CRA
Computing Research Association

Computing Research News

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

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CRA Announces New Executive Officers

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CRA has elected new Board Officers to serve two-year terms beginning July 1, 2015. Susan Davidson has been elected Chair. She will be the first female to hold this position in CRA history. In addition, Susanne Hambrusch will become Vice Chair, and Greg Morrisett will become Secretary. The Board re-elected Ron Brachman as Treasurer. The current Board Chair J Moore and Vice Chair Laura Haas will end their terms on June 30, 2015. CRA thanks both of them for contributions during their outstanding service on the Board.

Announcements

Congratulations to both the current and incoming CRA Board Chairs

Susan Davidson and J Moore have both recently been recognized as Fellows of the Royal Society of Edinburgh, Scotland's National Academy. Click here for additional details.

CRA Presents Gift to Board Chair

At the February Board Meeting, CRA Board Chair J Moore was presented with a one of a kind, handmade gift for his term of service as CRA Board Chair – a custom built steam engine, which has a unique significance for J. For the gift idea, CRA Executive Director Andy Bernat drew upon J's history working with steam engines. In high school, J had a job servicing them in an oil refinery. The engine was custom built for J by Andy Bernat and Philip Wiborg. Click here to see the engine in action! Click here to view additional photos.

Current and former NSF CISE ADs at the CRA Board Meeting

On the left, Farnam Jahanian (immediate past CISE AD and 2015 Awardee of the CRA Distinguished Service Award);

On the right, Jim Kurose (current CISE AD and former CRA Board member).

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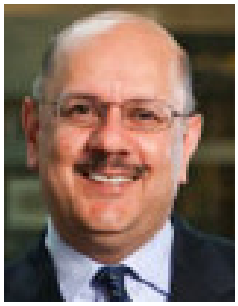
2015 CRA Distinguished Service and A. Nico Habermann Awardees Announced

The CRA Board of Directors has announced its selections of the 2015 Service Awards.

Farnam Jahanian – Distinguished Service Award Winner



Farnam Jahanian served as NSF Assistant Director for CISE from 2011 to 2014, the highest profile government position for computer science research. During his tenure he fought hard for computer science and launched three presidential initiatives: National Robotics Initiative, Big Data Research and Development Initiative and US Ignite. Farnam led twenty-five new solicitations, including several cross-directorate efforts such as secure and trustworthy cyberspace, cyberlearning and future learning technologies, and big data. He reintegrated the Office of Cyber Infrastructure (OCI) with CISE. Farnam served as co-chair of the NITRD subcommittee of the National Science and Technology Council Committee on Technology, providing overall coordination for the R&D activities of 17 government agencies. He often testified before congress and gave about 100 presentations at universities and conferences.

Former NSF director and current CMU president Subra Suresh wrote in support, "Farnam is both a visionary and the pragmatist, and this combination of qualities has allowed him to be effective in whatever he undertakes."

Tom Kalil, OSTP Deputy Director for Technology and Innovation stated, "During my more than thirteen years of service at the White House for two Presidents, I have had the opportunity to work with many individuals from the computer science research community who have been willing to serve in leadership positions at federal agencies such as NSF, DARPA, and the Department of Energy. Farnam has been second to none as measured by the breadth and depth of his impact on the direction of the field, and his ability to partner effectively with the research community, and his peers at NSF and other agencies, and the White House. His leadership and hard work has resulted in increased federal investment in critical areas such as Big Data, robotics, cyberphysical systems, cybersecurity, cyber-learning, next-generation networking, and CS education."

Ann Quiroz Gates – A. Nico Habermann Award Winner

For over two decades, Gates has been a leader in initiatives that support Hispanics and members of other underrepresented groups in the computing field. She is perhaps best known for leading the Computing Alliance of Hispanic-Serving Institutions (CAHSI), an alliance of 13 institutions whose work has had large and sustained positive impact on recruitment, retention, and advancement of Hispanics in computing. Mentoring is a key component of CAHSI's approach, which builds support networks that address both academic and cultural issues for students at all stages of their college and postgraduate education and on to leadership positions. Gates helped establish the Affinity Research Group (ARG) model for research mentoring and peer support; the evaluation of its effectiveness and dissemination of the findings has led to its adoption at institutions outside of CAHSI. Through an NSF ADVANCE program, Gates has also promoted the recruitment, retention, and advancement of female faculty at her home institution, UTEP. She has greatly enabled the success of many students through her personal mentoring of over 150 Hispanic students and research supervision of over 70 students. Gates' influence has extended to other initiatives and communities, including the Society for Advancement of Hispanics/Chicanos and Native Americans in Science (SACNAS), CMD-IT, and the AccessComputing Alliance. The scale and impact of Gates' contributions is truly exceptional, particularly in support of Hispanics who account for 25% of the U.S. population, but less than 7% of bachelors degrees in computing and less than 2% of PhDs.

2014 Taulbee Report Sneak Preview

By Stu Zweben and Betsy Bizot

The 2014 Taulbee Report will be published in the May 2015 issue of *CRN*. As we have done for the past few years, we're providing a preview of the degree and enrollment numbers for bachelor's and doctoral level programs in the departments responding to the survey.

The total number of Ph.D.s awarded dropped slightly (by 2.6 percent) from last year's all-time high. The departments that responded this year reported 1,940 graduates in 2013-14; last year's respondents reported 1,991 graduates.

The set of departments reporting from one year to the next varies somewhat. Thus, for trends it is of interest to focus on the set of departments that reported in both years. The accompanying table shows the one year comparison of some key bachelor's and doctoral data for these departments.

Bachelor's program enrollment, and indeed *enrollment growth*, showed little sign of abating. There was an 18.6 percent increase in enrollment from 2012-13 to 2013-14 in U.S. CS departments that reported both years. The corresponding increase for all departments reporting both years was 17.4 percent. Last year's respective increases were 22.0 percent (U.S. CS) and 21.1 percent (overall). The number of new bachelor's students in fall 2014 is up 17.0 percent over the fall 2013 figure in U.S. CS departments reporting new majors for both years (compared to 13.7 percent last year), and is up 18.0 percent among all departments reporting both years (13.8 percent last year). The number of bachelor's graduates increased 13.6 percent among U.S. CS departments and 12.0 percent among all departments reporting both years.

At the doctoral level, overall Ph.D. production for 2013-14 among U.S. CS departments reporting both years fell 3.7 percent, and fell 4.1 percent among all departments reporting both years. However, total doctoral enrollment increased 3.9 percent among U.S. CS departments and 4.4 percent among all departments reporting both years. The number of new doctoral students for fall 2014 rose 4.7 percent among U.S. CS departments and 3.6 percent among all departments, when compared with the fall 2013 figures.

Watch the May 2015 *CRN* for a more complete analysis of the Taulbee data.

Table 1. Degree Production and Enrollment Change From Previous Year

	Only Departments Responding Both Years					
	US CS Only			All Departments		
PhDs	**2013**	**2014**	**% chg**	**2013**	**2014**	**% chg**
# Departments	118	118		143	143	
PhD Awarded	1,525	1,469	-3.7%	1,797	1,724	-4.1%
PhD Enrollment	11,269	11,711	3.9%	13,094	13,671	4.4%
New PhD Enroll*	2,173	2,275	4.7%	2,453	2,540	3.6%
Bachelor's	**2013**	**2014**	**% chg**	**2013**	**2014**	**% chg**
# Departments	113	113		133	133	
BS Awarded	11,144	12,664	13.6%	13,349	14,957	12.0%
BS Enrollment	59,616	70,694	18.6%	70,983	83,351	17.4%
New BS Majors+	14,454	16,908	17.0%	18,039	21,290	18.0%
BS Enroll/Dept	527.6	625.6	18.6%	533.7	626.7	17.4%

* Includes only departments responding to the New PhD question both years. N=116 for US CS and N=141 for all departments.

\+ Includes only departments reporting nonzero numbers of new Bachelor's majors both years. N=98 for US CS and N=119 for all departments.

Disseminating CERP Research Findings to Promote Diversity in Computing and Other STEM Fields

By Jane Stout, CERP Director

Two years since its inception, CRA's Center for Evaluating the Research Pipeline (CERP) has proven to be a valuable resource for the computing community. CERP's benchmark survey research mechanism, the Data Buddies Project, generates reliably large and diverse datasets pertaining to computing students' experiences in their degree programs. CERP's data had originally been slated primarily for "comparative evaluation" purposes; students' experiences gleaned from survey data are pitted against each other as a function of whether or not they have participated in a given professional development program. Since August 2014, CERP's data have been harnessed for a second purpose, which is to conduct basic social science research on issues of diversity of computing. This new focus is supported by a new grant awarded to CRA: NSF DUE-1431112, *Promoting a Diverse Computing Workforce: Using National Survey Data to Understand Persistence Across Undergraduate Student Groups*, which was written and is overseen by CERP Director, Jane Stout.

CERP staff has been hard at work generating and disseminating preliminary research findings pertaining to underrepresented students' experiences in the computing community. Findings are "preliminary," given that CERP initiated a longitudinal research design during the fall of 2014 and has since collected one of many rounds of data from a sample of computing students. The ultimate goals of this research are to track students' progress over time, measure antecedents to students' successes, and generate Best Practices that departments can use to ensure underrepresented groups thrive in computing.

One line of inquiry focuses on women's experiences in computing, with special focus on how women's cultural background factors into those experiences. For instance, Asian American women report that they are less confident in their computing abilities than other women in computing (see Figure 1), despite the fact that Asian American women are among the top performers in their female peer group (see Figure 2). Research of this nature shines a spotlight on a specific group of talented students in computing who are relatively lacking in confidence; longitudinal data have the potential to assess whether and how these students overcome low confidence and succeed in computing. Stout has shared these and similar preliminary findings during invited presentations at prominent research institutions such as the Massachusetts Institute of Technology (MIT) and the Colorado School of Mines; at smaller institutions interested in fostering diversity, such as Augustana College and Millikin University; and departments outside of computing also suffering from low diversity (e.g., Physics Department, University of Colorado Boulder).

CERP staff are also sharing research findings with professional societies at conference venues. For instance, CERP Research Associate, Ama-Nyame Mensah will present research at the 2015 SIGCSE meeting (Computer Science

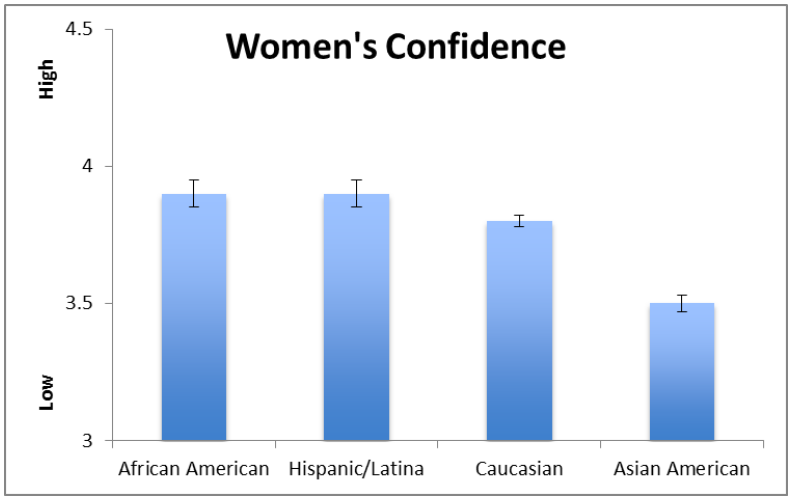


Figure 1. Women's confidence that they can succeed in computing as a function of their ethnic background. Scale ranged from (1) Low confidence to (5) High confidence.

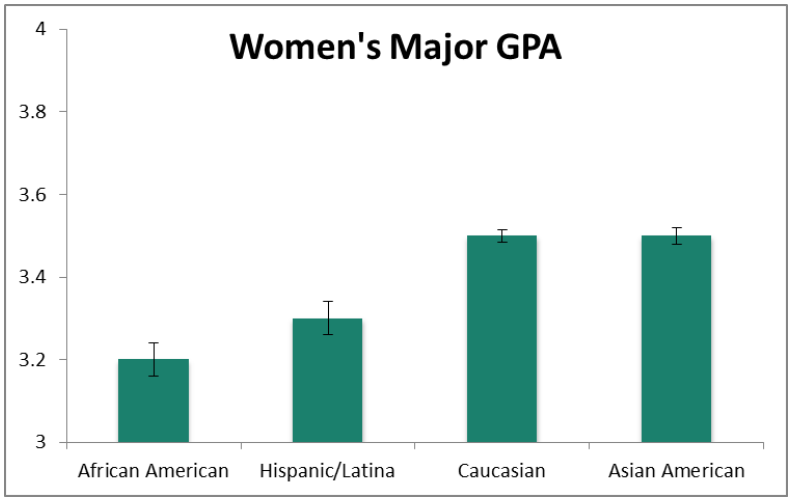


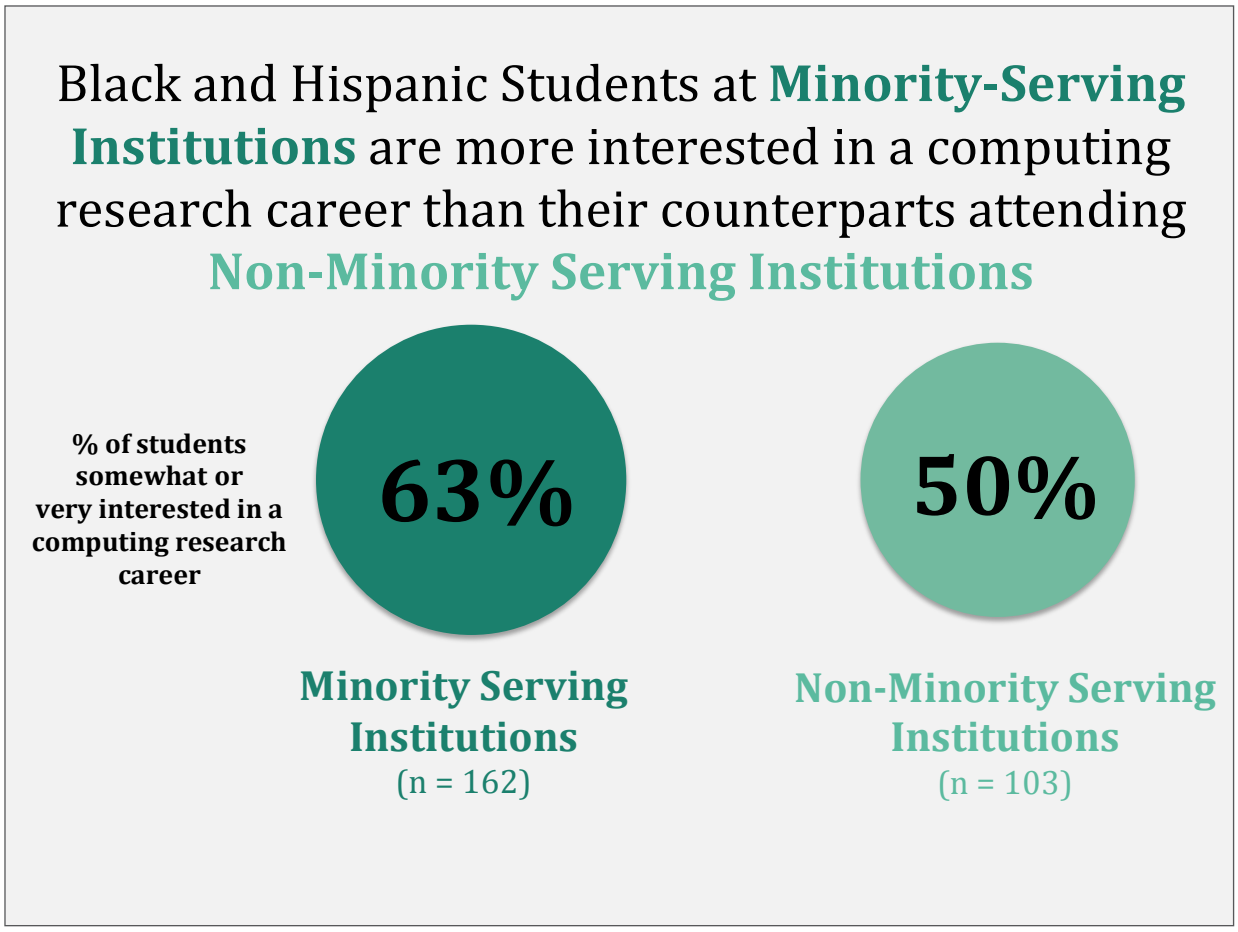
Figure 2. Women's GPA in their computing major as a function of their ethnic background.

Education SIG) suggesting that Research Experiences for Undergraduate Students (REUs) are more beneficial for students from underrepresented groups than well-represented students in computing. Heather Wright, CERP Research Associate, will present findings at the 2015 meeting of the Association for Psychological Science highlighting the value of creating a welcoming computing department environment, particularly for first generation college students.

CERP's audiences for dissemination of research findings are intentionally diverse; they include educators and administrators within computing and in other STEM fields lacking diversity. CERP's research also appeals to social scientists that do not have access to large and diverse data pools made possible by the CRA's unique Data Buddies Project infrastructure. To find out more information on the Data Buddies Project, and become involved, visit: http://cra.org/cerp/data-buddies.

March 2015 CERP Infographic

By: Ama Nyame-Mensah, CERP Research Associate



Note: Interest in a computing research career was measured by asking students to indicate *how interested are you in having a career as a computing researcher in industry or a government lab after you finish your highest degree*. A five-point Likert scale was used, ranging from (1) Very Disinterested to (5) Very Interested. Black: Includes Black or African American. Hispanic: Includes Hispanic or Latina/o. Minority Serving Institutions are (postsecondary) institutions in which minorities (e.g., Blacks or African Americans, Hispanics or Latina/os) exceed 50% of the total enrollment.

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Evaluation

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:

G/rep{sec} = underrepresesented groups in security research

Terry Benzel, Susan Landau, and Hilarie Orman

Three years ago in May 2012, as Terry Benzel, Deputy Director, Computer Networks Division, Information Sciences Institute at USC, Hilarie Orman, The Purple Streak (a software security firm), and I, Susan, then a visiting scholar at Harvard, sat at the IEEE Symposium on Security and Privacy, we had trouble seeing any other women. As women researchers in security and privacy of a certain age, we were accustomed to that. But we were not accustomed to the original proposal for the program committee for the following year's program committee: forty men, two women. We looked at each other. There was not "world enough and time" to wait for the situation to change; we needed to take action now.

Having served on the CRA Committee on the Status of Women in Computing Research (CRA-W), I knew about funding for discipline-specific workshops. The application date was a month away. Jeremy Epstein, the NSF program officer for Secure and Trustworthy Computing, was at the symposium; he mentioned funding deadlines were imminent, and suggested we get an application in quickly.

Within six weeks we had a workshop location, a draft program, and two proposals completed; by August, we had funding secured. Hilarie came up with a workshop name: "GREPSEC," G/rep{sec} = underrepresesented groups in security research. We took it.

The CRA-W funding came with a twist. The funding was joint with the Coalition to Diversify Computing; the requirement was that we also include members of underrepresented groups. If women are rare in computer security and privacy, members of underrepresented groups are even more so. We took on the challenge.

All three of us had experience with participating in such mentoring meetings. We opted for a day-and-a-half long meeting, scheduled just before the 2013 IEEE Symposium. Finding and arranging for speakers was the most complex part: we sought to cover security and privacy broadly; we wanted women and minority speakers, and we sought a balance between academic and industry speakers (government too, where we could find them).

Following the successful 2008 MIT Women in Mathematics: A Celebration meeting, in which Susan was a co-chair, we decided on a schedule that focused on technical sessions, while leaving lots of free time for informal mentoring at the coffee breaks and meal. Doing things that way, rather than presenting explicit mentoring panels, presents the clear message that the women and members of underrepresented groups are scientists and researchers. That was the most important message to convey.

Attracting speakers was fun, and largely easy. We had a wonderful list: Terry Benzel, Dan Boneh, Claudia Diaz, Rachel Greenstadt, Cynthia Irvine, Anthony Joseph, Carl Landwehr, Teresa Lunt, Deidre Mulligan, Aleatha Parker-Wood, Ron Perez, Diana Smetters, Zach Tudor, Helen Wang, Jeannette Wing. We had representation from academia (Stanford, KU Leuven, Drexel, Naval Postgraduate School, George Washington University, USC) and from industry (PARC, AMD, Google, Microsoft). (Some of the speakers also had previous experience in working in or with government.)

Attracting students was more complicated. We could find women graduate students through advertising on the Systers mailing list, through the CRA-W lists and postings, and through targeted mailings to security and privacy researchers. Reaching members of underrepresented groups was more challenging. Many of the students are not at the top research universities, and thus not in the loop just described. We arranged for posting on the Latinas mailing list, while Russ Joseph, co-chair of the CRA-W/CDC committee on discipline specific workshops, helped get the word out to faculty at minority institutions. We also arranged for flyers at the Tapia Conference. We made sure to advertise heavily.

We received a total of ninety-four applications from fifty-seven institutions. Ten applications were from undergraduates, of whom six were members of underrepresented groups. Because we had sufficiently many applications from graduate students, we opted not to host undergraduates.

The combined funds from the three grants – we had also received a small grant from Microsoft – provided funding for twenty-seven domestic and four international students from twenty-three institutions. Grants were awarded to twenty-eight women, of whom twenty-five attended the workshop, and ten members of underrepresented groups, of whom seven attended the workshop. The attendees included six men. With additional funding from Microsoft, we were able to fund some non-US students from non-US institutions; given the strength of the University of Waterloo's cryptography program, for example, this was a great plus.

The students ranged from first-year graduate students with burgeoning interests in security and privacy to students close to completing their PhDs in the field.

The ratio of speakers to students was deliberately high since we wanted to encourage one-on-one mentoring. Half the speakers were present for both days, half for only one. Having focused the talks and panels on technical content, we encouraged—and left ample time for—the students to mingle with the speakers during coffee breaks, meals, and the Saturday evening reception. Except for the initial breakfast on Saturday morning, where the speakers mostly sat with each other, the rest of the informal time we saw the students and speakers talking, sometimes quite intensively. I, Susan, knew it was working when I saw two minority males corner Ron Perez, senior fellow at AMD. This is exactly what we had hoped for.

Despite the fact that some students were coming from top-ranked institutions while others had a much less strong background, we felt it was important that the students feel that they were on a level playing field. So instead of doing an evening poster session with haves and have-nots, we opted for everyone participating in a one-minute introduction just before the Saturday evening reception, with each student telling who they were and where they were from, and a problem they were working on, or interested in. That was terrific. We had them go in alphabetical order – no shy ones last – and the process worked wonderfully. It broke the ice even for the very shy ones. The evening reception, and the following day, showed lots of lively discussion between the students and the speakers–exactly what we had intended.

We covered a variety of technical topics: high-assurance systems (software and hardware), security research problems in industry, mixing AI and security, developing trust in cyberspace (pulling together people, laws, and technology). We had keynotes on a theory of trust in networks and people, on where cryptography and authentication are heading, and on developing a building code for software.

We had different impacts on different students. For some of the students, including those at institutions with a lower research profile, this was the first time that they were exposed to cutting-edge research. For students at universities with a higher research profile, the workshop enabled them to have a wider exposure to the broad set of research questions in security and privacy; such a perspective is extremely useful and is often unlikely to be part of graduate education. In addition, several of the students went on to attend the IEEE Symposium on Security and Privacy, a leading conference on security and privacy; this attendance contributes to creating a new generation of researchers, educators and developers in the discipline. We even had impact on researchers; one of them, Carl Landwehr, presented a keynote that later evolved into a research paper.

We learned various things from our workshop. Some students, those from the "Research I" and "Research II" categories, knew about buying plane tickets and getting reimbursements. Those from institutions that did not strongly support research floundered, and we lost several attendees (lost in the sense that they did not attend; we hope none them were unable to navigate the BART trains and are still wandering about in the system). So for GREPSEC II – yes, we are running the workshop again – we have arranged to pre-purchase tickets and directly pay hotels. The work to present a level playing field for the students really helped, but students from less research focused institutions tended to be quiet. So we'll continue the one-minute intros in this year's program, but we'll move that to earlier in the program. We'll also work to have the students mix more.

The need for GREPSEC is clear. The funding is less so. We have again received funding from NSF and CRA-W/CDC – thank you – and from Google, Microsoft, and the Information Sciences Institute. But given the national needs in cybersecurity and privacy, and the continuing paucity of women and members of underrepresented groups in the field, a long-term grant to fund several more workshops over the next six-ten years, is probably what is needed. Terry, Hilarie, and I hope to attain that, to become the GREPSEC steering committee, and let the next set of women and members of underrepresented groups become the committee to run GREPSEC III and beyond.

Privacy by Design Workshop: Concepts and Connections

From the CCC Blog

The following guest blog post is contributed by Ph.D. students Nick Doty and Richmond Wong working with Deirdre Mulligan from the University of California Berkeley School of Information.

For years, lawmakers, advocates and engineers have touted the potential benefits of Privacy by Design, of integrating privacy throughout the technical design process rather than an after-the-fact. Nonetheless, we still struggle with how to practice Privacy by Design, whether it's how to conceptualize privacy, how to build privacy in the engineering process, how to present those privacy designs to users or how to incentivize practice of and compliance with Privacy by Design.

In order to identify a shared research vision to support these different facets of the practice of Privacy by Design, the Computing Community Consortium (CCC) is sponsoring a series of four workshops over this year. We kicked off the series this past week with the first workshop held in stormy Berkeley, California.

A group of over 40 collaborators represented various parts of industry, academia, government and civil society: from health care to social networking to telecommunications, from philosophy to law to computer science, from national intelligence services to state pension authorities to consumer advocates.

Based on a series of case studies of privacy complaints arising in different sectors, groups analyzed: the applicability of existing privacy frameworks such as the Fair Information Practice Principles; taxonomies of privacy harms and justifications; and new concepts or "properties" of privacy. The group struggled with the "essentially contested" concept of privacy and how nonetheless different concepts or analytical tools can help us identify and address privacy concerns.

The workshop also heard "reports from the field" on those who have implemented — or are struggling to improve — privacy programs in the wild: at large tech companies, Internet standard-setting bodies or government agencies. Often highlighted were disciplinary differences: both in the different ways that academics (lawyers versus computer scientists, say) approach the concept of privacy and its practice and in the effective organization of multi-functional teams within companies. We heard frequently that attendees had met new people and been challenged by new ideas. We hope those connections will contribute to productive workshops to come.

Reflecting over the two days and looking forward, participants discussed how to engage with the complexity of conceptualizing privacy, and how to bring in expertise from other relevant perspectives such as economics, sociology, and science & technology studies. We identified a desire to bridge the technical and social research cultures, and to bridge the research work creating new privacy tools and the adoption of those tools in the practice of Privacy by Design.

Organization is in progress for a workshop in May to discuss privacy from the perspective of design, hosted at Georgia Tech. In the fall, we will gather software engineers at Carnegie Mellon to discuss their development practices in depth. Finally, to wrap up the series, an east coast event will provide a discussion for policymakers and regulators to discuss how to catalyze Privacy by Design.

Presentations, introductions of the participants, reports from our brainstorming sessions and collected scholarly references are all available on the workshop series homepage. We will invite some participants to blog about their individual experiences here and a more detailed workshop report will follow.

Big Data Science at Johns Hopkins

By Alex Szalay, Johns Hopkins University

Last year Johns Hopkins University (JHU) started the Institute for Data Intensive Engineering and Science (IDIES, pronounced as "Ideas"), promoting the use of large data sets for scientific discovery across the whole university. IDIES spans the Schools of Arts and Sciences, Engineering, Public Health, and Medicine. Hopkins president Ron Daniels and several deans have dedicated 10 new faculty positions to IDIES, all encouraging interdisciplinary research related to Big Data in science. Currently, IDIES has more than 80 faculty associates.

A prominent data-intensive science project at JHU is the public archive of the Sloan Digital Sky Survey (SDSS), one of the world's largest astronomy databases. Besides the professional astronomy community, the data has been accessed from more than 4 million distinct IP addresses since its creation in 2001. The SDSS data resulted in more than 5,000 refereed publications and over 200,000 citations. The system has a collaborative server-side workspace, CASJOBS, which enables users to save and share their results close to the main database. This system, aimed at the professional astronomy community, is used by more than 6,000 people world-wide. The database can be navigated via an interactive visual interface or accessed programmatically through a web-services API (Figure 1). The database has now grown to 15 Terabytes and all the archived SDSS data exceeds 200 Terabytes.

Beyond astronomy, IDIES has successfully expanded its activities in many other areas of science. For example, members of IDIES have built the Turbulence database [JHTDB], which contains simulations of turbulent flows spanning more than 200TB. To explore this data, JHU scientists have created a novel interface: instead of downloading the prohibitively large simulation files, scientists can launch "virtual sensors" from their laptop, which can either stay fixed or move with the flow, and report back various physical quantities, like velocity, vorticity, pressure, dissipation rate, etc. Over the last 5 years more than a 50 refereed papers have used the data, and launched more than 12 trillion (!) sensors (Figure 2). The ease of access to such large-scale simulation data is helping democratize computational turbulence research. Scientists and engineers who before could not experiment with such datasets due to their size can now easily ask relevant questions. Users range from mathematicians asking questions about near singularities in the partial differential equations that govern fluid flow, to experimentalists who wish to test measurement techniques in ideally controlled flow conditions.

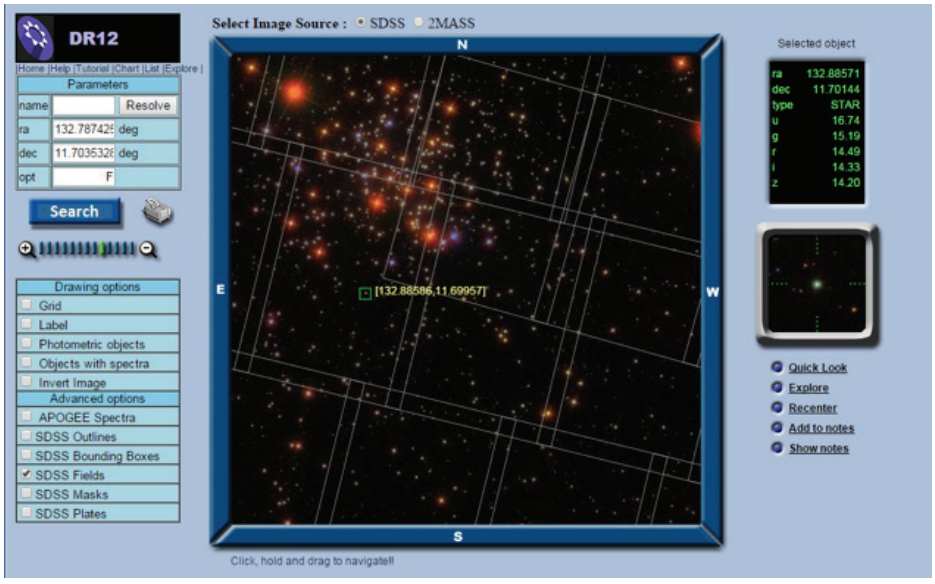

Figure 1: The interactive Navigation tool of the SDSS SkyServer database. The users can access all information in the database through visual navigation.

In general, supercomputers are generating ever-larger simulations, but data sets in the hundreds of terabytes often sit unused because they are simply too large to manipulate. Learning from the turbulence experience, IDIES is now turning such simulations into public, open numerical laboratories in other areas of science from cosmological N-body simulations to ocean circulation models. JHU scientists have helped to build the world's most-used database for cosmological simulations, the Millennium, hosted at the Max Planck Institute in Garching, Germany.

Another fast-growing area of data science research is neuroscience, which has emerged as a national interest area with the US President's Office announcing the $100M BRAIN initiative in April 2013. IDIES' Open Connectome Project (OCP) is a leader in data management and analytics for big data neuroscience. The site provides public access to more than 200 TB of neuroscience imaging data from multiple imaging modalities that capture the structure (e.g., electron microscopy, CLARITY and array tomography) and function (e.g., two-photon calcium imaging and fMRI) of the brain. This includes the largest public brain dataset- 20 Teravoxels of the mouse visual cortex that resolve single synapses. OCP connects datasets to computer vision pipelines on supercomputers that reconstructs the structure and connectivity of the brain and stores them in co-registered databases (Figure 3). Neuroscience is poised at the edge of a revolution of discovery based on recent advances in high-throughput imaging. Data-intensive science will help us understand the mechanisms for computation in the human brain and provide the foundation for research into the neurological basis of complex disorders such as autism and ADHD.

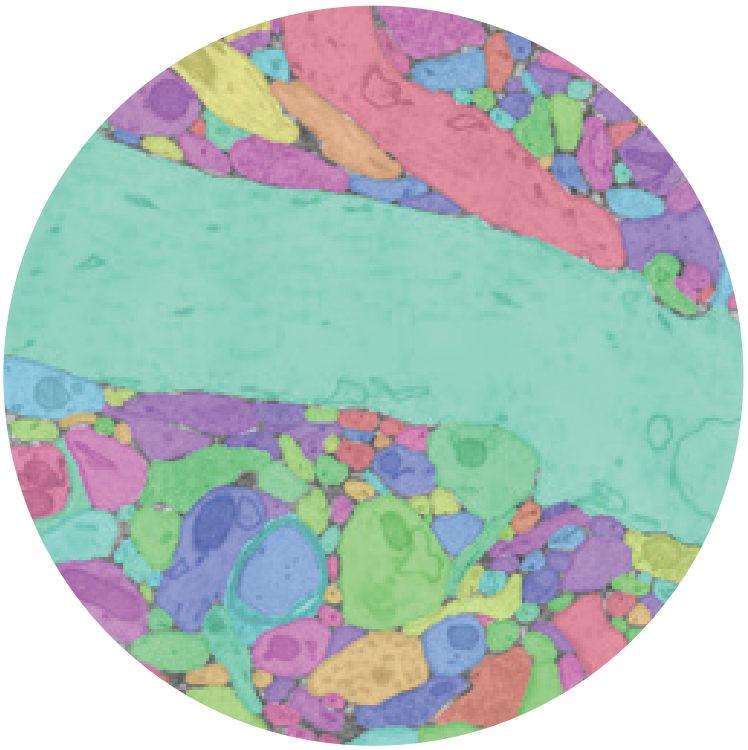

Figure 3: Dense reconstruction of the wiring (dendrites and axons) of a mouse visual cortex.

Genome sequence data is growing much faster than many other areas in science, thanks to breakthroughs in sequencing technology that make it possible to sequence a human genome in just two days. IDIES scientists today hold more than 2,000 full genomes in house, which have been collected to explore the genetic causes of common diseases including asthma and cancer. Genomics researchers can be found in each of the participating schools of IDIES, and JHU scientists are engaged not only in generating and using sequence data, but also in developing new computational and statistical methods for sequence analysis. For example, one of the most widely used experimental paradigms is RNA sequencing ("RNA-seq"), a technique that allows scientists to study the complex patterns of gene expression in different cells and tissues, and to discover genes whose activity is linked to disease. Hopkins faculty and their students have developed software systems for RNA-seq analysis that have become the standard for the field, used daily in thousands of laboratories around the world.

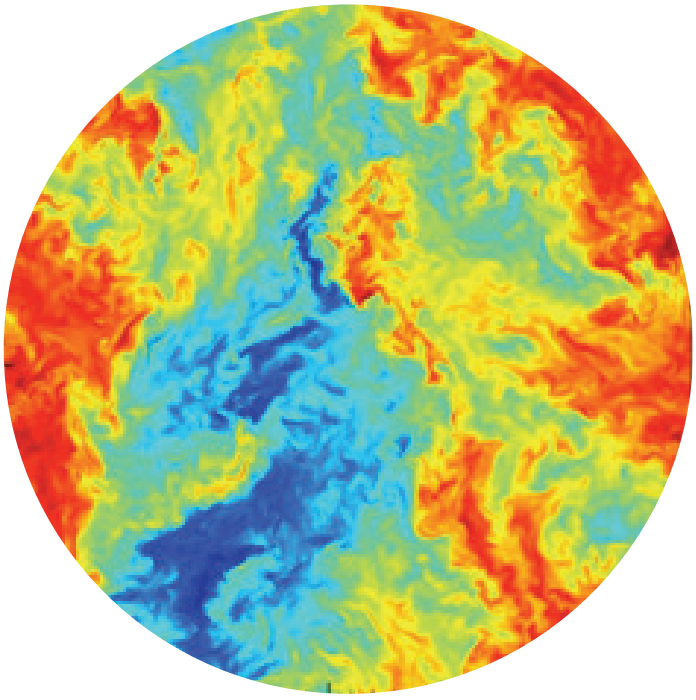

Figure 2: Color contours representing velocity on a 2D slice through the 4D turbulent dataset available at JHTDB.

Johns Hopkins is investing heavily in personalized medicine, exploring new uses of digital information to create individual treatments, and how clinical data can be more efficiently used in translational medicine. For example, OncoSpace, a project integrating a variety of radiation oncology data was built from the elements of the SDSS database. Now it is introduced in

clinical use across several universities, it is well on its way to demonstrate how interactive databases can help personalizing complex treatments.

The JHU Sheridan Libraries are running the Data Conservancy, originally started by an NSF grant, a project focusing on long term curation of digital collections. The Data Conservancy community and software incorporates lessons learned from over a decade of experience with archiving the SDSS data. Data Conservancy infrastructure design and architecture is based on the Open Archival Information System (OAIS) reference model developed initially by the space sciences community. This architecture accounts for the potential use of high-performance computing over data within an archive. Through a comprehensive information and library science research agenda, Data Conservancy now incorporates requirements from a range of disciplines including the "long-tail" of scientific data. In addition to supporting the functionality of other data repositories or archives, Data Conservancy software also includes a packaging tool based on the community standard BagIt format and the ability to generate and preserve Open Archives Initiative-Object Reuse and Exchange information graphs that connect data and publications and the associated provenance chains. This comprehensive approach has resulted in a data archive platform well suited for a range of scientific data formats and types.

Figure 4: The JHU-based Data-Scope, with its 10PB of storage and 0.5Tbytes/sec I/O performance.

The NSF has awarded several grants to JHU to improve the data-intensive capabilities on campus. First, JHU built the Data-Scope, a 10PB data supercomputer with 100 GPU cards, and a 500Gbytes/sec I/O bandwidth. In collaboration with the Mid-Atlantic Crossroads (MAX), JHU was among the first universities in the world to have 100G data connectivity. Recently, IDIES was awarded a $9.5M grant by the NSF DIBBs program to build more generally usable building blocks from elements of the SDSS archive. This new project, the SciServer, is well along the way to integrate management of the different data sets from astronomy to turbulence, connectomics and genomics, using economies of scale to serve large public collections of scientific data. In collaboration with the University of Maryland, College Park, JHU IDIES is close to completing a shared computational facility, hosted at the Bayview campus of JHU. The system, the Mid-Atlantic Research Computing Consortium (MARCC) will have more than 16,000 cores, about 100 Kepler K80 units and 20 petabytes of disk space. It will be connected to the two campuses and to Internet2 through a 100G connection.

Recently IDIES has awarded nine seed grants to jumpstart an effort in new areas, such as material science, urban planning, combining machine learning with molecular dynamics simulations.

Several new classes are designed in data science, and soon there will be a new data science concentration offered as part of the standard curriculum in the Whiting School of Engineering. Faculty in Biostatistics have created an immensely popular Coursera class in Data Science, with more than a million registered students.

The emergence of Big Data has a transformational role in research. Data driven discoveries are becoming the new "Fourth Paradigm" of science. It is clear that universities are well on the way to respond to these new challenges. IDIES scientists are working very hard to build multidisciplinary collaborations and create new, innovative projects at the frontier of the Science of Big Data.

NSF and the National Big Data Initiative

By Chaitan Baru, Senior Advisor for Data Science, CISE Directorate, National Science Foundation

Three years have passed since the launch in March 2012 of the National Big Data Research and Development Initiative by the White House Office of Science and Technology Policy (OSTP). The breathtaking pace of activity in big data has continued unabated in the intervening years. In August 2014, Gartner declared that "big data" had passed the peak of the so-called "Hype Cycle." This only means that the community can now roll up their collective sleeves and get to work on the real issues, rather than worrying about the hype!

While dealing with data is not a new phenomenon—whether in science, business, or government—there is recognition in every field and discipline that the easy availability of vast amounts of data, continuous data streams, a heterogeneous range of datasets, and the use of all of these data for action and insights—including in "real time"—has indeed created a new phenomenon, which the community is beginning to embrace as the new discipline of *Data Science, or Data Science and Engineering*.

Every national priority area and initiative, whether cybersecurity, Precision Medicine, BRAIN, smart energy, Materials Genome, or Advanced Manufacturing, will generate more, new data, and run into the challenges of Big Data. Scientific breakthroughs and new business, government, and societal applications will only come from effective use of all these data. The ability to convert data to action and insights will be the gating factor in our ability to create efficient and effective solutions in all of these priority areas.

Since the Big Data Initiative announcement three years ago, the White House has taken action in a number of ways. In May 2013, the Administration released the *Open Data Policy* so that information generated and stored by the Federal Government is made more open and accessible to innovators and the public to fuel entrepreneurship and economic growth while increasing government transparency and efficiency. Given the interest in gaining maximum value from their data assets, government agencies are hiring Chief Data Officers and Data Scientists. On February 18, 2015, the White House announced the appointment of Dr. DJ Patil as the first U.S. Chief Data Scientist. In a keynote talk the next day at the Strata+Hadoop World Conference in San Jose, Dr. Patil noted that he had already seen a number of innovative uses of data in government, sometimes even surpassing industry's use of data.

Coordination among federal agencies for the Big Data Initiative is enabled through the Networking and Information Technology Research and Development (NITRD) Big Data Senior Steering Group (BDSSG), co-chaired by NSF and NIH, with members from DARPA, DOD OSD, DHS, DOE-Science, HHS, NARA, NASA, NIST, NOAA, NSA, and USGS. Last fall, the BDSSG issued a Request for Input to inform the development of a framework, set of priorities, and ultimately a strategic plan for the National Big Data Initiative[1]; and last month, NSF sponsored a workshop at Georgetown University to obtain additional input from academia, industry, and the community at-large. A second related workshop was hosted by the Homeland Security Advanced Research Projects Agency (HSARPA) on February 23, 2015 in Washington, DC.

One of the cornerstones of the original Big Data Initiative announcement was the creation of a research program in *Core Technologies and Techniques for Advancing Big Data Science & Engineering*, or *BigData*. In the first year, this was a joint initiative between NSF and NIH. In the second year (2014), NIH had initiated their BD2K program, and NSF continued with the *BigData* program. The most recent, third NSF *BigData* solicitation released on February 19, 2015 includes participation from all NSF Directorates, as well as participation by the Office of Financial Research, Department

[1] A summary of the response to the RFI is available at: https://www.nitrd.gov/bigdata/rfi/112014/NationalBigDataStratPlan.pdf.

of Treasury. In subsequent years, we hope to collaborate with additional agencies.

In addition to leading research efforts to advance Big Data science and engineering, NSF is also providing leadership to accelerate the Big Data innovation ecosystem. Building on the momentum of the White House *Data to Knowledge to Action* event in November 2013, which announced new Big Data partnerships, NSF last fall issued a Request For Input on the formation of Big Data Regional Innovation Hubs. We plan to soon announce a series of regional workshops for later this year to further explore this concept.

While the Big Data program creates enormous opportunities for creating new knowledge from large-scale data across all disciplines, there are also new challenges to be addressed including, *sustainability*, identifying which data, from the vast ocean of data sets, need to be retained for the long term, and the business models to support that; *reproducibility*, ensuring that results from *data experiments* can be reproduced at a later time, especially by others; *data to action*, how to reach decisions and take confident action from data, for example, in business and/or government applications; and, *data to insight*, obtaining an understanding of the underlying phenomena from data, for example, in medical and/or scientific applications.

Furthermore, even as organizations grapple with issues of managing and exploiting their ever-increasing data resources, we may only be at the beginning of this data deluge. With the impending arrival of the so-called *Internet-of-Things (IoT)* one can expect even larger volumes of data from a vast array of sensors spanning spatial scales from the individual (e.g. wearables and personal monitoring devices), to the home or factory (Smart Homes, Industrial Internet), and urban environments (Smart Cities). NSF is planning to organize a series of workshops in 2015 on the topic of Big Data and the Internet Of Things.

The Big Data phenomenon has led to the recognition of *data science and engineering* as a new disciplinary area—not just at the PhD and Master's levels but also at the undergraduate level. A number of universities are actively developing a full undergraduate curriculum in *Data Science*, or *Data Science and Engineering*. Indeed, the picture that is emerging is that the scale of data science is much larger than we had originally anticipated. As an example from the Big Data Strategic Initiative workshop at Georgetown earlier this year, Dr. Andrew Moore's keynote noted that Google currently employs about 10,000 people who help curate Web data to assist in Google Search[2]. The CISE-supported Expeditions in Computing project AMPLab at UC Berkeley is about Algorithms, Machines, and *People*. The "human in the loop" will be a key factor in our ability to fully exploit data resources in future.

As the Google example illustrates, much of this work is not necessarily at the graduate level. There will likely be an *ecosystem* of data science-related employment at the graduate level, undergraduate level and, possibly, at the community college level. NSF plans to organize workshops to explore educational opportunities to serve all aspects of the data science industry.

These are indeed exciting times for Big Data and Data Science and we invite you to participate in this exciting new opportunity not only for the CISE community, but for a host of related disciplines!

[2] The full video of the workshop is available at: https://www.youtube.com/watch?v=ATpVnCpJpYI.

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Professional Opportunities

Amazon.com

Research Scientists in Machine Learning

The machine learning (ML) organization at Amazon has multiple positions available in Seattle, Palo Alto, Berlin, and Bangalore for ML experts at all career stages, from graduating doctoral students to internationally renowned researchers and practitioners.

We solve many of Amazon's most difficult and important problems, and in partnership with teams across Amazon, we build new services that surprise and delight customers. We have current and future projects in video recommendation, streaming data analysis, natural language processing, deep learning, bandit algorithms, computer security, social networks, and more.

ML at Amazon is a highly experimental activity, although theoretical analysis and innovation are also welcome. ML scientists work closely with software engineers to put algorithms into practice. They also work on cross-disciplinary efforts with social scientists, computer vision experts, and others.

Amazon is growing fast, and its range of businesses surpasses that of any other technology company. Initiative and leadership are expected and welcomed from everyone. For informal enquiries, contact Charles Elkan (Amazon Fellow) at elkanc@amazon.com.

To apply, contact Florence Vo at florenv@amazon.com. Amazon is an equal-opportunity employer and values diversity.

Qualifications:

MS or PhD (preferred) in computer science or a related field.

3 to 20+ years of experience in ML, with a record of innovation and high-quality publication.

Successful leadership and hands-on work implementing applications of ML.

Business acumen and desire to serve users and consumers.

Boston College

Computer Science Department

Visiting Lecturer

The Department of Computer Science at Boston College invites applications for a full-time Visiting Lecturer position, beginning Fall 2015. This is a one-year, non-tenure track position, with a 3/3 teaching load and a possibility of renewal.

Applications will be accepted at: http://apply.interfolio.com/28646

Boston University

Data Science Initiative

Faculty Positions in Data Science

Boston University is embarking on a 3-year plan to further its strength in core data-science fields. Through an ambitious Provost hiring initiative, BU seeks to attract outstanding scholars with a proven record of achievements and demonstrated potential to lead and sustain an ambitious research program in data science. Applications for consideration under this initiative will be accepted until all positions are filled. Successful candidates will be appointed as tenured or tenure-track faculty in the CS, ECE, or Math & Stats departments, and as Fellows of BU's Hariri Institute for Computing, a hub for high-impact interdisciplinary computational and data-driven research, empowering them to shape BU's vision for research and education in this strategically important area.

Founded in 1839, BU is an internationally recognized institution of higher education. With more than 33,000 students in 16 schools and colleges, it is the 4th-largest independent university in the US. In 2012, BU joined the AAU, a consortium of 62 leading research universities in the US and Canada.

BU is an equal opportunity employer and all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, disability status, protected veteran status, or any other characteristic protected by law. We are a VEVRAA Federal Contractor.

More information, including instructions for interested applicants, is available at: http://www.bu.edu/datascience/.

City College of New York

Assistant Professor - Computer Science (tenure-track)

The Computer Science Department is seeking outstanding candidates for two tenure-track positions at the Assistant Professor level:

1) **Data Science** including machine learning and high performance computing. Both areas are interpreted broadly. Examples of subfields of particular interest within machine learning include applications in computer vision, data mining, biomedical computing, and machine translation. Examples of subfields of particular interest within high performance computing include applications in data management, distributed systems, mobile ad hoc networks, and sensor networks.

2) **Advanced Computer Architecture,** including embedded systems, reconfigurable computing, multiple-core architectures, systems-on-chip and networks-on-chip, programmable and adaptive architectures and digital system design and synthesis. Specialties in data-intensive and data-driven parallel computing in clustered environments, pervasive and wearable computing systems are also considered.

The successful candidates will be expected to be actively involved in research, teach both undergraduate and graduate level

Professional Opportunities

courses, mentor undergraduate and graduate students, and contribute broadly to the academic life of the department.

An outstanding academic or industrial record and a PhD in Computer Science or related field are required. The successful candidate must demonstrate a strong commitment to excellence in undergraduate and graduate teaching and the ability to attract significant research funding.

To apply, please view the job posting (Job ID 12398) at http://www.cuny.edu/employment/jobsearch.html, and follow all instructions. For more information about the Grove School of Engineering and the Computer Science Department, please visit http://www.cuny.edu/employment/jobsearch.html.

Clemson University

Faculty Position in Computer Science

The Division of Computer Science in the School of Computing at Clemson University invites applicants for a tenure-track faculty position. Rank will be commensurate with qualifications. We are especially interested in persons specializing in sensor networks, software engineering, and systems. Highly qualified candidates who can meet our goals of growing collaborative and multi-disciplinary research, such as in computational ecology, are encouraged to apply.

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

For more information and to apply, please visit: http://www.clemson.edu/ces/computing/cs-position.html.

Defiance College

Assistant or Associate Professor of Digital Forensic Science

Defiance College seeks a tenure-track Assistant or Associate Professor of Digital Forensic Science for a Fall 2015 start. Responsibilities include a 24-credit per year undergraduate teaching load; academic advising; curriculum development; committee work; and service to the college. A master's or doctoral degree in information technology, digital forensics, computer engineering, cybersecurity, information assurance, or related field required.

Visit www.defiance.edu/information/employment.html to learn more about the position, the College, and the application process.

Hunter College of the City University of New York (CUNY)

Assistant Professor in Cybersecurity

The Department of Computer Science at Hunter College invites applications for an assistant professor position to begin in Fall 2015. The Department specifically seeks applicants with an independent research record in an area of cybersecurity, broadly defined, including, but not limited to, network security, software security, secure operating systems, and cybersecurity software engineering.

Located on the 68th Street campus on the upper east side of Manhattan, the small but diverse faculty of the Computer Science Department at Hunter works closely with students and each other in an open and collegial atmosphere.

The successful candidate is expected to develop a strong research program and a commitment to obtain external grants, be able to teach core undergraduate computer science courses as well as electives and graduate courses in various areas of cybersecurity.

For details and to apply, visit www.cuny.edu/employment.html and log in or create a new account then search for Job Opening ID: 12340.

ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

EPFL Operating Systems Laboratory Postdoc Position

The EPFL Operating Systems Laboratory has a position for a postdoc. Starting date is flexible, but probably somewhere around July 2015. We are interested in candidates in all aspects of distributed systems, but in particular in candidates with interests in graph processing, resource-efficient data centers, and geo-replication.

Candidates should send a cover letter, a CV with publication lists, and the names and emails of three references to madeleine.robert@epfl.ch. Candidacies will be reviewed until the position is filled.

http://labos.epfl.ch/page-74181-en.html

Professional Opportunities

IBM T.J. Watson Research Center

Research Scientist in Visualization

IBM T.J. Watson Research Center is looking for research scientists with interest in the field of data visualization and visual analytics, to design next-generation user interfaces for making sense of big data, particularly in the healthcare domain. The Research Scientist will be working alongside visualization, machine learning, and medical researchers performing cutting-edge research in data-driven medicine.

The ideal candidate should possess or be nearing completion of a doctorate in computer science or related field with a track record in interactive data visualization and visual analytics research, demonstrated with publications at premier venues, including IEEE InfoVis, IEEE VAST, ACM CHI,

SCHOOL OF INFORMATICS AND COMPUTING
INDIANA UNIVERSITY
Bloomington

Indiana University
School of Informatics and Computing
Lecturer Positions in Informatics Program

The School of Informatics and Computing at Indiana University Bloomington invites applications for up to three non-tenure track Lecturer positions to begin August 2015 in the Informatics program.

We are particularly interested in candidates who can teach our core courses in any of the following areas: introductory programming, human centered computing and human computer interaction, mobile application development, database design and access, or social informatics. Candidates should possess a graduate degree in Informatics, Computer Science, Information Science, or a related discipline, and should be able to demonstrate a record of teaching excellence and enthusiasm.

Lecturers at Indiana University are valued members of faculty and are expected to support the teaching mission of the School of Informatics and Computing through excellence in pedagogical practice, service to the school and academic programs, and inquiry into the advancement of pedagogy in computing. After successfully completing a probationary period, Lecturers will be eligible for long-term contracts and promotion to a Senior Lecturer position. Salary will be commensurate with qualifications and experience.

Interested candidates should review the application requirements and submit a letter of application with a list of specific courses they are prepared to teach, a curriculum vitae, a statement of teaching interests and accomplishments, and names and contact information for three references using the submissions link at:

http://indiana.peopleadmin.com/postings/1374

For full consideration completed applications must be received by March 15, 2015. The search will remain open until the positions are filled.

Questions regarding the position or application process can be directed to the Lecturer Search Committee at: hiring@soic.indiana.edu, or to the School of Informatics and Computing, 919 E 10th Street, Bloomington, IN 47408.

Indiana University is an equal employment and affirmative action employer and a provider of ADA services. All qualified applicants will receive consideration for employment without regard to age, ethnicity, color, race, religion, sex, sexual orientation or identity, national origin, disability status or protected veteran status.

Professional Opportunities

and ACM UIST. We are particularly interested in candidates with strong technical skills who can generate highly novel ideas and execute them rapidly.

More information about the position is available at: http://ibm.co/1tP8Nae.

Kent State University – Kent, OH

Computer Science Department

F/T Tenure Track Faculty 9 Month - [Job #999618]

Opportunity: The department of Computer Science at Kent State University invites applications for two (2) tenure-track faculty positions. The specific three areas of high interest are security, computer engineering and big data. The department is also interested in other areas such as medical informatics, bio and ubiquitous computing, robotics/smart devices. Exceptional candidates in all closely related areas are encouraged to apply.

The successful candidate will be expected to establish highly productive and extramurally funded research programs, develop interdisciplinary research programs within Kent State University, direct theses and dissertations, and exhibit a commitment to excellence in undergraduate and graduate education. The department offers BS, BA, MS, MA and PhD degrees with strong enrollments in doctoral and masters programs.

Qualifications: Qualifications include a PhD in Computer Science or Computer Engineering. Department anticipates hiring at the assistant professor level, but exceptional candidates at other levels may apply. Associate and full professor level applicants would be expected to have a significant current and sustained extramural funding. Salary and startup funds are competitive and commensurate with academic qualifications and experience.

Application Process: Applicants should apply online and upload a cover letter, the curriculum vita, a summary of plans for future research, a statement of teaching interests and philosophy, and unofficial copies of undergraduate and graduate transcripts. Applicants should also arrange for direct submission of three letters of recommendation to cssearch@cs.kent.edu or by mail to: Chair, Faculty Search Committee, Department of Computer Science, Kent State University, P.O. Box 5190, Kent, Ohio 44242-0001. Review of applications will begin March 15, 2015.

For a complete description of this position and to apply online, visit our jobsite at http://jobs.kent.edu.

Equal Opportunity/Affirmative Action Employer / Disabled / Veterans

Marshall University

Assistant Professor, Computer Science

Tenure-track, Fall 2015, visit: https://marshall.peopleadmin.com/postings/3847.

McDaniel College

Department of Mathematics and Computer Science

Assistant or Associate Professor of Computer Science

McDaniel College invites applications for a tenure-track Assistant or Associate Professor position in Computer Science, beginning in August 2015. The particular field of specialization is open.

To apply and for more details, please visit http://www2.mcdaniel.edu/apply/CS.

McDaniel College is an AA/EEO and ADA employer and welcomes applications from diverse candidates and candidates who support diversity.

McMaster University

Tenure-Track Faculty Position

Ranked among the top engineering schools in Canada and worldwide, the Faculty of Engineering plays a key role in helping McMaster University earn its well-deserved reputation as one of Canada's most innovative universities in learning and research.

The McMaster Faculty of Engineering has a reputation for innovative programs, cutting-edge research, leading faculty, and aspiring students. It has earned a strong reputation as a centre for academic excellence and innovation. The Faculty has approximately 150 faculty members, along with close to 4,000 undergraduate and 750 graduate students.

The Department of Computing and Software has an internationally recognized research program and a diverse, innovative instructional program. The Department's 23 faculty members are pursuing a wide variety of research in algorithms, data science, eHealth, embedded and cyberphysical systems, immersive simulation, information security, mechanized mathematics, optimization, resource allocation, rigorous software engineering, scientific computation, software certification, and wireless systems. The application of theory to practical problems is a major theme of its research program. The Department has undergraduate and graduate programs in Computer Science, Software Engineering, and Mechatronics Engineering. The Department houses the McMaster Centre for Software Certification as well as several research laboratories.

The Department of Computing and Software at McMaster University seeks outstanding candidates for a tenure-track faculty position. Applicants with a doctorate in Computer Science or Software Engineering (or a related area) at the time of appointment are encouraged to apply. The Department is primarily interested in

Professional Opportunities

hiring a researcher in Information Security at the rank of Assistant or Associate Professor, but highly exceptional candidates in Computing Systems, Foundations of Computing, or Machine Learning and at other ranks will be considered seriously.

The potential to develop a strong research program and become an excellent teacher is crucial. Successful candidates will be expected to attract external research funding, pursue industrial collaboration if appropriate, actively recruit and supervise graduate students, and teach at both the undergraduate and graduate levels. Registration or eligibility for registration by the Professional Engineers of Ontario will be considered an asset.

Salary and rank are commensurate with experience and qualifications.

Applications, including a CV, a statement detailing teaching and research interests, and the names of at least three referees, should be sent to Laurie LeBlanc at leblanl@mcmaster.ca.

Applications review will begin immediately and the appointment will ideally commence July 1, 2015. However, applications will be accepted until the position is filled.

Note: All qualified candidates are encouraged to apply. However, Canadian citizens and permanent residents will be given priority for these positions. McMaster University is strongly committed to employment equity within its community and to recruiting a diverse faculty and staff. The University encourages applications from all qualified candidates including women, persons with disabilities, First Nations, Metis and Inuit persons, members of racialized communities and LGBTQ-identified persons. If you require any form of accommodation throughout the recruitment and selection procedure, please contact the Human Resources Service Centre at Extension 222-HR (22247).

NEC Laboratories America

Researcher - Computer Vision and Machine Learning

The Media Analytics Department of **NEC Laboratories America** (www.nec-labs.com) in Cupertino, CA is seeking outstanding researchers with backgrounds in computer vision and machine learning. Candidates must possess an exceptional track record of original research and passion to create high impact products. Our researchers are expected to establish leadership in the research community and maintain active collaborations with leading universities worldwide.

The Media Analytics group provides a vibrant research environment that has produced very strong research results. The Media Analytics group always strives for excellence, producing top-notch research with strong aim to develop the core technologies for the industry in the decade to come.

Our current research focuses on two major directions – large-scale image recognition and 3D reconstruction – with applications like *search by images* on mobile platforms, *3D scene understanding* for autonomous driving. While we are seeking for top talents in the above two directions, we are open to other directions in computer vision and machine learning.

Required Skills or Experiences:

1) PhD in Computer Science (or equivalent)
2) Strong publication record at top-tier computer vision or machine learning venues
3) Solid foundation in applied mathematics, optimization and statistical inference
4) Motivation to conduct independent research from conception to implementation
5) Ability to develop large-scale systems working with image/video data

Additional Desirable Skills:

1) Research focus in visual recognition, 3D reconstruction or scene understanding
2) Strong programming skills in C/C++
3) Experience with parallel/distributed computing
4) Experience with mobile or embedded systems

For more information about NEC Labs, access http://www.nec-labs.com/, and submit your CV and research statement through our career center at https://www.appone.com/MainInfoReq.asp?R_ID=974525.

EOE-M/F/Vet/Disabled

NYU Abu Dhabi

Computer Science

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.

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

Professional Opportunities

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.

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 degree-granting campuses: New York, Shanghai, and Abu Dhabi, which are complemented by eleven additional academic centers across five continents. Faculty and students will circulate within the network in pursuit of common research interests and cross-cultural, 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, 2015. If you have any questions, please e-mail nyuad.science@nyu.edu.

EOE/Minorities/Females/Vet/Disabled

NYU Shanghai

Computer Science: Machine Learning & Big Data/Data Science

Faculty Position

NYU Shanghai invites outstanding applications for two tenure-track or tenured faculty appointments in Computer Science. Applicants to the first position should have an active research program in machine learning and be dedicated to making fundamental technical contributions in this vital area. Applicants to the second position should have research interests related to big data and data science as broadly defined, including database systems, data mining, information retrieval, natural language processing, data visualization, and applications in areas such as medicine, business, and the natural and social sciences. Applicants must have demonstrated excellence in both research and teaching. When discussing their teaching experience and interests, candidates should identify courses they could teach both within and outside their specialty. Candidates must have completed a Ph.D. or equivalent by the time of appointment.

The terms of employment in NYU Shanghai are comparable to U.S. institutions and include research start-up funds, generous compensation, housing subsidies, and educational subsidies for children. Faculty may also spend time at NYU New York and other sites of the global network, engaging in both research and teaching opportunities, and have opportunities to collaborate with the many research centers and groups at NYU, including our recently launched centers for Data Science (CDS) and Urban Science and Progress (CUSP).

Applications are due no later than **January 31, 2015** and will be reviewed until the position is filled. To be considered, applicants should submit a curriculum vitae, a statement of research and teaching interests, and electronic copies of up to five recent relevant publications. To complete the online process, applicants will be prompted to enter the names and email addresses of at least three referees. Each referee will be contacted to upload their reference letter. Please visit our website at https://shanghai.nyu.edu/about/work/faculty-positions for instructions and other information on how to apply. If you have any questions, please e-mail shanghai.faculty.recruitment@nyu.edu.

About NYU Shanghai:

NYU Shanghai is the newest degree-granting campus within the NYU Global Network University. It is the first Sino-US higher education joint venture to grant a degree that is accredited in the U.S. as well as in China. All teaching is conducted in English. A research university with liberal arts and science at its core, it resides in one of the world's great cities with a vibrant intellectual community. NYU Shanghai recruits scholars who are committed to NYU's global vision of transformative teaching and innovative research.

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

EOE/Minorities/Females/Vet/Disabled

Professional Opportunities

North Carolina State University

Department of Computer Science

Faculty Position in Games

The Department of Computer Science at North Carolina State University (NCSU) seeks to fill a tenure/tenure track faculty position in computer games starting August 16, 2015. The Department is seeking a faculty member with a Ph.D. in Computer Science or closely related field who will establish a vigorous research and teaching program in computer games. Applicants at all levels (assistant, associate, and full professor) and in all areas of computational games research are encouraged to apply.

The selected candidate will join a large group of computer science colleagues actively pursuing research efforts in games, with recognized efforts in computational narrative, game-based learning, game analytics, games user experience research, and games in CS education, among others. Our faculty collaborate with games scholars from across the university in both teaching and funded research efforts, including games studies faculty, cognitive psychologists, digital humanists, artists, designers and educational theorists. We regularly engage in teaching and research activities with the vibrant North Carolina games industry, including over 40 games companies ranging from industry leaders like Electronic Arts, Epic Games, and Ubisoft to serious games studios like Lockheed Martin's Virtual Worlds Lab and Virtual Heroes, Inc. The department's undergraduate concentration in game development has been ranked by Princeton Review as the 4th strongest public university game development program in North America in 2014.

The NCSU Computer Science Department is one of the largest and oldest in the country. It is part of NCSU's College of Engineering, which has recently received significant increases in private and public funding, faculty positions, and facilities that will assist the Department in achieving its goals. The department's research expenditures and recognition are growing steadily. For example, we have one of the largest concentrations in the country of prestigious NSF Early Career Award winners (a total of 24). Founded in 1887, North Carolina State University is a land-grant institution distinguished by its exceptional quality of research, teaching, extension, and public service. Located in Raleigh, North Carolina, NC State is the largest university in the state, with more than 34,000 students and 8,000 faculty and staff. National rankings consistently rate Raleigh and its surrounding region among the five best places in the country to live and work, with a highly educated workforce, moderate weather, reasonable cost of living, and a welcoming environment. A collaborative, supportive environment for business and innovation and research collaborations with area universities and the Research Triangle Park are compelling reasons for relocation to the area.

Applications will be reviewed as they are received. The position will remain open until suitable candidates are identified. Applicants should submit the following materials online at http://jobs.ncsu.edu (reference position number 00001075): cover letter, curriculum vitae, research statement, teaching statement, and names and complete contact information of four references, including email addresses and phone numbers. Candidates can obtain information about the position at http://jobs.ncsu.edu/postings/46246. Additional information about the Department of Computer Science and its research programs may be found at http://www.csc.ncsu.edu/. Inquiries should be sent to games@csc.ncsu.edu.

NCSU is an equal opportunity and affirmative action employer. In addition, NCSU welcomes all persons without regard to sexual orientation or genetic information. Individuals with disabilities requiring disability-related accommodations in the application and interview process please call (919) 515-3148.

North Carolina State University

Department of Computer Science

Networking Faculty Position

The Department of Computer Science at North Carolina State University (NCSU) seeks to fill a tenure-track faculty position in the area of Networking starting August, 16, 2015. Areas of special interest include Internet of Things / Cyber-Physical Systems issues, such as joint software and communication architecture and protocol design in support of mobile pervasive applications; application layer advances, system design and programming of mobility-aware, connectivity-poor, power-constrained distributed computing nodes; robotic, vehicular, and airborne networks; software-defined, virtualized, and function-virtualized networks, network management, cyber-physical system security, and other similar cutting-edge areas combining networking and other computing areas. A successful candidate must have a strong commitment to academic and research excellence, and an outstanding research record commensurate with the expectations of a major research university. Required credentials include a doctorate in Computer Science or a related field. While the department expects to hire at the Assistant Professor level, candidates with exceptional research records are encouraged to apply for a senior position. The department is one of the largest and oldest in the country. It is part of NCSU's College of Engineering. The department's research expenditures and recognition have been growing steadily. For example,

Professional Opportunities

we have one of the largest concentrations in the country of prestigious NSF Early Career Award winners (24 of our current or former faculty have received one).

NCSU is located in Raleigh, the capital of North Carolina, which forms one vertex of the world-famous Research Triangle Park (RTP). RTP is an innovative environment, both as a metropolitan area with one of the most diverse industrial bases in the world, and as a center of excellence promoting technology and science. The Research Triangle area is routinely recognized in nationwide surveys as one of the best places to live in the U.S. We enjoy outstanding public schools, affordable housing, and great weather, all in the proximity to the mountains and the seashore.

Applications will be reviewed as they are received. The positions will remain open until suitable candidates are identified. Applicants should submit the following materials online at http://jobs.ncsu.edu (reference position number 00003984) cover letter, curriculum vitae, research statement, teaching statement, and names and complete contact information of four references, including email addresses and phone numbers. Candidates can obtain information about the department and its research programs, as well as more detail about the position advertised here at http://www.csc.ncsu.edu/. Inquiries may be sent via email to networking-faculty-search@csc.ncsu.edu.

NCSU is an equal opportunity and affirmative action employer. In addition, NCSU welcomes all persons without regard to sexual orientation or genetic information. Individuals with disabilities desiring accommodations in the application process should contact (919) 515-3148.

North Carolina State University

Department of Computer Science

Software Engineering Position

The Department of Computer Science at North Carolina State University (NCSU) seeks to fill a tenure-track faculty position in the area of Software Engineering starting August, 16, 2015. Areas of special interest include software requirements, software testing, and software engineering aspects of emerging topics such as social-computing, security, privacy, clouds, and service-orientation. A successful candidate must have a strong commitment to academic and research excellence, and an outstanding research record commensurate with the expectations of a major research university. Required credentials include a doctorate in Computer Science or a related field. While the department expects to hire at the Assistant Professor level, candidates with exceptional research records are encouraged to apply for a senior position. The department is one of the largest and oldest in the country. It is part of NCSU's College of Engineering. The department's research expenditures and recognition have been growing steadily. For example, we have one of the largest concentrations in the country of prestigious NSF Early Career Award winners (24 of our current or former faculty have received one).

NCSU is located in Raleigh, the capital of North Carolina, which forms one vertex of the world-famous Research Triangle Park

جامعة قطر
QATAR UNIVERSITY

Assistant/Associate/Full Research Professor in Bioinformatics

Qatar University invites applications for research faculty positions at the level of associate or full professor to begin on September 2015.
Candidates will cultivate and lead large-scale research projects at the KINDI Center for Computing Research in the areas bioinformatics or health informatics.
Qatar University offers competitive benefits package including a 3-year renewable contract, tax free salary, free furnished accommodation, and more.
Apply by posting your application on the QU online recruitment system at http://careers.qu.edu.qa under "College of Engineering".

جامعة قطر جامعة قطر

Professional Opportunities

(RTP). RTP is an innovative environment, both as a metropolitan area with one of the most diverse industrial bases in the world, and as a center of excellence promoting technology and science. The Research Triangle area is routinely recognized in nationwide surveys as one of the best places to live in the U.S. We enjoy outstanding public schools, affordable housing, and great weather, all in the proximity to the mountains and the seashore.

Applications will be reviewed as they are received. The positions will remain open until suitable candidates are identified. Applicants should submit the following materials online at http://jobs.ncsu.edu (reference position number 00001095) cover letter, curriculum vitae, research statement, teaching statement, and names and complete contact information of four references, including email addresses and phone numbers. Candidates can obtain information about the department and its research programs, as well as more detail about the position advertised here at http://www.csc.ncsu.edu/. Inquiries may be sent via email to: facultyhire@csc.ncsu.edu.

NCSU is an equal opportunity and affirmative action employer. In addition, NCSU welcomes all persons without regard to sexual orientation or genetic information. Individuals with disabilities desiring accommodations in the application process should contact (919) 515-3148.

جامعة قطر
QATAR UNIVERSITY

Associate/Full Research Professor in Cyber Security

Qatar University invites applications for research faculty positions at all levels with an anticipated starting date before September 2015.
Candidates will cultivate and lead research projects at the KINDI Center for Computing Research in the area of Cyber Security.
Qatar University offers competitive benefits package including a 3-year renewable contract, tax free salary, free furnished accommodation, and more.
Apply by posting your application on the QU online recruitment system at http://careers.qu.edu.qa under "College of Engineering".

Oberlin College

Department of Computer Science

Visiting Assistant Professor of Computer Science

The Department of Computer Science at Oberlin College invites applications for a full time, non-continuing faculty position for one year starting in the Fall of 2015.

The area of specialization within Computer Science is open, with a preference for Systems or Architecture. For additional information see the full posting on AcademicJobsOnline.org or http://new.oberlin.edu/home/jobs/.

Applicants must apply online at Academic Jobs Online

https://academicjobsonline.org/ajo/jobs/5239

Tufts University

Computer Science Department

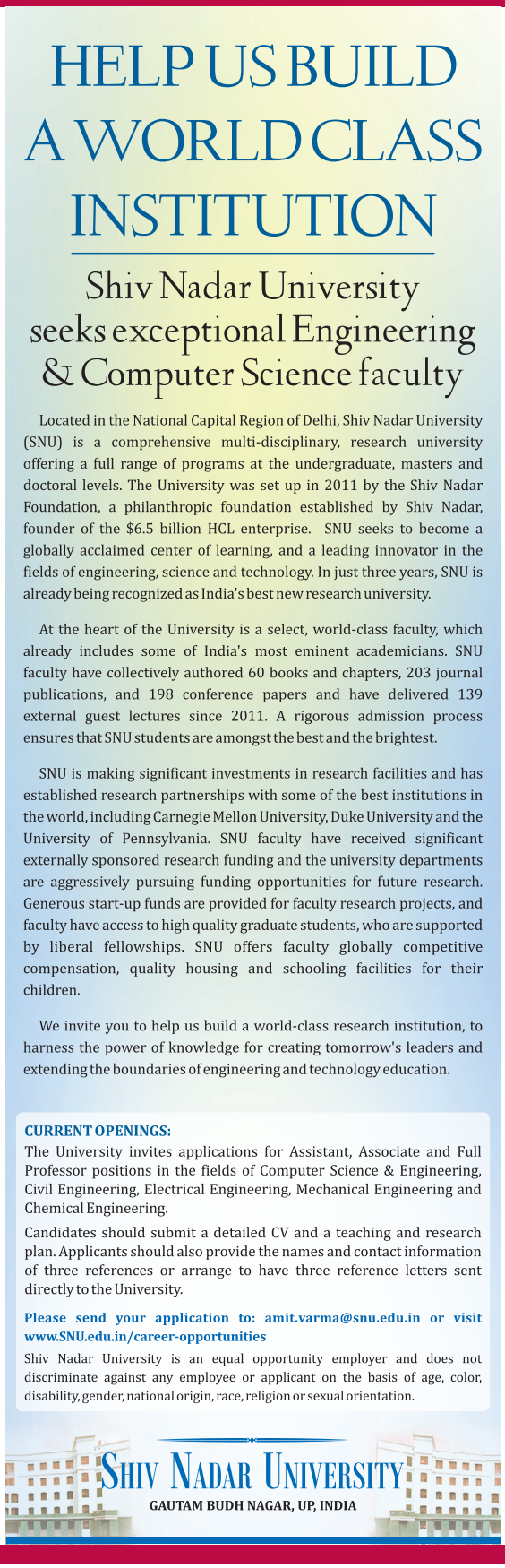
Full-Time Computer Science Lecturer or Visiting Faculty

The Department of Computer Science in the School of Engineering at Tufts University invites applications for a full-time, non-tenure track Lecturer or Visiting Faculty beginning in September 2015.

We are seeking an engaged individual committed to excellent teaching, student mentoring, academic advising, and curriculum development. Applicants are expected to teach advanced courses in their areas of expertise. Applicants must hold a PhD in Computer Science or closely related field at time of appointment, or have a solid track record of classroom instruction and curricular innovation. The initial appointment is for two years with possibility of longer contracts.

The Department of Computer Science has grown tremendously in the past decade in faculty and student size and in research expenditures. Located in the Boston area,

Professional Opportunities



the department benefits from outstanding undergraduate and graduate students, collaborative faculty, and cross-disciplinary research and educational opportunities. Tufts University is one of the smallest universities ranked as a Research 1 university, and it offers the best of a liberal arts college atmosphere, coupled with the intellectual and technological resources of a major research university. Tufts University supports and encourages a culture of interdisciplinary research and there are numerous such opportunities within the School of Engineering, the School of Arts and Sciences, and through graduate and professional schools.

Tufts' School of Engineering distinguishes itself by the interdisciplinary focus and integrative nature of its engineering education within the intellectually rich environment of a research university. Located only six miles from historic downtown Boston, faculty members on the Tufts Medford/Somerville campus have extensive opportunities for academic and industrial collaboration as well as participation in the rich intellectual life of the area. The School of Engineering is in the midst of a period of exciting growth that has seen recruitment of outstanding new faculty, a quadrupling of funded research over the last ten years, addition of new laboratory space, an emphasis on building diversity in engineering, and major curricular initiatives at both the undergraduate and graduate levels.

We request that applications include the following materials (a) letter of intent (b) a curriculum vitae, (c) a statement of teaching philosophy, (d) names and affiliations of three potential references. All these should be submitted online through Academic Jobs Online. Review of applications will begin February 1, 2015 and continue until the position is filled.

Application materials should be submitted

Professional Opportunities

online through Academic Jobs Online (AJO) at https://academicjobsonline.org/ajo/jobs/5317.

For more information about the department, the positions, and the application procedure please visit http://www.cs.tufts.edu/. Inquiries should be emailed to cssearch2@cs.tufts.edu.

Tufts University is an Affirmative Action/Equal Opportunity employer. We are committed to increasing the diversity of our faculty. Members of underrepresented groups are strongly encouraged to apply.

Stony Brook University

Faculty Positions in the Institute for Advanced Computational Science

Applications are invited for four tenure-track faculty positions of any rank (including endowed chairs), in applied mathematics and computer science in the Institute for Advanced Computational Science (IACS) at Stony Brook University. Candidates wishing to apply should have a doctoral degree in Applied Mathematics or Computer Science, though a degree in related fields may be considered. Ten years of faculty or professional experience is required for a senior position along with a demonstrated record of publications and research funding. A demonstrated record of publications and a demonstrated potential for research funding is required for any junior faculty. The selected candidate is expected to participate in interdisciplinary program development within the Institute and to establish a research program with a solid funding base through both internal and external collaborations. Of specific interest is research in, for example, programming models, algorithms, or numerical representations that advance scientific productivity or broaden the benefit and impact of high-performance computing. The selected candidates will have access to world-class facilities including those at nearby Brookhaven National Laboratory.

The Institute for Advanced Computational Science (**http://iacs.stonybrook.edu/**) was established in 2012 with an endowment of $20M, including $10M from the Simons Foundation. The current ten faculty members will double in number over the next few years to span all aspects of computation with the intent of creating a vibrant multi-disciplinary program. IACS seeks to make sustained advances in the fundamental techniques of computation and in high-impact applications including engineering and the physical, life, and social sciences. Our integrated, multidisciplinary team of faculty, students, and staff overcome the limitations at the very core of how we compute, collectively take on challenges of otherwise overwhelming complexity and scale, and individually and jointly define new frontiers and opportunities for discovery through computation. In coordination with the Center for Scientific Computing at Brookhaven National Laboratory, our dynamic and diverse institute serves as an ideal training and proving ground for new generations of students and researchers, and provides computational leadership and resources across the SBU campus and State of New York.

The search will remain open until suitable candidates are found with the first round of applications due May 15, 2015. All candidates must submit the required documentation online through the link provided below. Please input a cover letter, your curriculum vitae, a research plan (max. 2 pages) which should also describe how graduate and undergraduate students participate, a one-page statement of your teaching philosophy, a publication list, your funding record, and three reference letters to: **https://iacs-hiring.cs.stonybrook.edu**.

Stony Brook University/SUNY is an equal opportunity, affirmative action employer.

University of California, Davis

Department of Computer Science

Lecturer Positions

The Department of Computer Science at the University of California, Davis, anticipates up to 2-3 openings for Temporary Lecturers to teach undergraduate courses during Academic Year 2015-2016. These positions are dependent upon the instructional needs of the department and may be full- or part-time. A list of the courses that may be viewed on our website at: http://www.cs.ucdavis.edu/blog/temporary-lecturer-positions/. Other courses may also be available dependent on instructional needs.

Candidates must have at least a Masters degree, and preferably a Ph.D., in CS or a closely related field. Previous teaching experience and evidence of teaching excellence or potential for excellence is preferred. Knowledge of modern database systems and/or academic research experience in database systems is desired.

Salary and appointment level commensurate with experience. Actual salary is based on percentage of appointment: One course = 33% appointment. These positions are covered by a collective bargaining agreement.

Interested persons should submit a letter of interest identifying courses they are interested in teaching, a curriculum vitae, and the names of three references. Optional recommended documents are reprints or other examples of scholarly achievement and teaching evaluations. Applications should be submitted using the UC Davis online recruiting system at the following link: https://recruit.ucdavis.edu/apply/JPF00466.

To ensure full consideration, applications should be received by March 1, 2015. Positions are open until filled.

UC Davis is an affirmative action/equal employment opportunity employer and is dedicated to recruiting a diverse faculty community. We welcome all qualified

Professional Opportunities

applicants to apply, including women, minorities, individuals with disabilities and veterans.

University of California, Riverside

Department of Computer Science and Engineering

Post Doc Position

We are looking for a postdoc in the general area of network/system security. We are interested both in researchers who develop analytical models (e.g., game theory) as well as those who have security/systems background. The work will be done under the context of a new collaborative research alliance (CRA) on cyber security established by the Army Research Laboratories, and will be highly collaborative in nature. For more details on the CRA, please visit http://www.cra.psu.edu.

For more information on our research group, please visit our webpages (http://www.cs.ucr.edu/~krish and http://www.cs.ucr.edu/~zhiyunq) or the networks group webpage at (http://networks.cs.ucr.edu).

Interested candidates should e-mail their CV to krish@cs.ucr.edu and/or zhiyunq@cs.ucr.edu. We are especially interested in candidates that can start on or before April 1, 2015.

University of Delaware

Senior Faculty and JPMorgan Chase Faculty Fellow / PhD Program

The Alfred Lerner College of Business and Economics (Lerner) and the College of Engineering (COE) at the University of Delaware invite applications for a tenured senior faculty position in area of Big Data analytics beginning September 2015. Candidates with expertise in Big Data management, large scale machine learning, data mining, financial services analytics, social media, and security are encouraged to apply.

For more information and to apply see http://apply.interfolio.com/28779.

The University of Delaware is an Equal Opportunity Employer, which encourages applications from minority group members and women.

TAFT COLLEGE

West Kern Community College District

TAFT COLLEGE/WEST KERN COMMUNITY COLLEGE DISTRICT
is currently accepting applications for:

COMPUTER SCIENCE ASSOCIATE PROFESSOR

Full-Time, Tenure-Track Position / Commencing Fall 2015

Open until filled, priority consideration date of Friday, March 6, 2015.

GENERAL RESPONSIBILITIES

- Instruction of community college computer science courses; classes may include computer programming languages and application courses.
- Participate in Applied Technology division meetings and serve on campus committees.
- Be available to students for five (5) hours per week of scheduled office hour time.
- Participate in the evaluation of materials, the development of outlines and Student Learning Outcomes for courses taught.
- Maintain an inventory of equipment used.
- Complete reports, schedules and grades within established guidelines.
- Other duties as assigned.

MINIMUM QUALIFICATIONS

An earned Master's degree from an accredited institution in computer science or computer engineering or bachelor's degree in either of the above and master's degree in mathematics, cybernetics, business administration, accounting or engineering or bachelor's degree in engineering and master's degree in cybernetics, engineering mathematics, or business administration or bachelor's degree in mathematics and master's degree in cybernetics, engineering mathematics, or business administration or bachelor's degree in any of the above and a master's degree in information science, computer information systems or information systems or the equivalent. Sensitivity to and understanding of the diverse academic, socioeconomic, cultural, disability and ethnic backgrounds of community college students.

NOTE: Applicants who claim equivalent qualifications shall provide conclusive evidence that they possess qualifications that are at least equivalent to those required by the minimum qualifications of the area for which they are applying. It is the responsibility of the applicant to supply all evidence and documentation for the claim of equivalency at the time of the application.

To be assured full consideration, complete application packets must be in the Human Resources Department by 4:00 p.m. on Friday, March 6, 2015.

For more information and to apply, visit **http://apptrkr.com/570682**

Equal Opporunity Employer

Professional Opportunities

University of the District of Columbia

Faculty Search in Computer Science and Information Technology

The Department of Computer Science and Information Technology at the University of the District of Columbia seeks applications for **one tenure-track position at the level of Assistant/Associate Professor** beginning in August 2015. We welcome all candidates in all areas of Computer Science and Information Technology to apply. Applicants must hold a Ph.D. in Computer Science, IT, or closely related disciplines. We are particularly interested in candidates with research experiences in the following areas: networks, cyber-security, mobile computing, cloud computing, computer vision, robotics, artificial intelligence or operating systems.

Candidates who have strong practical expertise in Confidentiality, Integrity, and Availability in Technology, Policy & Practice, and Education & Awareness of information assurance and incorporating protection, detection, and reaction capabilities are encouraged to apply. Faculty duties include teaching undergraduate and graduate students, conducting high-quality research by collaborating closely with the department's established teams, participating in and developing externally funded research projects, and performing academic duties, university services, and professional services.

The University of the District of Columbia is a comprehensive urban land-grant institution and is classified as a Historically Black College and University. It is the only public university in the District of Columbia, the U.S. Capital.

Applicants should submit a CV with three references (names and contact information) and teaching & research statement. All applicants should submit required materials, in electronic formats through UDC website: Click Here to Apply Reviews will continue until position is filled. The University of the District of Columbia is an Equal Opportunity/ Affirmative Action Employer.

University of Florida

Tenure-Track Faculty Positions

The Department of CISE in the College of Engineering at the University of Florida is recruiting tenure-track faculty positions at the level of Associate and Full Professor in the in the area of "Social Networks Analysis." The ideal candidate will take innovative approaches to interdisciplinary and multidisciplinary research and teaching. UF seeks to hire researchers that can advance social networks research both in depth and breadth, synergizing with three institutes: (1) Big Data and the Informatics Institute; (2) Quantitative Social Sciences; and (3) Mathematical Modeling of Disease Transmission and Viral Marketing. Areas of specific interest include but are not, limited to social media analysis, crowd sourcing, recommender systems, information diffusion, privacy, security and data mining in social networks.

Qualifications: Candidates must hold a PhD degree in computer science or in a closely related discipline and should have demonstrated potential in research, funding, scholarship and teaching. Applications for positions that will commence in fall 2014 are now being considered. The application should include a cover letter, detailed vitae, statement of research interest, and a list of references. Submit applications or questions to:
Social Networks Analysis:
socialnetworksearch@cise.ufl.edu;

The CISE Department offers B.S., M.S., and Ph.D. degree programs with an, enrollment of about 870 full-time undergraduate students and nearly 500 graduate students of which about 140 are PhD students.
The CISE Department has 38 tenured or tenure-track faculty members with several IEEE, ACM, AAAS, and SCS Fellows, and one member of the European Academy of Sciences. The Department also has 13 NSF Career Award winners and 2 YIP Award

Professional Opportunities

winners. The Department has an endowment of $3 million from Harris Corporation for promoting innovation in Computer Science and Engineering. The Department's current external research expenditures exceed $5 million annually. Areas of research strength in the Department include: Applied Algorithms & Parallel Computing, Databases, Computer Vision and Machine Learning, Wireless Communications & Networking, and Graphics & Human Computer Interface. The Department has additional emerging areas of strength in cybersecurity, and big data and bio-informatics. For more information about the CISE Department and the College of Engineering, please visit www.cise.ufl.edu and www.eng.ufl.edu, respectively.

University of Florida counts among its greatest strengths – and a major component of its excellence – that it values broad diversity in its faculty, students, and staff and creates a robust, inclusive and welcoming climate for learning, research and other work. UF is committed to equal educational and employment opportunity and access and seeks individuals of all races, ethnicities, genders and other attributes who, among their many exceptional qualifications, have a record of including a broad diversity of individuals in work and learning activities.

The University of Pennsylvania

Lecturer Position

The University of Pennsylvania Department of Computer and Information Science invites applicants for a Lecturer position within our graduate program. The department seeks individuals with exceptional promise for, or a proven record of, excellence in teaching. Applicants should have a Ph.D. degree and/or significant industry experience in computing.

The position entails designing and teaching courses in embedded systems programming, software engineering, parallel computing, and other systems-related topics. The target start date is July 1, 2015. Applications will be evaluated on a rolling basis until the position is filled.

Lecturer positions are for one year, renewable annually up to three years, at the end of which a promotion to Senior Lecturer can be considered. Successful applicants will find Penn to be a stimulating environment conducive to professional growth in both teaching and research.

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

Electronic applications are strongly preferred, (https://facultysearches.provost.upenn.edu/postings/232) but hard-copy applications (including the names of at least four references) may alternatively be sent to:
Chair, Faculty Search Committee
Department of Computer and Information Science
3330 Walnut Street, 302 Levine Hall
School of Engineering and Applied Science
University of Pennsylvania
Philadelphia, PA 19104-6389

Applications should be received by March 31, 2015 to be assured full consideration. Applications will be accepted until positions are filled. Questions can be addressed to faculty-search@central.cis.upenn.edu.

University of Pennsylvania

Computer Science Postdoctoral Researcher in Natural Language Processing for Social Science

We invite applicants for a postdoctoral research position in natural language processing for health and social scientific discovery, working on an interdisciplinary research project studying subjective well-being, depression, and health outcomes. The researcher will help develop state-of-the-art methods and models to better understand people, such as predicting personality from the words they use and automatically recognizing cognitive distortions typical of people prone to depression. She or he will work closely with Andrew Schwartz at Stony Brook University and with the University of Pennsylvania's World Well-Being Project.

The ideal candidate will have research experience in computational linguistics and applied machine learning. She or he will develop and code novel methods to leverage large datasets (i.e. billions of tweets) and use them to further our understanding of health, well-being, and the psychological states of individuals and large populations. Methods and results will be published in high impact computer science venues and, via collaboration with psychologists and medical doctors, in social science and health venues.

Application Deadline: February 22, 2015 (and accepted until position is filled)

Approximate Start Date: June - August 2015

How to Apply: Send a detailed CV with at least 2 references who can be contacted for letters to applications@wwbp.org. Include job-code "POSTDOC-CS" in subject line. The University of Pennsylvania is an EOE/Affirmative Action Employer. Position dependent on funding.

This work is with University of Pennsylvania's World Well-Being Project (WWBP), a collaboration between computer scientists, psychologists, and statisticians pioneering techniques for measuring physical and psychological well-being based on language in social media. WWBP uses machine learning techniques applied to the language of large social media datasets to predict and characterize psychological and health variables at the individual and community levels. More about the project can be found at http://wwbp.org.

Professional Opportunities

Primary Contact:
Andrew Schwartz (andrew.schwartz@cs.stonybrook.edu)
Assistant Professor, Computer Science
Stony Brook University
Lead Research Scientist, WWBP
University of Pennsylvania

University of South Alabama

School of Computing

Full-Time, Tenure-Track Assistant or Associate Professor

The School of Computing at the University of South Alabama is soliciting applications for a full-time tenure-track faculty position in Computer Science at the rank of Assistant or Associate Professor to begin as early as August 15, 2015.

Applicants must have a Ph.D. in Computer Science with special consideration given to applicants with research interest in artificial intelligence, computer graphics, robotics, soft engineering, or visualization.

Details are available at http://www.southalabama.edu/departments/academicaffairs/facultyposition.html. Review of applications will begin upon receipt and continue until the position is filled.

The University of South Alabama is an Equal Opportunity Employer-Minorities/Females/Veterans/Disabled.

University of Utah

Tenure-Track Faculty Position Opening

The University of Utah's School of Computing (SoC) and the Entertainment Arts and Engineering (EAE) program are seeking to hire a joint tenure-track faculty member at the assistant professor level, beginning Fall 2015. Exceptional candidates at higher ranks will also be considered. Candidates for this position should have an established record of interdisciplinary work between computer science and games. Applicants must have earned a Ph.D. in Computer Science or a closely related field and demonstrate ability to obtain external funding, pursue an exceptional research agenda, and mentor and teach effectively.

Applicants should be able to perform research connecting computer sciences and games. Possible areas include, but are not limited to: human computer interaction, procedural content generation/generative methods, games user research, computer graphics for games, game analytics, and artificial intelligence for games.

The University of Utah is a Carnegie Research I Institution. The School of Computing is an exciting, growing school with a 50-year history of excellence in computer graphics, computer science

Ventura County Community College District
MOORPARK COLLEGE • OXNARD COLLEGE • VENTURA COLLEGE
Ventura, CA

Computer Science Instructor (Tenure-track)
Moorpark College

Minimum Qualifications:

Candidates must possess the minimum qualifications for the discipline as approved by the California Community Colleges Board of Governors and defined in the Minimum Qualifications for Faculty and Administrators in California Community Colleges handbook.

Master's degree in computer science or computer engineering OR bachelor's degree in either of the above AND master's degree in mathematics, cybernetics, business administration, accounting or engineering OR bachelor's degree in engineering AND master's degree in cybernetics, engineering, mathematics, or business administration OR bachelor's degree in mathematics AND master's degree in cybernetics, engineering mathematics, or business administration OR bachelor's degree in any of the above AND a master's degree in information science, computer information systems, or information systems OR the equivalent.

Note: Courses in the use of computer programs for application to a particular discipline may be classified, for the minimum qualification purposes, under the discipline of the application.

All coursework must be from a recognized accredited college or university.

*Applicants must meet the stated minimum qualifications by the date the application is submitted or complete the Supplemental Questionnaire for Equivalency if they wish to be considered. If your degree does not specifically match one of the degrees listed in the minimum qualifications, you must complete the Supplemental Questionnaire for Equivalency and attach it to your application.

For further details regarding equivalency criteria, please download the Supplemental Questionnaire for Equivalency available at http://jobs.vcccd.edu.

Preferred Qualifications:

Successful candidates will demonstrate current experience or comparable skills:

Developing curriculum to support program growth and meet local and regional work force needs.

Facilitating advisory committees and integrating stakeholder input into program review and development.

Establishing and maintaining collaborations with other discipline faculty on campus, k-12 and adult education partners, as well as local business and community representatives.

Integrating labor market information into curriculum and program development.

Closing Date: 03-15-2015

For full description and to apply, visit **http://apptrkr.com/572070**

VCCCD is an Equal Opportunity Employer.

Professional Opportunities

education, innovation, and research. The EAE program was founded in 2007 and is currently ranked as the number 2 video game design program according to the 2014 Princeton Review rankings. Together EAE and SoC have demonstrated leadership in the interdisciplinary domain of video game research and development.

The University of Utah is located in Salt Lake City, the hub of a large metropolitan area with excellent cultural and recreational opportunities. A vibrant local game community offers opportunities for interesting collaborations, including Disney Interactive, EA Salt Lake, Chair Entertainment (a division of Epic Games), Eat Sleep Play, and many others. Additional information about the SoC, EAE and our current faculty can be found at http://cs.utah.edu and http://eae.utah.edu.

Interested candidates should provide a cover letter, curriculum vitae, statement of research goals, teaching statement, and names and contact information of at least four references. Applications are managed at the following URL: https://utah.peopleadmin.com/postings/38577.

Applications will be reviewed on a rolling basis starting January 2015 and will continue until the position is filled.

Administrative inquiries should be sent to corrinne.lewis@utah.edu.

The University of Utah is an Equal Opportunity/Affirmative Action employer and educator. Minorities, women, veterans, and persons with disabilities are strongly encouraged to apply. Veterans' preference is extended to qualified veterans. Reasonable disability accommodations will be provided with reasonable notice. For additional information about the University's commitment to equal opportunity and access see: http://www.utah.edu/nondiscrimination/.

The University of Virginia

Systems and Information Engineering

Postdoctoral Research Associate

The Barnes Research Group in the System and Information Engineering (SIE) Department at the University of Virginia seeks candidates for a three-year postdoctoral position in data science, human-centered computing, and mobile health with a focus on research and teaching. This position is under the direction of Laura Barnes, Ph.D. from the SIE Department and Bethany Teachman, Ph.D. from the Department of Psychology [Program for Anxiety, Cognition and Treatment (PACT) psychology lab]. The goal of this position is to catalyze data science efforts in the dynamic monitoring of health.

Application Instructions

For a complete job description and application information, please go to https://jobs.virginia.edu and search by Posting Number 0615728.

WILLAMETTE
THE FIRST UNIVERSITY IN THE WEST

Willamette University, a selective liberal arts college, invites applications for a **Visiting Professor of Computer Science**, a one year position for the academic year (2015-2016) beginning August 2015.

Teaching responsibilities will include teaching Introductory Programming in Java, Algorithms, an upper level course in the candidate's area of expertise, and one other course. The teaching load is two lecture courses and two laboratory sections per semester.

To learn more about the Department of Computer Science, staff and faculty please visit: http://www.willamette.edu/cla/cs

Qualifications: Ph.D., ABD, or in exceptional cases, MS.

About Willamette: Willamette University, founded in 1842, is the oldest institution of higher education in the Far West and has offered a major in environmental science since the 1970s. Situated in Oregon's capital city, Willamette includes the College of Liberal Arts (approximately 2,000 students), and graduate programs in Law and Management. The university is committed to living out its motto "Not unto ourselves alone are we born" by incorporating the principles of sustainability, social justice, and action. Salem is located in the center of the picturesque Willamette Valley, approximately an hour's drive from the Pacific Coast, the Cascade Mountains, and the cities of Portland and Eugene. For more information about Willamette, visit our website at www.willamette.edu.

The following materials will need to be uploaded online as part of your online application:

1.) Letter of application; 2.) Curriculum vitae; 3.) Teaching philosophy; 4.) Research interests

Application deadline: Open until finalists are selected, initial screening date of March 20, 2015.

To apply, visit: **http://apptrkr.com/576514**

EOE

Professional Opportunities

Victoria University of Wellington, New Zealand

School of Engineering and Computer Science

Lecturer in First Year Engineering

The School of Engineering and Computer Science at Victoria University of Wellington, New Zealand's top ranked research University, seeks to make a permanent (i.e. tenured) appointment at the Lecturer or Senior Lecturer level to deliver a wide range of first year engineering courses. This is an exciting opportunity for an early to mid-career academic to become associated with a top ranked university intent upon growing its engineering programme, increasing student numbers and expanding our internationally significant research. A successful candidate will be encouraged to participate in curriculum development, achieve excellence in research and demonstrate best practice in teaching.

Specific expertise is required in one or more of: Java programming, elementary electronics, first year university mathematics and related areas of first year computer science and the modelling of engineering systems. The successful candidate will be able to provide examples of enthusiastic and motivating teaching delivery as well as be aware of transitional issues related to students progressing from secondary school into tertiary engineering education. It is expected that the successful candidate will take a lead in the coordination of our first year programme. The successful candidate must be active in research related to an existing area of research in the School of Engineering and Computer Science and be able to demonstrate a good track record of relevant publications. A PhD in a relevant area is essential. The preferred candidate will also have a record of attracting external funding. We welcome applications from candidates who have novel or innovative approaches to course development and delivery.

As New Zealand's capital city university, we enjoy the benefits of New Zealand's wonderful landscape and lifestyle, contacts with Government, national research funders and a host of nearby research institutes. We are a School that prides itself on its collegiality and multidisciplinary collaborations with many of New Zealand's top ranked research clusters. This is a rare opportunity for you to develop your career at a quality institution in one of the most liveable cities in the World.

Contact details for vacancy
Will Browne: will.browne@ecs.vuw.ac.nz
Applications close 13 March 2015

Victoria University of Wellington is an EEO employer and actively seeks to meet its obligations under the Treaty of Waitangi.

For more information and to apply online visit http://www.victoria.ac.nz/about/careers

Reference 489

Wesleyan University

Department of Mathematics and Computer Science

Postdoctoral fellow; visiting assistant professor

We invite applications for two positions that start in Fall 2015.

Please see our full description on AcademicJobsOnline.org at http://academicjobsonline.org/ajo/jobs/5315 (postdoctoral position) and http://academicjobsonline.org/ajo/jobs/5316 (visiting assistant professorship).

We will review applications until the positions are filled; to guarantee consideration, please submit an application by 27 Feb. 2015.

Whitman College

Visiting Assistant Professor of Computer Science

Professional Opportunities

Visiting position in computer science, at the rank of assistant professor. Effective August 2015. A minimum of a Masters degree in computer science or related field required.

The successful candidate will teach five classes over two semesters during the 2015-16 academic year including introductory programming, data structures, and analysis of algorithms. The position is intended to supplement the course offerings of the recently hired founding member of Whitman's new computer science program.

All applications must include the following materials: letter of application as well as separate statements addressing the candidate's teaching interests and scholarly/performance agenda; curriculum vitae; three letters of reference; graduate transcripts; and teaching evaluations or other evidence of demonstrated or potential excellence in undergraduate instruction.

The application should address the candidate's interest in working at a liberal arts college with undergraduates, majors as well as non-majors, at all levels of instruction. In addition, because Whitman College is committed to cultivating a diverse learning community, the applicant should explain how his or her pedagogy will serve to create and sustain an inclusive learning environment.

To apply, go to **https://whitmanhr.simplehire.com/**, click "Faculty" and "Visiting Assistant Professor of Computer Science".

Deadline: Review of applications will begin on March 6, 2015 and continue until the position is filled."

No applicant shall be discriminated against on the basis of race, color, sex, gender, religion, age, marital status, national origin, disability, veteran's status, sexual orientation, gender identity, or any other basis prohibited by applicable federal, state, or local law.

For additional information about Whitman College and the Walla Walla area, see **www.whitman.edu** and **www.wallawalla.org**.

Yale University

Computer Science

Postdoctoral Fellow

The Computer Science Department at Yale invites applications for a Postdoctoral Fellow position in computer networks. Working as a member of a joint university-industry team, the postdoctoral fellow is expected to lead a key aspect of a new network programming system that we are designing and deploying on the Yale Science Network. Appointments will be for one year with renewal based on performance. Applicants should have (or be close to obtaining) a Ph.D. in Computer Science or related areas.

Application Instructions: Applications should be submitted by sending email to Professor Y. Richard Yang (**yry@cs.yale.edu**). Please include a CV, statement of research and contact information for three references.