability, network analytics, statistics, and analytics prototyping for SDN-controlled virtualized networks

Our Culture

AT&T Labs draws on a rich heritage of innovation, including eight Nobel Prizes, and a strong culture that encourages openness, teamwork, and collaboration across AT&T, academia and within the industry.

How to Apply

Interested in a career with AT&T Labs?

To apply, visit http://soc.att.com/ljrmLH9 for positions in each of these areas.

Carnegie Mellon University

School of Computer Science Full Professor and Head

The School of Computer Science at Carnegie Mellon University is seeking an energetic and visionary leader for the position of Full Professor and Head of the Machine Learning Department. The Department, one of seven academic units in the School, is the world's only academic Machine Learning Department and is known internationally for its outstanding research and educational programs. The successful candidate will be charged with ensuring that the Department maintains a national and international presence in the rapidly growing fields of machine learning and data sciences, and have the opportunity to further shape and strengthen the Department by leading efforts to recruit new faculty at both senior and junior levels, expand research or educational programs, and develop new fundraising initiatives. Candidates should possess an earned doctorate in a relevant discipline and should have an outstanding record of (i) research productivity, as demonstrated through publication record and peer-reviewed extramural funding obtained; (ii) teaching at the graduate and/ or undergraduate levels; (iii) engagement in interdisciplinary research initiatives; (iv) productive academic leadership and service. Prior administrative experience is desirable,

but not required. Although applications will be accepted until the position is filled, applications should be received by July 1 to receive full consideration.

Candidates should submit a full curriculum vitae, the names and email addresses of four individuals that we can contact for references, and a brief summary of relevant research and administrative experience via email to MLDheadsearch@cs.cmu.edu.

Carnegie Mellon considers applicants for employment without regard to, and does not discriminate on the basis of, gender, race, protected veteran status, disability, or any other legally protected status.

College of William and Mary

Department of Computer Science Visiting Assistant Professor or Lecturer

We invite applications for a one-year, nontenure-track faculty position that will begin August 10, 2015. The appointment has the possibility of renewal. We seek an individual with expertise in areas relevant to our undergraduate curriculum. The successful candidate is expected to be an effective teacher and will have a 3-3 teaching load.

A Master's degree is required. A Ph.D. or ABD is preferred at the time appointment begins (August 10, 2015).

Applicants must apply using William & Mary's online employment system (http://jobs.wm.edu).

Cornell Tech

HCI Postdoc

We're looking for a HCl postdoc to work in our new Connected Experiences Laboratory, a partnership between Cornell Tech and AOL. Our work focuses on creating, strengthening, and supporting relationships among close connections in the same family,

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Professional Opportunities

neighborhood, or community. Work with a diverse team of HCI, social media, systems, and computer vision researchers.

We will start reviewing applications on July 1, 2015.

For more information: http://tech.cornell.edu/ calling-all-hci-phd-graduates

George Mason University

IC Postdoctoral Research Fellow in Cyber Attack Signature Analysis

The Computer Science Department of George Mason University invites applications for a postdoctoral research fellow position in cyber attack signature analysis. The fellow will join a team researching and building leading-edge technologies to support broad technology needs of the Intelligence Community.

The fellow position requires US citizenship. Applicants should have (or be close to obtaining) a Ph.D. in Computer Science or related areas, and should have strong hands-on experience in network and system security. The appointment will be for up to two years.

Application Instructions: Applications should be submitted by sending email to Prof. Xinyuan (Frank) Wang (xwangc@gmu.edu). Please include a CV, statement of research and contact information for three references.



Faculty Positions in Digital Humanities at the Ecole polytechnique fédérale de Lausanne (EPFL)

The College of Humanities at EPFL invites applications for junior and senior faculty positions within its newly created Digital Humanities Institute. We seek individuals who will develop and drive an interdisciplinary research program at the intersection of the humanities and computer science/engineering, who are dedicated to teaching at the undergraduate and graduate levels, and who will be active members of the growing digital humanities community at EPFL. Candidates from all areas that use computational methods in humanities research will be considered, but preference will be given to candidates in the fields of art history, museology, musicology, big data for the humanities, and information visualization.

EPFL offers a fertile environment for research cooperation between different disciplines including the humanities. It hosts the archives of Montreux Festival the Jazz (http://metamedia.epfl.ch), is involved in a transdisciplinary project with the Archivio di Stato in Venice (http://vtm.epfl.ch), and numerous other research projects with several national and international institutions. EPFL is committed to build research competence in Digital Humanities; it has recently created an Institute of Digital Humanities and is recruiting world-class talent in this domain. EPFL will also offer a Master of Science in Digital Humanities starting with the academic year 2016/2017.

EPFL, with its main campus located in Lausanne, Switzerland, is a dynamically growing and wellfunded institution fostering excellence and diversity. EPFL offers internationally competitive salaries, significant start-up resources, and outstanding research infrastructure. The EPFL environment is multi-lingual and multicultural, with English often serving as a common interface.

Applications should include a cover letter with a statement of motivation, curriculum vitae including a list of publications and patents, concise statements of research and teaching interests, and the names and addresses of at least three references for junior and six for senior positions. Applications must be uploaded in PDF format to the recruitment web site:

https://academicjobsonline.org/ajo/jobs/5387

Formal evaluation of candidates will begin on **June 1, 2015** and will continue until the positions are filled.

Enquiries may be addressed to:

Prof. Thomas David

Search Committee Chair Email: <u>dhg-search@epfl.ch</u>

For additional information on EPFL, please consult the web sites <u>www.epfl.ch</u> and <u>www.cdh.epfl.ch</u>

EPFL is committed to increasing the diversity of its faculty, and strongly encourages women to apply.



Lawrence Technological University

Computer Science Faculty Position

The Mathematics & Computer Science Department invites applications for a full time tenure-track Assistant Professor in Computer Science to start in the Fall 2015 semester. The ideal candidate will have a Ph.D. in computer science. will have experience in software engineering, and be a gifted teacher and active scholar/researcher. Strong consideration in other research areas will be considered. Scholarship can focus on pedagogical, applied, or theoretical research, publication and participation in peer reviewed professional conferences. Teaching responsibilities can range from developmental Computer Science through introductory undergraduate and graduate level courses. Our primary mission is developing exceptional undergraduates through faculty engagement in collaborative student research, faculty use of active teaching techniques in the classroom, and faculty oversight of interdisciplinary student project teams. Review of applications begins immediately and will continue until the position is filled.

Applicants should send a cover letter, curriculum vitae, undergraduate and graduate transcripts (unofficial copies initially acceptable), statement of teaching philosophy, description of research, and three letters of recommendation to: cssearch@ltu.edu (Email submission only)

Computer Science Search Committee, Department of Mathematics and Computer Science Lawrence Technological University,

21000 West Ten Mile Road, Southfield, MI 48075-1058.

For more information: Email mcschair@ltu.edu Web site: http://www.ltu.edu/arts_sciences/ mathematics_computer_science/index.asp Lawrence Tech is an independent university enrolling approx. 5000 students and surrounded by many of the Midwest's premier high-tech corporations. LTU's technological focus coupled with strong programs in engineering, architecture, business, and the sciences provides unique opportunities for collaboration across colleges and disciplines.

EOE, strongly encouraging applications from females and minorities.

Loyola University New Orleans

Mathematical Sciences Lecturer - Computer Science Please see our ad at http://finance.loyno. edu/human-resources/faculty-employment-

NYU Abu Dhabi

opportunities.

Computer Science Program Assistant/Associate Instructor

New York University has established a campus in Abu Dhabi, United Arab Emirates, and invites applications for Assistant / Associate Instructor positions in the field of Computer Science. We encourage applicants with experience in undergraduate teaching of Computer Science courses and some system administration. An M.S. or M. Eng. in Computer Science or Computer Engineering or a B.Sc or B. Eng is required, and experience in industry or teaching is desirable. Job seekers that have or are obtaining a Ph.D. are not eligible for these positions.

The Instructor will support NYU Abu Dhabi's educational mission by assisting in the instruction of the Computer Science courses and recitations that are part of the Computer Science undergraduate curriculum. The instructor will also be responsible for grading assignments, taking part in departmental activities and responsibilities, and providing assistance with the preparation, development, instruction, and assessment of recitations and labs. Instructors will provide assistance in computer labs and activities that support Computer Science courses and student career development. During January Term and Summer Term, Instructors will support teaching and research through a variety of activities that may include research with a faculty member or conducting instructional enhancement projects, or both. Instructors undergo training during the last two weeks of August each academic year. Salaries are extremely competitive with a generous benefits package, and appointments are for up to three years with the opportunity to renew.

The Instructor will require proficiency in several computer languages, knowledge of basic mathematics related to computer science, and knowledge of fundamental concepts in a variety of systems, networks, and databases. One position targets applicants with expertize in discrete mathematics, data structures, algorithms, and theory of computation.

New York University has established itself as a Global Network University -- a multi-site, organically connected network encompassing key global cities and idea capitals. The network has three degreegranting campuses: New York, Shanghai, and Abu Dhabi, which are complemented by 12 additional academic centers across five continents. Faculty and students will circulate within the network in pursuit of common research interests and crosscultural, interdisciplinary endeavors, both local and global.

Entering its fifth year, NYU Abu Dhabi has recruited a cohort of faculty who are distinguished in their research and teaching. Our students are drawn from around the world and surpass all traditional recruitment benchmarks, both US and global. NYU Abu Dhabi's highly selective liberal arts enterprise is complemented by an institute for advanced



research, sponsoring cutting-edge projects across the Arts, Humanities, Social Sciences, Sciences, and Engineering.

Applicants should submit a resume, teaching statement, cover letter, and three letters of reference in PDF format to be considered. Please visit our website at: http://nyuad. nyu.edu/en/about/careers/faculty-positions. html for instructions and other information on how to apply. *Applications are open until January 15, 2016.* If you have any questions, please e-mail nyuad.science@nyu.edu. EOE/Minorities/Females/Vet/Disabled

University of California at Berkeley

Postdoctoral Scholar

Postdoc position to study human visual perception at University of California, Berkeley. http://bankslab.berkeley.edu.

Contact Martin Banks (martybanks@berkeley. edu) or Hany Farid (farid@cs.dartmouth.edu).

University of California, Davis

Department of Computer Science Lecturer with Security of Employment Position

Applications are invited for a Lecturer with Security of Employment position in Computer Science, and will consider all levels of candidates including Senior Lecturers with Security of Employment (SOE) and Lecturer with Potential for Security of Employment (LPSOE), depending on experience and qualifications. This position parallels the position of a professor with tenure but with primarily teaching duties and teaching/



Michigan Technological University Department of Computer Science Lecturer Position

Applications are invited for a Lecturer position beginning August 2015 with a teaching focus of second and third-year systems courses. Appointed for two-year renewable terms, an applicant must have a master's or doctoral degree in Computer Science, Computer Engineering, or equivalent. The expected teaching load is three courses per semester. Review of applications will begin on May 15, 2015 and will continue until the position is filled. Women and under-represented minorities are particularly encouraged to apply.

Applications should be submitted online at <u>www.jobs.mtu.edu/postings/2981</u>. To learn more about the opportunity, please visit <u>www.mtu.edu/cs/department/employment/faculty-staff/</u>.

Michigan Tech is an ADVANCE Institution, one of a limited number of universities in receipt of NSF funds in support of our commitment to increase diversity and the participation and advancement of women in STEM. Michigan Tech acknowledges the importance of supporting dual career partners in attracting and retaining a quality workforce. See <u>Dual Career Program</u> for additional information.

Michigan Tech is an EOE which includes protected veterans and individuals with disabilities



curriculum related service activities. The successful candidate will teach computer science engineering courses (primarily at the undergraduate level), develop new courses, lead accreditation activities, participate in continuous curriculum improvement, and lead diversity and inclusion efforts. The candidate will also have the opportunity to lead research projects, particularly for undergraduate students, and to develop newer seminars/courses with broad appeal in areas that influence computer science and engineering education. The candidate should have a strong teaching record and commitment to undergraduate instruction. A Ph.D. in computer science engineering or a closely related discipline is required.

Consult https://recruit.ucdavis.edu/apply/

JPF00586 for our on-line application procedure and requirements. The position is open until filled; but to assure full consideration, applications should be submitted no later than May 29, 2015, for a possible start date of July 1, 2015.

UC Davis is an affirmative action equal opportunity employer, and is dedicated to recruiting a diverse faculty community. We welcome all qualified applicants to apply, including women, minorities, individuals with disabilities, and veterans.

The University of Memphis

Department of Computer Science Instructor position

Applications are invited for an instructor position in Computer Science, beginning August 17, 2015. The initial appointment will be for one academic year. This may be extended for two additional years based on performance, department needs and funding availability. A PhD degree in computer science or a related field and University level teaching experience is preferred but applicants with a Master's degree will be considered. Teaching undergraduate and graduate courses, participating in curriculum development and improvement and student advising are the main emphasis for this position. Ability to collaborate with CS faculty in research is a plus. Full information about the Department can be found at http://www.cs.memphis.edu/. Screening will begin on May 18, 2015 and may continue until the position is filled, subject to budgetary approvals.

Submit applications at https://workforum. memphis.edu.

A background check will be required for employment.

University of Notre Dame

Teaching Faculty Position

The Department of Computer Science and Engineering at the University of Notre Dame seeks candidates for a teaching faculty position to teach courses primarily in the CS&E undergraduate curricula. This is a full-time, continuing position in the Special Professional Faculty track. Competitive candidates will have the training and experience necessary to teach effectively in a range of courses in accredited degree programs in Computer Science and Computer Engineering. Candidates with backgrounds in all areas of Computer Science and Computer Engineering will be considered. Relevant industry experience is also valued.

The University of Notre Dame is a private, Catholic university with a doctoral research extensive Carnegie classification, and consistently ranks in USNWR as a top-twenty national university. The South Bend area has a vibrant and diverse economy with affordable housing and excellent school systems, and is within easy driving distance of Chicago and Lake Michigan.

Qualified candidates should have at least a Masters degree, and preferably a doctoral degree, in Computer Science, Computer Engineering, or a related area. Applications should include a cover letter, curriculum vitae, statement of teaching experience and philosophy, and names of at least three professional references, at least two of whom must be able to comment on the applicant's teaching experience. Review of applications will begin on June 1 and continue until the position is filled.

Applications should be submitted at http://apply.interfolio.com/29569.

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

University of Wisconsin-Madison

Department of Computer Sciences Faculty Associates (2)

The University of Wisconsin-Madison Department of Computer Sciences seeks two dynamic, dedicated instructors to join its teaching team as Faculty Associates. Faculty associates are vital members of the department who help meet our mission of delivering a rigorous education to our students and preparing them for 21st-century careers. To ensure consideration, applications must be received by June 6, 2015.

More details about this position at cs.wisc.edu (under "About," then "Employment").



