## Computing Research News

## CRA

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

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## Expanding the Pipeline

## The State of African-Americans in Computer Science:

 The Need to Increase RepresentationBy Edward C. Dillon, Jr., Juan E. Gilbert, Jerlando F. L. Jackson, and LaVar J. Charleston



Computing Research Association Women

In the field of computer science, AfricanAmericans are considered one of many groups who are underrepresented. Even though African-Americans comprise 13.2\% of the U.S. population [8], their current representation in computer science is not proportional. This underrepresentation is especially visible in the industry and academic employment sectors of computer science.

This reality has caused many to question why diversity is scarce among employees at major technology companies in the United States [3]. Within the academy, the issue of underrepresentation, along with concerns regarding the recruitment, retention, and production of African-American computer scientists, has been brought to the forefront.

In a direct effort to address African-American
underrepresentation in computer science, the National Science Foundation (NSF) has funded a project known as the Institute for African-American Mentoring in Computing Sciences (or iAAMCS, pronounced "i am c s"). iAAMCS serves as a national resource for African-American students and faculty who aspire to pursue a career in computer science. Furthermore, iAAMCS provides unique opportunities to expose African-American students, who may lack knowledge of the field, to the idea of pursuing computer science as a career.

In this article, we examine the current underrepresentation of African-Americans in the industry sector of computer science and efforts to mitigate this problem. We also discuss similar occurrences within academic settings of computer science. Finally, we explain how iAAMCS can serve as a platform for increasing the representation of African-Americans in the field of computer science.

## Industry

Major technology companies, particularly ones located in Silicon Valley, are currently facing the challenge of diversifying their employee base [4, 9]. Lacking adequate representation of African-Americans can be considered one of the many challenges that these companies face when it comes to employee diversity. For instance, Table I provides self-reported data from companies in Silicon Valley and other notable companies regarding the representation of Black/AfricanAmerican employees. Furthermore, Table 2 lists percentages of Blacks/African-Americans in position-specific jobs at many of the Silicon Valley companies, while Table 3 displays related percentages based on gender. According to the data listed in the aforementioned tables, Blacks/African-Americans are significantly underrepresented in these companies. From a gender standpoint, Black/African-American females are

Table l: Black/African-American Representation: Major Tech Companies

| Company | Percent (Overall) |
| :--- | :---: |
| Apple | $7 \%$ |
| EBay | $7 \%$ |
| Dell | $* \sim 5 \%$ |
| Facebook | $2 \%$ |
| Google | $2 \%$ |
| Groupon | $4 \%$ |
| Intel | $\sim 4 \%$ |
| Linkedln | $2 \%$ |
| Microsoft | $\sim 3 \%$ |
| Twitter | $2 \%$ |
| Yahoo | $2 \%$ |
| Yelp | $4 \%$ |
| Data represents the companies' employee demographics |  |
| data for 2013 and/or 2014. |  |
| *Data represents demographics for 2011. |  |

found to exhibit a lower representation than their male counterparts, which also highlights a related issue of female underrepresentation within these companies. These data can be found on these companies' websites, within their EEO-I report, and/or via the Open Diversity Data project [6].

One company that has already taken an initiative to address minority underrepresentation among its employee base is Intel. Specifically, Intel has committed $\$ 300$ million over the next five years to improve the diversity of its employees

| Table 2: Black/African-American Representation <br> (Detailed Representation) |  |  |  |
| :--- | :---: | :---: | :---: |
| Company | Percent |  |  |
|  | Tech | Non-Tech | Leadership <br> Role or <br> Senior Level |
| Apple | $6 \%$ | $9 \%$ | $3 \%$ |
| EBay | $2 \%$ | $9 \%$ | $2 \%$ |
| Facebook | $1 \%$ | $2 \%$ | $2 \%$ |
| Google | $1 \%$ | $4 \%$ | $2 \%$ |
| Groupon | $2 \%$ | $5 \%$ | $1 \%$ |
| Linkedln | $1 \%$ | $3 \%$ | $1 \%$ |
| Twitter | $1 \%$ | $4 \%$ | $2 \%$ |
| Vahoo | $1 \%$ | $3 \%$ | $1 \%$ |
| Yelp | $1 \%$ | $5 \%$ | $2 \%$ |
| Data represents the companies' employee demographics |  |  |  |

[9]. And Intel is already showing an increase in the hiring of African-Americans and other minority groups, according to its recent mid-year report [5].

## Postsecondary Education

Similar to industry, African-Americans are found to be significantly underrepresented in postsecondary education. This trend is most prevalent amongst Master's and PhD production, as well as faculty representation. According to the 2014 Taulbee Survey, African-Americans represent approximately $2.4 \%$ and $1.5 \%$ of Master's and PhD recipients respectively in computer science and related fields [10]. Table 4 provides detailed percentages of both African-American male and female representation regarding Master's and PhD enrollment and awardees. In addition, this table lists percentages of all male and female representation at these respective levels. From the statistics listed in Table 4, it can be concluded that: l) both African-American males and females are significantly underrepresented at the Master's and PhD levels of computer science and related fields, and 2) African-American females (and/or all females in this case) exhibit a much lower representation than their male counterparts.

At the professorate level, African-Americans represent only $1.7 \%$ of tenured and non-tenured faculty in computer science and related departments [10]. Table 5 lists the

| Table 3: Major Tech Companies: Gender Representation |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Black/African-American |  |  |  | All Ethnic Groups |  |
| Company | Male |  | Female |  | Male | Female |
|  | \% | N | \% | N | \% | \% |
| Apple | 5\% | 3036 | 3\% | 1773 | 69\% | 31\% |
| Dell* | 5\% | 1661 | 4\% | 1400 | 66\% | 34\% |
| Facebook | 1\% | 34 | <1\% | 11 | 69\% | 31\% |
| Google | 1\% | 378 | 1\% | 250 | 70\% | 30\% |
| Intel | 3\% | 1443 | 1\% | 447 | 76\% | 24\% |
| Linkedln | 1\% | 36 | <1\% | 23 | 61\% | 39\% |
| Microsoft | 2\% | 1411 | 1\% | 687 | 72\% | 28\% |
| Yahoo | 1\% | 79 | 1\% | 59 | 67\% | 33\% |
| Yelp | 1\% | 14 | 1\% | 8 | 53\% | 47\% |
| Data represents the companies' employee demographics data for 2013 and/or 2014. *Data represents demographics for 2011. |  |  |  |  |  |  |

percentages of African-American male and female professors who are either on the tenure track and/or currently tenured, percentages of faculty who currently serve in either nontenure track positions or as postdoctorates, and a total percentage of faculty representation by gender. Similar to Table 4, the statistics in Table 5 reveal the same trend of African-American male and female underrepresentation. Moreover, African-American females (and/or all females in this case) display a much lower representation than their male counterparts.

This underrepresentation of African-American faculty also imposes an additional barrier for African-American students to potentially obtain same-race mentorships, if desired. Prior research has shown that same-race (and same-gender) mentorship can provide more psychological support than
cross-race (and cross-gender) relationships [7]. In addition, African-American students, who have a mentor of a difference race, often have contrasting, if not conflicting, perspectives about mentoring [4].

At the Bachelor's level, providing African-American students with effective mentorship could be critical if they are to continue in computer science. Currently, there is a higher representation (5.6\%) of African-Americans in computing fields at the Bachelor's level [10]. This indicates two things: 1) a leak exists between the Bachelor's degree and graduate school in the computer science pipeline, and 2) a sufficient pool of African-American prospects may already exist to either pursue graduate education in computing or secure positions in industry. Table 6 lists the percentages of AfricanAmerican male and female representation regarding Bachelor's

## Table 4: Master's and PhD Representation

|  | Black/African-American |  |  | All Ethnic Groups |  |  |
| :--- | :---: | ---: | ---: | ---: | ---: | :---: |
|  | Male |  | Female |  | Male | Female |
|  | $\%$ | $N$ | $\%$ | $N$ | $\%$ | $\%$ |
| Master's (enrolled) | $2 \%$ | 494 | $1 \%$ | 308 | $* 68 \%$ | $* 29 \%$ |
| Master's (awarded) | $1 \%$ | 143 | $1 \%$ | 100 | $71 \%$ | $29 \%$ |
| PhD (enrolled) | $1 \%$ | 142 | $<1 \%$ | 95 | $81 \%$ | $19 \%$ |
| PhD (awarded) | $1 \%$ | 23 | $<1 \%$ | 4 | $82 \%$ | $18 \%$ |

*Three percent of the representatives' gender in this pool were considered unknown. These data points were extracted from the 2014 Taulbee Survey [10].

## Table 5: Faculty Representation

|  | Black/African-American |  |  |  | All Ethnic Groups |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Male |  | Female |  | Male | Female |
|  | $\%$ | $N$ | $\%$ | $N$ | $\%$ | $\%$ |
| Tenure Track and/or Tenured | $1 \%$ | 42 | $<1 \%$ | 22 | $82 \%$ | $18 \%$ |
| Non-Tenure Track and Postdoctorate | $1 \%$ | 27 | $<1 \%$ | 18 | $76 \%$ | $24 \%$ |

These data points were extracted from the 2014 Taulbee Survey [i0].

## Table 6: Bachelor's Representation

|  | Black/African-American |  |  |  | All Ethnic Groups |  |
| :--- | :---: | ---: | ---: | ---: | ---: | :---: |
|  | Male |  | Female |  | Male | Female |
|  | $\%$ | $N$ | $\%$ | $N$ | $\%$ | $\%$ |
| Bachelor's (enrolled) | $4 \%$ | 3,434 | $1 \%$ | 942 | $* 82 \%$ | $* 15 \%$ |
| Bachelor's (awarded) | $3 \%$ | 455 | $<1 \%$ | 115 | $85 \%$ | $15 \%$ |

*Three percent of the representatives' gender in this pool were considered unknown.
These data points were extracted from the 2014 Taulbee Survey [i0].
enrollment and awardees. In addition, this table displays percentages of all male and female representation at this level. Even though African-American students do exhibit a higher representation at the Bachelor's level, these statistics reveal that: 1) both male and female representation for this group is still significantly underrepresented, and 2) AfricanAmerican females (and/or all females in this case) exhibit an even lower representation than their male counterparts.

## iAAMCS

iAAMCS is an NSF Broadening Participation in Computing (BPC) Alliance member (see http://www.iaamcs.org). The mission of iAAMCS is to: l) increase the number of African-Americans receiving PhDs in computing sciences; 2) promote and engage students in teaching and training opportunities; and 3) add more diverse researchers into the advanced technology workforce. Moreover, reversing the trend of African-American underrepresentation in computer science is one of the key objectives of iAAMCS.


Figure 1: iAAMCS Programs and Activities Continuum
iAAMCS provides a variety of programs and activities to assist African-American students as they matriculate through the computer science pipeline. These include:

## D Faculty and student training

D Academic Year Undergraduate Research (AYUR)
Distributed Research Experiences for Undergraduates (DREU)

- Technical webinars and Distinguished Lecture Series (DLS)

Distinguished Fellows Writing Workshop (DFWW)

## D K-l2 outreach

## - Computing and robotics competitions

## - Tapia Celebration of Diversity in Computing Conference

These programs and activities serve African-American students at various stages throughout the computer science pipeline. Figure 1 provides a continuum that lists each program and activity currently offered by iAAMCS. This continuum also pinpoints the targeted audience that these programs and activities typically serve.

Many of these programs serve undergraduate and graduate students. The programs also attempt to influence an increase in the retention of African-American students at these respective stages of the computer science pipeline. However, the recruitment of African-American students is also important. As such, these programs provide a platform for recruiting more African-American students who aspire to pursue computer science as a career choice. In addition, a K-12 outreach component was recently added to iAAMCS with the intent to expose and recruit African-American students to computer science earlier in their educational trajectory.

As previously mentioned, providing mentorship to AfricanAmerican students as they matriculate through the computer science pipeline is important. As iAAMCS begins its third year as an organization, enhancing how current and future iAAMCS participants are mentored will be a primary focus. As highlighted in the continuum (Figure l), the mentorship aspect of iAAMCS will cover participants at every stage of the computer science pipeline. Through mentorship, iAAMCS aims to expose participants to role models who resemble them, while also monitoring their ability to develop the skill sets necessary to secure careers in industry or academia.

## Conclusion

There is a need to increase the presence of African-Americans in computer science in both the postsecondary and industry sectors of computer science. Improving the diversity and inclusion of African-Americans, and other underrepresented groups, in the workforce is a key driver to enhancing creative thinking [1] and innovation [2]. From a gender standpoint, there also is a need to increase female representation of AfricanAmericans (and of all underrepresented groups) in the field. iAAMCS is an organization that possesses the capacity for improving the representation of African-Americans in computer science. With mentorship as the key underpinning of the iAAMCS, upward shifts in the numbers of AfricanAmericans pursuing and receiving PhDs in computer science could soon be achieved. Likewise, increased representation at the faculty/professorate level of computer science, as well as a rise in the number of African-Americans being employed at major technology companies, could be a tangible and welcome outcome.

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## Where are they now?

By Heather Wright, CERP Research Associate

Overwhelmingly, Grad Cohort women are employed in industry/government positions


In 2015, CERP followed up with women who had attended a CRA-W Grad Cohort Workshop between 2004 and 2012. Survey respondents ( $n=371$ ) provided the following current employment information: $70 \%$ were employed, $26 \%$ were graduate students, and $4 \%$ were unemployed. Of those who responded that they were employed ( $n=258$ ), $64 \%$ indicated they were employed in an industry/government setting, $32 \%$ were in academia, and $4 \%$ in other settings.

CERP
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Evaluation

This analysis 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/.

## Schedule for the 2015 CRA Taulbee Survey

The 2015 CRA Taulbee Survey will be starting soon. There are a couple of new features this year:

D The survey will be split into two parts: salary and everything else. This allows us to set an earlier deadline for the salary section in order to produce a preliminary salary report in December, while giving departments more time to collect and enter the information in the rest of the survey.

D The every-three-years Department Profiles section of the survey will be included this year. These questions cover teaching loads, floor space, graduate student recruitment, staff, and details on sources of research funding.

The schedule for the Taulbee Survey will be:
D Before September 14: All doctoral departments will be contacted to update Taulbee user information. The academic unit head will receive an email and so will the Taulbee primary contact, if separate.

Deptember 14: PDF will be available for data gathering.
Deptember 22: The salary and main sections of the Taulbee will open for input.

D November 16: Due date for salary section.

D December 18: Preliminary salary report available.
D January 11, 2016: Due date for the primary Taulbee section.

- April 2016: Full Taulbee report sent to CRA members and participating departments.

Day 2016: Taulbee report is published in CRN.

## Enrollments Survey

On a related note, a one-time survey will be administered this year to provide insight into the current surge in CS enrollment. Both doctoral-granting and non-doctoral granting departments will be asked to complete this special survey, and discussion of its results is expected at Snowbird next summer. The doctoral-granting departments will be using the same interface we use for the Taulbee Survey. The expectation is that this Enrollments survey will open in October, with an anticipated close date in November. More specific information about this special survey will be available soon.

If you have any questions, contact Betsy Bizot at bizot@cra.org.

# Nominations Open for 2016 CRA Award for Outstanding Undergraduate Researchers 

By CRA Education Committee



The Computing Research Association is pleased to announce the annual CRA Award for Outstanding Undergraduate Researchers, which recognizes undergraduate students

CRA-E
Computing Research Association Education in North American colleges and universities who show outstanding research potential in an area of computing research. The award is a terrific way to recognize your best student researchers and your department.

Eligible nominees are enrolled as undergraduates in a North American college or university throughout the academic year September 2015 to May 2016. They must be nominated by two faculty members and recommended by the chair of their home department. Departments that grant PhDs in one of the computing fields may nominate up to two male and two female students per year. Departments that do not grant PhDs in one of the computing fields may nominate one male and one female student per year.

There will be up to one female and one male winner from PhD-granting departments and up to one female and one male winner from non-PhD-granting departments.

A small number of other outstanding candidates will be recognized as runners-up and finalists. All nominees whose work is considered to be exemplary are recognized with honorable mentions.

Everything you need to nominate a candidate, including instructions and the nomination form, is available at: http:// cra.org/crae/awards/cra-outstanding-undergraduateresearchers/.

Questions and inquiries about the awards should be sent to: undergradawards2015@cra.org. The deadline for nominations is Friday, October 23, 2015.

Microsoft Research and Mitsubishi Electric Research Labs (MERL) sponsor the Outstanding Undergraduate Researchers Award Program in alternate years. The 2016 award is being sponsored by MERL.

Please share this award information with your faculty who may have promising students to nominate.

## CACS/AIC Appoints New Representative to CRA Board

Carey Williamson replaces Ken Barker as the Canadian Association of Computer Science I Association d'Informatique Canadienne (CACS/AIC) representative to the CRA Board.

Carey Williamson is Professor and Head in the Department of Computer Science at the University of Calgary. He holds a B.Sc. (Honours) degree in computer science from the University of Saskatchewan in 1985, and a Ph.D. in computer science from Stanford University in 1992. Dr. Williamson's research interests include Internet protocols, wireless networks, network traffic measurement, workload characterization, network simulation, and Web server performance.

Computing Research

# Computer-Aided Personalized Education Workshop 

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CCC

## Computing Community

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The CCC Computer-Aided Personalized Education (CAPE) Workshop will be held in Washington, D.C. on November 12-13.

The demand for education in STEM fields is exploding, and universities and colleges are straining to satisfy this demand. In the case of computer science, for example, the number of U.S. students enrolled in introductory courses has grown threefold in the past decade. Recently, massive open online courses (MOOCS) have been promoted as a way to ease this strain, but scaling traditional models of teaching to MOOCs poses many of the same challenges observed in the overflowing classrooms; namely, the assessment of students' knowledge and providing meaningful feedback to individual students.

To tackle these problems, computing research needs to create a new agenda, one that:

D formalizes tasks such as assessment and feedback as computational problems

Develops algorithmic tools to solve resulting problems at scale

D incorporates these tools in learning environments.
The focus of the CAPE workshop will be on college-level courses in computer science, mathematics, and physics, with the goals of:

D creating a long-term research agenda by bringing together researchers from diverse disciplines, such as logical reasoning, machine learning, human-computer interaction, cognitive science, and education and learning,

D inspiring other researchers to work on these problems
D and, ultimately, developing technology for effective and personalized learning.

For more information, please see the Computer-Aided Personalized Education website or contact Ann Drobnis.

## Video Analysis for Body-worn Cameras in Law Enforcement

In May, The White House Office of Science Technology Policy, Department of Commerce, and the Arnold Foundation approached the Computing Community Consortium (CCC), as a community organization of computer science researchers, to lead a conversation for law enforcement to learn about the state of the art in video-analysis techniques and how they may be applicable to analyze and improve law enforcement practice. This was a timely opportunity to provide input to a burgeoning application space: police body-worn cameras.

The CCC brought together a panel of computer vision experts and law enforcement personnel. Their subsequent discussions resulted in the recently released Video Analysis for Body-worn Cameras in Law Enforcement white paper.

The white paper highlights some of the technology needs and challenges of body-worn cameras, and it relates these needs to the relevant state of the art in computer vision and multimedia research. It concludes with a set of recommendations to policy makers, to police departments planning to deploy body-worn cameras on officers, and to system manufacturers.

## Policy Recommendations

Usage Protocol - We recommend that policy makers develop and provide police departments and system manufacturers with recommended best practices for operating body-worn sensors.

Public Education - In conjunction with educating police officers on the proper use of sensors, we recommend developing a plan for educating the public and journalists on how to access and correctly draw conclusions from the data.

## Technology Recommendations

Multimodal Sensing - We recommend a stereo pair of wide field-of-view, high-resolution cameras,
microphones with sufficient dynamic range to capture human speech, an in-built inertial measurement unit, and GPS.

Media Central - We recommend the development of a central media facility that police departments across the country may access to store and analyze their data. Indexing - The data should be indexed against the state-of-the art visual and audio indexing technologies. The data should be stored indefinitely.

Open Standards - The creation of open standards and platforms will promote minimal technical barriers to data export, access, and exchange.

## Research Recommendations

Standards- Ensure data is consistent and available across jurisdictions.

Research funding - Research funding, both basic and applied, is needed to facilitate the best use of these novel highly informative information sources.

Technology Transition - We underscore the need for open standards and interoperability to cultivate an ecosystem for startups and other private investments in the sector.

Datasets and Benchmarks - Much recent progress in the computer vision and multimedia communities has been driven by the availability of large, expert annotated data sets. The computer vision community has significant expertise in creating and curating such data sets and should be intimately involved.

Continued Involvement Among Video Processing Research Community - Some mechanism for establishing immediate and continued involvement of the academic and industrial research communities is needed.

To learn more, please read the entire white paper.

## CCC BRAIN Workshop Report

## From the CCC Blog

The organizing committee for the Research Interfaces between Brain Science and Computer Science (BRAIN) have released their workshop report.

This two-day workshop, sponsored by the Computing Community Consortium (CCC), brought together brain researchers and computer scientists for a scientific dialogue aimed at exposing new opportunities for joint research in the many exciting facets, established and new, of the interface between the two fields. Videos of the workshop presentations, as well as the presentation slides, are posted on the workshop website in the Agenda.

The report says that the study of computing and the study of the brain interrelate in three ways, each of which suggests a major research direction.

First, the experimental study of brain architecture and function is a massive-data problem. Making progress necessitates advances in computing and the
realization of new computational tools.
Second, the study of efficient algorithms and the design of intelligent autonomous systems should provide new ideas and inspiration concerning brain architecture and function.

Finally, the remarkable efficiency (including energy efficiency) of the brain, once understood, may inspire radically new algorithmic or system organization approaches that could transform computing itself.

These are exactly the three bridges between brain science and computer science that are included in Figure I below.
menth Brain Science and Computer Science

See the full workshop report to learn about the challenges of data, opportunities for computing, and the future of the brain and computing research.


Figure I: Advances in computing and brain science will require increased of access to data and analysis tools, the development of new computing concepts to advance brain science, and will ultimately lead to new insights that will advance computing as well.

# CCC Uncertainty in Computation Workshop Report 

From the CCC Blog

The Computing Community Consortium (CCC) is excited to release a report titled Quantification, Communication, and Interpretation of Uncertainty in Simulation and Data Science, the result of the Uncertainty in Computation Visioning Workshop, which was held in Washington, D.C. in mid-October 2014.

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The workshop brought together more than 40 scientists from different disciplines including simulation and data science, engineering, statistics, applied mathematics, visualization, decision science, and psychology. The overarching goal of the workshop was to open a discussion between experts with diverse scientific backgrounds about the topic of uncertainty/risk and its communication. Workshop participants identified significant shortcomings in the ways we currently process, present, and interpret uncertain data.

Specific recommendations on a research agenda for the future were made in four areas: uncertainty quantification in large-scale computational simulations, uncertainty quantification in data science, software support for uncertainty computation, and better integration of uncertainty quantification and communication to stakeholders.

The recommendations are below:
D There is growing concern that the statistical models currently used to quantify uncertainty in the outputs of simulations won't scale, particularly to large, heterogeneous computations models. This leads to a critical need to transition research in uncertainty quantification of computational systems from the
analysis of components to the analysis of large-scale systems of interacting components.

D The emerging field of data science is largely lacking in generalizable methods for quantifying the uncertainty in the output of analysis systems. As a result, a major new research initiative needs to be initiated in this area. Since data science programs are just getting established in universities, this effort needs to be accompanied by relevant curriculum development.

D The increasing use of large-scale computational and data-based analyses in decision support and the increased importance of considering uncertainty in such systems will create substantial burdens for software developers. A major new effort needs to go in to the building of generally applicable, easy to-use software development tools supporting the representation and analysis of uncertainty.

D The fragmented nature of expertise in quantification, communication, and interpretation of uncertainty will become more and more problematic as the scale of problems, the scale of computational resources, and the scale of data continues to increase. It is essential that a major, new research initiative be undertaken in communicating uncertainty about large-scale systems to stakeholders in a comprehensive and integrated manner.

The current state of affairs in the quantification, communication, and interpretation of uncertainty in simulation and data science is creating critical challenges, but it also presents important opportunities.

See the full report and the workshop website, for more information.


# Call for Nominations: NAS Award for Scientific Reviewing in Computer Science 

This year, the National Academy of Sciences (NAS) Award for Scientific Reviewing will recognize a person in the field of computer science who has contributed to surveying the literature. The winner will receive a $\$ 20,000$ award
"The NAS Award for Scientific Reviewing has been presented annually since 1979 to recognize authors, whose reviews have synthesized extensive and difficult material, rendering a significant service to science and influencing the course of scientific thought."

## Nomination requirements:

1. A letter from the nominator describing the candidate's work and why he or she should be selected for the award.
2. Curriculum vitae of no more than two (2) pages.
3. List of reviews upon which the nomination is based.
4. Letters of support. Two (2) letters are required.

D Support letters must be written by individuals from institutions outside both the nominator and the nominee's institution.

D Members of the selection committee may not author support letters.
5. A suggested citation.

The nomination deadline is October 1, 2015. Click here for additional information and to submit a nomination. You do not need to be a member of NAS to nominate someone.

The 2016 award committee includes:
John E. Hopcroft, Cornell University (Chair)
Manuel Blum, Carnegie Mellon University
David Forney, Jr., Motorola, Inc.
Andrew J. Viterbi, University of Southern California


# Serving the CISE Community and Beyond 

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

In this issue of CRN, you'll notice that the National Science Foundation (NSF) Directorate for Computer and Information Science and Engineering (CISE) has posted a job announcement search for the Division Director for the Division of Computer and Network Systems (CNS). I want to not only call your attention to this search, but also to point out the many opportunities to serve our discipline, and more broadly the Nation, in various ways through timelimited positions throughout the government.

Here in NSF CISE, roughly half of our program staff (program directors and division directors) are "rotators" - faculty from academia and researchers from industry who spend between two and four years working at NSF. The position I am serving in - Assistant Director - is also a rotator position, and like many such rotator positions, it is made possible through the Intergovernmental Personnel Act (IPA).

Opportunities to work as a Program Officer within CISE are noted on our homepage. You might want to check out a video by Keith Marzullo, our outgoing CNS Division Director, who reflects on his experience as a rotator, and also read the 2011 CRN article by Doug Fisher, a CS professor at Vanderbilt, who reflected on his time as a CISE Program Director several years ago. The possibility of taking a few years away from one's home department is often eased by the availability of the NSF's Independent Research/Development (IR/D) program, which permits rotators to spend time back at their home institutions and maintain involvement with their ongoing research activities.

There are other opportunities to serve in CISE as well. At NSF, we engage experts for focused, short-term
assignments. We've also been incredibly fortunate to have a number of amazingly talented AAAS Science \& Technology Policy Fellows who work closely with CISE permanent and IPA staff on focused one- or two-year activities. Erwin Gianchandani, our CISE Acting Deputy Assistant Director, is a former AAAS Fellow.

There are also a number of opportunities to serve at other Federal agencies. The Institute of Electrical and Electronics Engineers (IEEE) supports several Government Fellowships; Scott Jordan, currently the Federal Communications Commission (FCC) CTO (and a faculty member at UC Irvine) was an IEEE Congressional Fellow. The National Academies sponsors the Jefferson Science Fellowship Program; Margaret Martonosi of Princeton's CS Department is at the U.S. State Department as one of this year's Jefferson Fellows, and is a CRA Board member. Stephanie Forrest of U. New Mexico's CS Department was a Jefferson Fellow there a year ago and is also a CRA Board member; you can read about her work there on the CCC blog. The past three Chief Technologists of the Federal Trade Commission and the past CTO of the FCC are also all computer scientists who've taken time from their academic positions to serve the community and the country. After just nine months here, it's very clear to me that the combination of permanent and rotating staff makes for an energizing and dynamic mix of experience and stability, with a constant flow of ideas and people. My own experience, and that of everyone I know who has spent time here at NSF, is that our work here is interesting, 100\% engaging, and very deeply satisfying and rewarding. The environment is filled with smart, passionate and dedicated people - what more could one want in a work environment!


Computing Research Association

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## Column Editor

Expanding the Pipeline Patty Lopez, Intel


## College of Arts \& Sciences, Department of Computer Science

 Computer Science (Assistant, Associate, Full professor)The Department of Computer Science in the College of Arts and Sciences at American University invites applications for up to three tenure-line positions. Applicants will be considered at the Assistant, Associate, and Full professor levels. If there are three hires, at least one will be at the rank of Associate or Full professor, with tenure.
Research expertise may be in any area of computer science. Following the department's strong recent hires in the interdisciplinary areas of computational neuroscience and gaming, the university seeks to build computer science's core program areas, which may include machine learning, artificial intelligence, robotics, computer graphics, analytics, databases and information retrieval, computational media, human-computer interactions, numerical and symbolic computation, simulation, programming languages, or software methodology and engineering. Preference will be given to individuals who can contribute to a vibrant research environment, complement current research areas in the department, teach one or more of the core program areas, and expand the university's capacity in the area of big data.
The Computer Science Department is currently in a period of expansion, and is poised to become a leader in the university's technology and innovation sectors. To support this trajectory, the department will soon be moving to a new building that is designed to promote cross-department collaboration. The new building will be shared with the Physics, Math and Statistics Departments, as well as with the Gaming program, and the Collaborative for Applied Perceptual Research and Innovation (CAPRI).
QUALIFICATIONS
All applicants should have a strong record of (or potential for) externally sponsored research. We are especially eager to recruit candidates with established research partnerships (or the ability to form such partnerships) in the Washington, DC area. Preference will be given to candidates who also have a record of excellence in teaching and mentoring students. Teaching responsibilities will include core courses in computer science and more advanced courses in the applicant's area of specialty. The Ph.D. in Computer Science or a closely related field is required; post-doctoral or industry experience is preferred. For senior applicants, preference will be given to candidates who are able and willing to lead the department.

## APPLICATION INSTRUCTIONS

Applicants should include a statement of research outining their research focus (or foci) and future plans for developing a nationally competitive, externally funded research program at American University. In addition, applications should include statements of research and teaching experience, links to research publications, CV , and the names of three references. Please submit applications via: http://apply.interfolio.com/30363. Review of applications will begin November 10 and continue until the positions are filled.

For more information contact Arthur Shapiro, Chair of Computer Science at Arthur.Shapiro@american.edu
This institution is using Interfolio's ByCommittee to conduct this search. Applicants to this position receive a free Dossier account and can send all application materials, including confidential letters of recommendation, free of charge. For help signing up, accessing your account, or submitting your application please get in touch via email at help@interfolio.com or phone at (877) 997-8807. American University is an equal opportunity, affirmative action institution that operates in compliance with applicable laws and regulations. The university does not discriminate on the basis of race, color, national origin, religion, sex (including pregnancy), age, sexual orientation, disability, marital status, personal appearance, gender identity and expression, family responsibilities, political affiliation, source of income, veteran status, an individual's genetic information or any other bases under federal or local laws (collectively "Protected Bases") in its programs and activities. American University is a tobacco and smoke free campus.

## Professional Opportunities

Bentley University, Waltham, MA USA<br>Department of Computer Information Systems<br>Tenure Track Faculty Position

The Department of Computer Information Systems (CIS) at Bentley University invites applications for a tenure track position at the assistant or associate professor level starting in the fall of 2016. The department is seeking an individual with a PhD in Information Systems, Computer Science, or a related field. A qualified candidate should have an excellent record of accomplishments in both research and teaching and will be expected to contribute to the CIS department's mission of educating technically adept information systems professionals and advancing the state of research at the intersection of business and information and communication technologies.

Located in Waltham, Massachusetts, just minutes from Boston, Bentley University is a dynamic community of leaders, teacherscholars and creative thinkers, including approximately 4,000 undergraduate and 1,300 graduate students.

To apply, please go to: https://jobs.bentley. edu/applicants/Central?quickFind=52742. You will need to upload a curriculum vitae, a cover letter, a reference list of three people, a research statement, and a teaching statement.

Review of applicants will start on September 16, 2015 and will continue until the position is filled.

For questions, contact Dr. David Yates (CISRecruiting@bentley.edu).

## Bryn Mawr College <br> Department of Computer Science Assistant Professor

The Department of Computer Science at Bryn Mawr College invites applications for a full-time, tenure-track beginning Assistant Professor position to begin August l, 2016 in the areas of theory, algorithms, or systems (such as Complexity, Algorithms, Operating Systems, Computer Architecture, Distributed Systems, Programming Languages, Compilers). The successful candidate must demonstrate a strong commitment to excellence in undergraduate teaching and an active and successful research program. She or he will be expected to teach courses at all levels of the undergraduate program in computer science, mentor students and contribute broadly to the academic life of the department and the College. The successful candidate must have completed all Ph.D. requirements in Computer Science by the start date.

Submit as pdf documents a cover letter, curriculum vitae, teaching philosophy and research statement by December 15, 2015 to Computer Science Search Committee via Interfolio at: http://apply.interfolio. com/30353. In addition arrange for three letters of recommendation to be submitted via Interfolio to the Computer Science Search Committee. Applications received by December 15, 2015 will receive full consideration.

Located in metropolitan Philadelphia, Bryn Mawr College is a distinguished liberal arts college for women and has strong consortial relationships with Haverford College, Swarthmore College, and the University of Pennsylvania. Bryn Mawr has a student body of 1,300 undergraduates, as well as 350 graduate students in coeducational graduate programs in social work, humanities and science. We are a diverse and international community of faculty, students and staff who share an intense
commitment to intellectual inquiry and a desire to make meaningful contributions to the world. The College supports faculty excellence in both research and teaching and is committed to social justice and inclusion in the classroom and in the community at large. Bryn Mawr College is an equal-opportunity employer; candidates from underrepresented groups and women are especially encouraged to apply.

## California State Polytechnic University, Pomona

Computer Science Department http://www.cpp.edu/~cs/
Three Tenure Track Positions
The Computer Science Department invites applications for three tenure-track positions at the rank of Assistant Professor to begin Fall 2016. We are particularly interested in candidates with specialization in Software Engineering, Cloud Computing, Databases and Data Mining, CS Education, Computer Graphics, Robotics, Artificial Intelligence and Machine Learning. Strong candidates from other areas are also encouraged to apply. Cal Poly Pomona is 30 miles east of L.A. and is one of 23 campuses in the California State University. The department offers an ABET-accredited B.S. program and an M.S. program. Qualifications: Possess, or complete by September 1, 2016, a Ph.D. in Computer Science or closely related area. Demonstrate strong communication skills, commitment to actively engage in the teaching, research, and curricular development activities of the department at both undergraduate and graduate levels, and ability to work with a diverse student body and multicultural constituencies. Ability to teach a broad range of courses, and to articulate complex subject matter to students at all educational levels.

First consideration will be given to completed applications received no later than November 13, 2015. Contact: Faculty

Search Committee, Computer Science Department, Cal Poly Pomona, Pomona, CA 91768. Email: cs@cpp.edu. Position announcement available at: http://www.cpp.edu/~faculty-affairs/openpositions/index.shtml.

Lawful authorization to work in US required for hiring.

EOE/Minorities/Females/Vets/Disability

## Dartmouth College

Neukom Fellows: Call for Applications The Neukom Institute for Computational Science at Dartmouth College is pleased to announce the Neukom Postdoctoral Fellows competition for positions starting September 1, 2016.

Neukom Fellows are interdisciplinary positions for recent Ph.D.s, DMAs, or MFAs whose research interests or practice cuts across traditional disciplinary boundaries, and has some computational component, whether it be a framing concept for intellectual exploration or an explicit component of the work that is pursued. The successful candidate should have a history of collaborative work across disciplines, but still show good evidence of independence and initiative. The Fellowships are two- to three-year appointments, with the third year extension considered upon request after a review early in the second year. Neukom Fellows will be mentored by faculty in two departments at Dartmouth College, take up residence in one department, and will teach one seminar course each year on a subject of their interest. Beyond that there are no additional duties. Neukom Fellow stipends are $\$ 60,000$ for 2016-2017. Additional funds are available for equipment, travel, and research materials.

Applications must be submitted here: https://academicjobsonline.org/ajo/ jobs/5826

For more information on The Neukom Institute: http://neukom.dartmouth.edu/ The Neukom Fellows Program and the Neukom Institute are made possible by a generous gift from Mr. William H. Neukom, Dartmouth College Class of 1964.

Florida Southern College<br>Tenure-Track Assistant Professor

Florida Southern College invites applications for a tenure-track Assistant Professor
of Computer Science position to begin in August 2016. At Florida Southern, a national leader in engaged learning, Computer Science is experiencing rapid growth. New faculty will help determine the future direction of the program.

Qualified candidates will have a Ph.D. in Computer Science, or be on track to complete the degree by summer 2016, and will have strong credentials in teaching undergraduate computer science courses. Preference will be given to applicants with


Heath informatics applications are especially encouraged in the areas of patient-facing technologies, including but not limited to novel technologies used by patients outside the clinical setting.

Security informatics applications are welcome from information and computer scientists in a wide range of areas including but not limited to usable security, human-centered design, identity, social informatics of security, and design for privacy.

Applicants should have an established record (for senior level) or demonstrable potential for excellence (for junior level) in research and teaching, and a PhD in a relevant area or (for junior level) expected before $8 / 16$.
The SolC is the first of its kind and among the largest in the country, with unsurpassed breadth, Its mission is to excel and lead in education, research, and outreach spanning and integrating the full breadth of computing and information technology. It includes Computer Science. Informatics, and Information and Library Science, with over 100 faculty, 900 graduate students, and 1500 undergraduate majors on the Bloomington Campus. It offers PhDs in Computer Science, Informatics, and Information Science.

Bloomington is a cuiturally thriving college town with a moderate cost of living and the amenities for an active lifestyle. Indiana University is renowned for its top-ranked music school, high-performance computing and networking facilities, and performing and fine arts.
All applicants should submit a CV , a statement of research and teaching, and names of 6 references ( 3 for junior level) using the links below (preferred) or to Faculty Search, SolC, $919 \mathrm{E} 10^{\mathrm{n}} \mathrm{St}$, Bloomington, IN 47408. Questions may be sent to hining@soic.indiana.edu, For full consideration applications are due by $12 / 1 / 15$.
http//indiana peopleadmin com/postings/1693 (computer science)
http://indiana.peopleadmin.com/postings/1694 (heath informatics)
http//indiana.peopleadmin.com/postings $/ 1695$ (security informatics)
Indiana Universily 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, ethnicily, color, race, religion, sex, sexual orientation or identity, national origin, disability status or protected veteran status.

## Professional Opportunities

an ability to teach courses in Cybersecurity. Candidates will also demonstrate excellence in research and a commitment to faculty/ student collaboration.

To learn more, and to apply, please visit: http://flsouthern.edu/human-resources/asst-prof-computer-science.aspx

## Macalester College, Saint Paul, MN, USA

Department of Mathematics, Statistics, and Computer Science
Tenure-track Assistant Professor of Computer Science

Candidates must have or be completing a PhD in CS and have a strong commitment to both teaching and research in an undergraduate liberal arts environment. Areas of highest priority include computer and data security and privacy, mobile and ubiquitous computing, human-computer interaction, and visualization. Evaluation of applications will begin December 1 .

See http://www.macalester.edu/mscs for details.

## Old Dominion University, Norfolk, Virginia

Cybersecurity Faculty - 3 Faculty Positions
Old Dominion University is initiating its new University (http://www.odu.edu/content/ dam/odu/units/strategicplan/docs/14-19/odu-strategic-plan-2014-2019.pdf) and Research (http://odu.edu/facultystaff/research2/ strategic-plan.html) strategic plans with a cluster hire for an innovative and interdisciplinary Center for Cybersecurity Education and Research. Old Dominion is located in the metropolitan Hampton Roads region of coastal Virginia, home to the world's largest natural deep water port and third largest port on the East Coast, the Atlantic headquarters of NATO, and Naval Station Norfolk, which houses the
U.S. Navy and U.S. Fleet Forces Command. The University currently enrolls more than 25,000 students with almost 5,000 graduate students and nearly 1,500 international students. An undergraduate major, a minor and a graduate certificate in cybersecurity are offered.

We seek three leaders in any discipline related to cybersecurity to be a part of this initiative. The goal of the Initiative is to foster research, education and outreach on cybersecurity. The interdisciplinary initiative currently includes faculty from a range of disciplines including Computer Science, Engineering, Psychology, Criminal Justice, Business, Information Technology, and Philosophy. Details about the initiative are available at https://www.odu.edu/ccser. We are especially interested in faculty able to conduct research and teach in an interdisciplinary environment and who can hold a security clearance. All three positions will be expected to be fully involved in this initiative.

One of the positions will be an Endowed Chair in Engineering and Technology for the Director of the newly created Center for Cybersecurity Education and Research. The successful applicant for Director will have a national reputation in cybersecurity and will be eligible to be either an Associate or Full Professor. The other two positions target Assistant Professors, although exceptional applicants at the Associate or Full Professor ranks will be considered. All successful applicants are expected to have a strong vision for their vibrant research programs, commitments to leadership in the area of cybersecurity, and commitments to excellence and innovation in graduate and undergraduate education.

Applicants should possess an appropriate terminal degree and an academic record commensurate with their time in the field. Associate and full professor candidates should have academic records that merit
a tenured appointment at the rank of associate or full professor in one of the academic departments within the University. A successful record in research and grant writing is required for a tenured appointment, as is evidence of leadership and the ability to interact and communicate clearly with internal and external constituencies. Requirements for candidates for the assistant professor positions are the potential for success in research and grant writing and the ability to interact and communicate clearly with internal and external constituencies.

Applications should include a letter of interest that addresses the Initiative's goals, a curriculum vitae, statement of research interests and contact information for three professional references including email addresses and phone numbers. Review of applications will begin October 1, 2015, and the positions will remain open until an appointment is made. Applications and nominations should be submitted electronically to https://jobs.odu.edu by clicking on Teaching and Research Faculty opportunities and selecting either the senior-level position or the assistant professor position.

Old Dominion University is an equal opportunity, affirmative action institution. Minorities, women, veterans, and individuals with disabilities are encouraged to apply.

## Osaro Inc., San Francisco, CA Research Engineer

Osaro is a San Francisco based company developing exciting new machine learning products driven by our deep reinforcement learning technology. The company is backed by some of Silicon Valley's leading investors including early investors in Facebook, Alibaba, and Deepmind. We are looking for individuals passionate about building next-generation general Al systems and using them to
solve problems in a number of markets. In particular, we are seeking people with solid analytical capabilities, broad machine learning and statistical modeling skills, and strong programming experience with emphasis on deep and reinforcement learning.

To learn more, please email your CV to jobs@osaro.com.

Information Technology (CEWIT), SUNY Korea,
and CEWIT Korea.

Applicants should apply online at: https://hiring.cs.stonybrook.edu
Review of applications will start immediately and will continue until the position is filled. Applications from non-Korean citizens, women and minorities are encouraged.

The Department of Computer Science at Texas Tech University invites applications for multiple tenure-track positions starting in Fall 2016. Successful candidates must have a Ph.D. in Computer Science, or a

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## Texas Tech University

 <br> Computer Science <br> Assistant/Associate Professor}

## SUNY Korea

Computer Science Department
Chair
The Computer Science Department of SUNY Korea (www.cs.sunykorea.ac.kr) invites highly qualified senior applicants for the position of the Chair. The position will be tenured or tenure-track at SUNY Korea, and will carry an affiliated faculty position with the Computer Science Department at Stony Brook University. Applicants should hold a Ph.D. in Computer Science or closely related area and exhibit a strong commitment to research and teaching.

SUNY (State University of New York) Korea, is located in Songdo, South Korea, about 20 mins from the Incheon International Airport and less than an hour from Seoul. SUNY Korea (www.sunykorea.ac.kr) is committed to delivering high-quality research oriented PhD, MS, and BS programs in Computer Science while providing the full American university experience in Korea. The degrees granted are from Stony Brook University, a SUNY campus in Stony Brook, NY.

The Department of Computer Science (www.cs.stonybrook.edu) at Stony Brook University is consistently ranked among the top Computer Science research departments and the most recent NRC survey positioned it among the top $10 \%$ of PhD programs in the U.S. The Department has more than 50 faculty and is in a stage of significant expansion, including new faculty, students, a new Computer Science building, a new Center of Excellence in Wireless and

Full-Time, Non-Tenure-Track Position

Commencing Fall 2015 Search Extended

Disclaimer ~ this position is grant and/or categorically funded and continued employment is contingent on adequate availability of funds.
Open until filled, priority consideration date of Monday, August 10, 2015 GENERAL RESPONSIBILITIES

- Instruction of community college engineering courses; classes include: Electrical Circuits, Material Science and Engineering, Statics, Computer Programming and Algorithm Development (CC++), Computer Programming - MATLAB and Hardware Controls, Engineering Graphics and Introduction to Design, and Introduction to Engineering.
- Participate in the evaluation of materials, outline improvement and Student Learning Outcomes for all engineering courses.
- Develop curriculum, lecture materials, hands-on lab work and SLO's for Electrical Circuits, Material Science and Engineering, and Statics courses.
- Cultivate and engage with industry representatives to ensure curriculum is applicable, provide student site visits, classroom guest speakers and summer internships.


## MINIMUM QUALIFICATIONS

An earned Master's degree from an accredited institution in any field of engineering or bachelor's in any of the above and master's in mathematics, physics, computer science, chemistry, or geology or the equivalent. NOTE: A bachelor's in any field of engineering with a professional engineer's license is an alternative qualification for this discipline. Sensitivity to and understanding of the diverse academic, socioeconomic, cultural, disability and ethnic backgrounds of community college students.

For more information and to apply, visit http://apptrkr.com/640033

## Equal Opportunity Employer

## Professional Opportunities

closely related field. The duties include teaching graduate and undergraduate courses, performing high quality research as evidenced by scholarly publications, and developing competitive research grant proposals. Service duties include participation in program enhancement and building community activities. Service to the department, college, and university is expected.

Preference will be given to candidates with strong potential to obtain extramural funding and researchers applying for (ו) assistant professors in Big Data Analytics, Big Data Visualization, and (2) assistant/ associate professors in Cyber Security and Software Engineering.

The Department of Computer Science currently has 14 faculty members with 265 undergraduate and 147 graduate students. Texas Tech University, with an enrollment of 32,000 students, comprises 12 academic colleges/schools and is a part of the statesupported Texas Tech University System. The university shares its campus with the Texas Tech University Health Sciences Center.

Lubbock, a city of more than 200,000 , is an economic and medical center on the Texas South Plains. The area offers a low cost of living, no state income tax, short commute times, and a rich heritage of music and culture.

Review of applications will begin in September 2015 and continue until the positions are filled. A letter of application with the desired rank applied for, Curriculum Vitae, statement of proposed research, teaching statement, a sample of three papers published, and three letters of reference should be submitted electronically at http://www.texastech.edu/ careers/. Please use requisition numbers 4605BR or 4607BR, for Big Data assistant professor positions, and 4609BR or 4615BR for the Computer Science and Software Engineering positions.

As an Equal Employment Opportunityl Affirmative Action employer, Texas Tech University is dedicated to the goal of building a culturally diverse faculty committed to teaching and working in a multicultural environment. We actively encourage applications from all those who can contribute, through their research, teaching, and/or service, to the diversity and excellence of the academic community at Texas Tech University. The university welcomes applications from minorities, women, veterans, persons with disabilities, and dual-career couples. Should you have questions, please contact: Dr. Akbar Namin, at cs.search@ttu.edu

## The University of Alabama at Birmingham

## Department of Computer and Information Sciences

Assistant/Associate/Full Professor
The Department of Computer and Information Sciences (CIS) at the University of Alabama at Birmingham (UAB) is seeking candidates for a tenure-track/ tenure-earning/tenured faculty position at the Assistant/Associate/Full-Professor rank beginning Fall 2016. For additional information about the Department, please visit: http://www.cis.uab.edu.

Candidates with expertise in all core CIS topics are sought, with preference given to Artificial Intelligence, Machine Learning, Data Mining, Software Engineering, High Performance Computing, Networking, and Human-Computer Interaction. UAB has made a significant commitment to both research and teaching in Computer Science. Candidates must consequently have strong research and teaching credentials. Experience and success in funded research is desirable for junior-level candidates, and required for senior-level candidates. UAB is a Carnegie Research Intensive University.

The CIS Department at UAB offers PhD, MS and BS programs. The Department has a strong research focus, and a strong commitment to teaching, service and outreach. The PhD, MS and BS enrollments are on the rise, with the goal of growing these programs significantly over the next several years. Research funding is expanding significantly, and the Department has a leadership role in the Center for Information Assurance, Security and Computer Forensics. Collaborations with UAB's medical enterprise are strong and growing, with many opportunities for faculty to participate in interdisciplinary work.

A Ph.D. in Computer Science or a closely related field is required. Applications should include a curriculum vitae, a list of publications and scholarly achievements, a statement of future research plans, a statement of teaching experience and philosophy, and at least three references. Applications and all other materials should be submitted in PDF format via email to facapp2015@cis.uab.edu, or via regular mail to: Search Committee
Department of Computer and Information Sciences
CH 115
1720 2nd Ave S
Birmingham, AL 35294-1170
Review of candidates will begin October 15,
2015, and the search will continue until the position is filled.

UAB is an Equal Opportunity/Affirmative Action Employer committed to fostering a diverse, equitable and family-friendly environment in which all faculty and staff can excel and achieve work/life balance irrespective of, race, national origin, age, genetic or family medical history, gender, faith, gender identity and expression as well as sexual orientation. UAB also encourages applications from individuals with disabilities and veterans. A pre-employment background investigation is performed on candidates selected for employment.

## Professional Opportunities

## University of California, Davis

Department of Statistics
Tenure-Track Assistant Professor Position
We invite applications for a tenure-track Assistant Professor position beginning 07/01/2016. Requires a Ph.D. in Statistics or a related field. All areas of statistics will be considered. Individuals specializing in statistical methods for large and complex or massive data are especially encouraged to apply. The start-date for the position is July 1, 2016.

Application review begins 11/12/2015. See http://www-stat.ucdavis.edu/ for more information.

To apply, go to https://recruit.ucdavis.edu/ apply/JPF00668

The University of California is an Equal Opportunity/Affirmative Action Employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, disability, age or protected veteran status.

## TENURE-TRACK FACULTY POSITION SCHOOL OF PUBLIC HEALTH AND HEALTH PROFESSIONS

The Department of Biostatistics, University at Buffalo, seeks to hire an outstanding scientist with research interests in computational statistics, algorithms, visualization, machine learning, analysis and inference for digital image processing, neural computation, predictive modeling and other areas of statistical informatics. This is a 12-month, tenure-track, appointment at the Assistant Professor rank, and it is part of the university-wide initiative on developing expertise in Data Science and analysis of "Big Data".
Candidates should have doctoral level training (Ph.D. or equivalent) in statistics/biostatistics, computer science, applied mathematics and related quantitative fields. Candidates with formal training and/or experience in both statistics/biostatistics and machine leaming are preferred. Evaluation of candidates will be based on research productivity, potential for development of an independent research program and capability of leaching. Preference will be given to candidates with experience and/or strong interest in interdisciplinary research. The successful candidate will be expected to develop an extramurally funded, independent research program, with emphasis on graduate-level teaching, mentor graduate and undergraduate students, develop interdisciplinary collaborations and engage in service activities. The position offers outstanding inslitutional support and opportunities for collaboration.
The Department of Biostatistics is located in the School of Public Health and Health Professions (SPHHP), a fully accredited school of public health (CEPH). The University at Buffalo, dedicated to academic excellence, is a member of the prestigious Association of American Universities (AAU) and is the leading public research university in New York State, offering more than 300 undergraduate and graduate degree programs. Buffalo provides a rich environment for collaborative research with facully at the SPHHP, at The Roswell Park Cancer Institute, and at other schools of the Academic Health Center and Graduate School. For more information about the Department of Biostatistics see, http://sphhp.buffalo.edu/biostatistics.html.
To apply, please send a letter of application, curriculum vitae, a list of three references and a statement describing research and teaching experience and interests to UB Jobs. Review of applications will begin immediately; applications will be received until the position is filled.
Please apply to: https://www.ubjobs.buffalo.edu, POSTING NUMBER: 1500520. The State University of New York at Butaio is an Equal Opportunity/Afirmative Action EmployerrRecruiter

## The University of Chicago <br> Senior Lecturers in Computational Social Science

The University of Chicago invites applications for two Senior Lecturers in Computational Social Science. These are three-year fulltime positions, and are eligible for renewal based on excellent performance. Salaries are competitive and include benefits and a research stipend. The successful applicant will teach graduate courses on computational and statistical methods (for example, some combination of scientific programming with Python; coding best practices, versioning and repositories; SQL and file-based databases; Spark or Hadoop frameworks; machine learning using structured, semi-structured and unstructured data-text, images, audio, sensors; Bayesian statistical inference and graphical models; statistical programming with R; optimization; etc.) with an eye to social science applications and extensions. As such, prior training or research in the social sciences is preferred but not necessary. The successful applicant will also teach courses more narrowly tailored to his or her disciplinary expertise, which could be as various as neural modeling in psychology, network analysis in sociology, social media analysis in political science, game theory in economics, linguistic change in anthropology, massive archival data integration and analysis in history, or machine learning with applications to social and behavioral data in computer science.

Applicants must have completed all requirements for the Ph.D. by June 30, 2016, and have the degree in hand prior to October 1, 2016.

Applicants are required to apply online on the University of Chicago's Academic Career Opportunities website at http://tinyurl.com/ pfmxq8h. Applicants are required to submit the following materials: 1) a cover letter, 2) a curriculum vitae, 3) a chapter-length writing sample, 4) a sample course syllabus,

## Professional Opportunities

5) course evaluations or evidence of past teaching performance, and 6) three letters of reference. The review of applications will begin October 1, 2015 and will continue until the position is filled. Early application is strongly recommended. Later applicants are encouraged to contact Chad Cyrenne (c-cyrenne@uchicago.edu) for updates on the status of the search.

All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin,
age, protected veteran status or status as an individual with disability.

The University of Chicago is an Affirmative Action / Equal Opportunity / Disabled / Veterans Employer.

Job seekers in need of a reasonable accommodation to complete the application process should call 773-702-5671 or email ACOppAdministrator@uchicago.edu with their request.

## University of Cincinnati

Two full-time tenure-track Positions
Two full-time tenure-track Assistant/ Associate Professor positions in Computer Science are open in the EECS Dept. Research interests in data analysis will be considered, with preference to methodological foundations and data security. Must have a Ph.D. in Computer Science or closely related discipline by the date of appointment.

Job description at https://jobs.uc.edu (\# 5602).

UC is an affirmative action/equal opportunity employer. UC is a smoke-free work environment.

## University of Georgia

Department of Computer Science Two Lecturer Positions
The Department of Computer Science at the University of Georgia invites applications for two Lecturer positions starting August 2016. The responsibilities of this position include teaching foundational courses in the undergraduate major and periodically teaching a senior/beginning graduate level course in his/her specialty. In addition, this position allows for opportunities to develop new undergraduate courses for our expanding program.

Successful Lecturer candidates should hold a Ph.D. degree in Computer Science or a closely related field. Scholarly credentials should reflect a strong commitment to teaching Computer Science courses at the undergraduate level. Although not tenure track, it is expected that the person holding this position will remain with the department long term.

The University of Georgia (http://uga.edu/), founded in 1785 , is the oldest land-grant university in the nation and the largest university in Georgia (exploregeorgia.org), with a student body of over 34,000 . It is

## Professional Opportunities

located in Athens (http://www.visitathensga. com/) a charming and historic university town of about 100,000 , approximately 65 miles from Atlanta, with mild winters and warm summers. The University boasts a major Performing Arts Center and the country's best fitness and exercise facility for students and faculty. It has been consistently ranked among the top 20 public universities by U.S. News and World Report. Applicants will find UGA and the rapidly growing technology sectors in Athens/ Atlanta supportive of professional growth.

To apply, please upload an application letter, curriculum vitae, and a statement of teaching philosophy, as a single PDF file, at https://webapps.franklin.uga.edu/ jobs/apply.php?id=102. Applicants should also arrange for at least three letters of reference to be uploaded separately to the same web site.

The search committee will begin reviewing applications on November 15, 2015, until the position is filled. Please see http://www. cs.uga.edu for more information about the department and the university.

The Franklin College of Arts and Sciences, its many units, and the University of Georgia are committed to increasing the diversity of its faculty and students, and to sustaining a work and learning environment that is inclusive. Women, minorities, protected veterans and individuals with disability are encouraged to apply. The University of Georgia is an EEO/ AA institution.

## University of Louisiana at Lafayette

Assistant Professor - Tenure Track
The School of Computing and Informatics at the University of Louisiana at Lafayette invites applications for a faculty position at the Assistant Professor level. The successful applicant will hold a Ph.D. in

Computer Science or a closely related field and have a demonstrated commitment to undergraduate computer science education and potential for establishing a strong research program. Responsibilities will include teaching, research, advising, and professional service. Preference will be given to candidates with expertise in: theory of computation, programming languages, algorithms, cryptography, and cyber security. The University of Louisiana at Lafayette is a public research university with High Research Activity with accreditation from the Southern Association of Colleges and Schools Commission on Colleges

Applicants should send a CV, a statement of teaching and research interests, and contact information for three professional references to Dr. Ashok Kumar at cmps@ louisiana.edu.

To ensure consideration, receipt of complete application material is required on or before October 15, 2015.

## University of Louisiana at Lafayette

Assistant Professor - Tenure Track
The School of Computing and Informatics at the University of Louisiana at Lafayette invites applications for a faculty position at the Assistant Professor level. The successful applicant will hold a Ph.D. in Computer Science or a closely related field and have a demonstrated commitment to undergraduate computer science education and potential for establishing a strong research program. Responsibilities will include teaching, research, advising, and professional service. Preference will be given to candidates with expertise in: video game design and development, web programming, programming of hand held devices, artificial intelligence, and databases. The University of Louisiana at Lafayette is a public research
university with High Research Activity with accreditation from the Southern Association of Colleges and Schools Commission on Colleges.

Applicants should send a CV, a statement of teaching and research interests, and contact information for three professional references to Dr. Ashok Kumar at cmps@ louisiana.edu.

To ensure consideration, receipt of complete application material is required on or before October 15, 2015.

## University of Louisiana at Lafayette

The Center for Advanced Computer Studies One Tenure-Track Position

The Center for Advanced Computer Studies (CACS) at the University of Louisiana at Lafayette invites applications for one tenure-track position in Computer Science or Computer Engineering at the Assistant Professor level. We are particularly interested in applicants with expertise in computer software systems, including (but not limited to) OS, compilers, programming languages, cloud computing, big-data, and cybersecurity A successful candidate is one who has the demonstrated ability to conduct highquality research in one or more of the areas of interest and has the skills to excel in teaching at the undergraduate and graduate levels. The successful candidate will be expected to establish a thriving and funded research program comprising fundamental and cross-disciplinary initiatives.

The University of Louisiana at Lafayette is a public research university with High Research Activity with accreditation from the Southern Association of Colleges and Schools Commission on Colleges. The Center for Advanced Computer Study (CACS) is a unit within the School of Computing and Informatics under the College of Sciences. CACS is housed in a state-of-the-art
facility designed to support excellence in education and research. CACS offers graduate degrees at the Masters and Ph.D. levels in Computer Science and Computer Engineering. Our undergraduate programs offer Bachelor degrees in computer science and informatics.

The proposed start date is August 2016. Applicants must have a Ph.D. in Computer Science, Computer Engineering or a closely related field. The degree must be completed before August 2016. Applicants should send complete application packages, including curriculum vitae, short statements of research and teaching goals/vision/
philosophy, and contact information of three references electronically (as a single pdf file) to Professor Magdy Bayoumi at (jobs@cacs. Iouisiana.edu).

To ensure consideration, receipt of complete application material is required on or before October 15, 2015.

## University of Massachusetts Amherst

Search for the Dean of the College of Information and Computer Sciences

The University of Massachusetts Amherst seeks a visionary leader to serve as
founding Dean for its new College of Information and Computer Sciences. The Dean will have a unique opportunity to shape and grow a new college, building on the strong foundation of our highly ranked Computer Science program, which is in the midst of a major faculty hiring initiative and enjoying new growth in centers and multidisciplinary institutes.
UMass Amherst is the flagship campus of the five-campus University of Massachusetts system and a member of the Five College consortium with Mt. Holyoke, Smith, Amherst, and Hampshire colleges. Founded in 1863, the campus is

## Associate/Full Professor and Division Chief

Division of Learning and Knowledge Systems Department of Learning Health Sciences

The Department of Leaming Health Sciences at the University of Michigan Medical School is seeking a distinguished scholar to lead its Division of Learning and Knowledge Systems. The successful applicant will academically be a tenured Associate or Full Professor, and will be appointed to an (uatenured) administrative role as Chief of the Division of Leaming and Knowledge Systents. The successful candidate may also be considered for an endowed professorship. We are seeking an innovative scholar whose background may come from disciplines including, but not restricted to: information, computing, and statistical sciences; informatics; public health; complexity \& systems science; behavioral \& social sciences, organizational \& policy sciences; engineering; and economics. The successfal applicant will have a record of significant accomplishments in the sciences that enable the transformation of health-related systems, locally and globally, into entities that leam and improve. The successful applicant will have demonstrated ability to mentor junior faculty members and mold a cohesive academic unit.
The Department of Learning Health Sciences (DLHS): The DLHS is a first-in-thenation academic department focused on leaming applied to health at all levels of scate: individuals, teams, organizations, and ultra-large scale systems. DLHS operates in three sub-units: (1) The Division of Learning and Knowledge Systems primarily focuses on tearning at higher levels of scale, (2) The Division of Professional Education primarily addresses learning by individuals. (3) The Clinical Simulation Center deploys advanced simulation technology and conducts a related program of research.
The Division of Learning and Knowledge Systems; Within DLHS, this Division is an interdisciplinary community of scientists focused on improving healthcare at the levels of interprofessional teams, complex organizations, regional networks, national and multinational systems. The Division addresses bow these systems can routinely "learn" and improve through continuous self-study and self-surveillance, applying analytical methods that convert data to knowledge, and subsequent application of that knowledge to drive beneficial change. The Division has recnuited several new faculty members who will be joining the department later this year. In collaboration with colleagues across the campus, the Division's research programs examine fundamental questions and develop novel methods related to the creation, operation, and sustainability of "learning systems" that support heathcare, public health, and biomedical research. Its educational programs will include a new graduate program and opportunities to participate in the curricula of other schools and colleges within the University. The Division's service activities will engage health systems in pursuit of becoming "learning systems," For further informationt about DLHS, and the Division, see hutp:/ILHS-medicine.amichedu

## Responsibilities include:

- Lead a cohesive, collaborative academic division consisting of approximately 13 faculty members with primary appointments in DLHS, associated doctoral students and research staff, and affiliated faculty members from across campers.
- Mentor junior faculty in developing successful, productive careers in learning and knowledge systems.
- Develop and secure external funding for collaborative, cutting-edge research programs for the design, development, operation, and/or evaluation of learning health systems at the organizational. regional, national, and/or global levels.
- Advance the field of learning systems through scholarly development/ dissemination of theory, research, \& innovation.
- Play a senior role in developing graduate curricula \& courses, offering courses relevant to the individual's background.
- Help position the University of Michigan as a leader in improvement of health through learning systems.
A generous start-up package will be available. Joint appoinments with other University deparments will be encouraged.
To qualify for a position, an applicant must have:
- A terminal research degree (PhD or equivalent, MD not required) in a relevant discipline - see examples in the first paragraph. (We welcome applications from active clinicians with relevant postgruduate research training).
- Demonstrated leadership, organizational and communication skills to lead a dynamic and growing academic division.
- Successfully mentored junior faculty in developing productive careers in leaming and knowledge systems.
- A sustained research focus related to the Division's mission to advance large-scale learning health systems.
- A record of scholarly leadership and achievement that would merit a tenured faculty appointment.
- Successfully developed and offered graduate curricula and courses relevant to the individual's background.
Application: To apply, please submit a letter of application, addressing the six qualifications listed above, along with a current Curriculum Vitae.
Send application materials by email to: Tana O'Lone (tdeclercerumichedu), Associate Administrator, Deparment of Learning Health Sciences University of Michigan Medical School. Application review will continue until position is filled.

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

## Professional Opportunities

home to more than 1,200 faculty, nearly 21,000 undergraduates from 68 countries and 49 states, and approximately 6,000 graduate students. While already the largest public university in New England, UMass Amherst has been enhancing its leadership position with over $\$ 1.4$ billion in new construction and renovations, another $\$ 1.4$ billion in the works, and substantial investments in the sciences, all with state government support

The University's creation of the new College is an indication of its commitment to dramatically expand in information and computer sciences. Today, the College of Information and Computer Sciences has 51 faculty, including 16 new faculty hired in the past four years. The College continues to grow in long-standing research strengths, including machine learning, networking, mobile systems, information retrieval, programming languages, software engineering, theoretical computer science, robotics, distributed systems, security \& privacy, computer vision, graphics, educational technologies, and databases. Our faculty includes 28 Fellows of the ACM, AAAI, AAAS, IEEE, and similar societies. Research funding from industry and government exceeded $\$ 16$ million in the past year. The College maintains significant research collaborations with more than 50 industryleading technology companies. Its affiliated research centers include the Center for Intelligent Information Retrieval, Center for Data Science, Computational Social Science Institute, and a new Cybersecurity Institute. We also have strong connections with regional institutions, including the Massachusetts Green High Performance Computing Center, a collaboration with Harvard, MIT, Northeastern, and Boston University, which augments our state-of-the-art computing facilities. The College offers world-class education, with 180 PhD students, 80 MS students, 800 undergraduate majors, and over 400 minors.

Reporting to the Provost and Senior Vice Chancellor for Academic Affairs, the Dean is the principal academic and administrative officer for the College. The Dean will lead the planning for the new College's future, expand its collaborations and interdisciplinary efforts in both research and education, evolve its organizational structure beyond its previous singledepartment structure, grow the faculty, expand the breadth and depth of the College's research programs, and build on the College's existing top-tier international reputation.

Qualifications for the position include a distinguished record of research and scholarship appropriate for appointment as a tenured full professor in the College of Information and Computer Sciences. We seek candidates who will embrace and foster the College's collegial and collaborative culture; promote diversity among our faculty, students, and staff; advocate for the College locally and nationally, and drive development; collaborate with deans of the other colleges to enhance interdisciplinary efforts. The candidate should articulate a broad and creative view of information and computer sciences, including their multidisciplinary impact and roles in enabling innovation.

The Search Committee invites nominations and expressions of interest as well as applications sent to provost@provost. umass.edu. Applications consist of a letter of interest, curriculum vitae, and contact information for three to five references. For full consideration apply by

October 9, 2015. Review of applications will continue until the appointment is made.

For more information about the College see https://www.cs.umass.edu/.

The University of Massachusetts Amherst is an Affirmative Action/Equal Opportunity Employer of women, minorities, protected veterans, and individuals with disabilities
and encourages applications from these and other protected group members.

## University of Massachusetts Boston

Department of Computer Science Lecturer in Information Technology

The Department of Computer Science at the University of Massachusetts Boston (http:// www.cs.umb.edu) seeks applications for the position of a lecturer who will teach in and help shape our undergraduate Information Technology major. This is a part-time faculty position, and not tenure track. The initial appointment will be for one year, beginning on September 1, 2015, with renewals possible (and expected) for the right person. The lecturer will provide instruction in a range of Information Technology topics. Primary responsibilities include teaching 1 to 4 courses each semester, developing course materials, and advising students

## Minimum Qualifications:

Master's or higher degree in Computer Science or Information Technology, prior experience in teaching Information Technology or Computer Science at the university level, significant prior experience in the Software or Information Technology industry, and knowledge of administering Linux and Windows systems.

To apply, send a cover letter, CV, statement about your teaching and work experience, and the names and email addresses of three references to Allison.Christiansen@ umb.edu

Review of applications has begun and will continue until the position is filled. UMass Boston is an Affirmative Action, Equal Opportunity Title IX employer.

## Professional Opportunities

## University of Miami

Faculty Position
The Department of Computer Science at the University of Miami invites applications for two Assistant/Associate Professor faculty positions starting August 2016. Candidates must possess a Ph.D. in Computer Science or in a closely-related discipline, with strong research expertise in areas related to either Cyber-security in System-software, or Data and Information Visualization. The successful candidates will be expected to teach at both undergraduate and graduate levels, and to develop and maintain an internationally recognized research program. The department encourages innovative interdisciplinary work with other units of the university. In particular, the Data and Information Visualization position entails working within the Visualization Program of the Center for Computational Sciences to form collaborations across the University.

Applicants should submit a cover letter, CV, research plan, statement of teaching philosophy, sample preprints or reprints, teaching evaluations from the last two years, and the names of at least three references, online at http://www.cs.miami. edu/search/. Review of applications will begin 1st October 2015, and continue until the position is filled. Information about the College can be found at http://www. as.miami.edu/.

The University of Miami offers competitive salaries and a comprehensive benefits package including medical and dental benefits, tuition remission, vacation, paid holidays and much more. The University of Miami is an Equal Opportunity Employer - Females/Minorities/Protected Veterans/ Individuals with Disabilities are encouraged to apply. Applicants and employees are protected from discrimination based on certain categories protected by Federal law."

## University Of Oregon

Department Of Computer and Information Science

## Faculty Position

The Department of Computer and Information Science (CIS) seeks applications for two tenure track faculty positions at the rank of Assistant Professor, beginning September 2016. The University of Oregon is an AAU research university located in Eugene, two hours south of Portland, and within one hour's drive of both the Pacific Ocean and the snow-capped Cascade Mountains.

The open faculty positions are targeted towards the following two research areas: 1) networking and distributed systems and 2) data sciences. We are particularly interested in applicants whose research addresses security and privacy issues in these sub-disciplines and/or complements existing strengths in the department, so as to support interdisciplinary research efforts. Applicants must have a Ph.D. in computer science or closely related field, a demonstrated record of excellence in research, and a strong commitment to teaching. A successful candidate will be expected to conduct a vigorous research program and to teach at both the undergraduate and graduate levels.

We offer a stimulating, friendly environment for collaborative research both within the department - which expects to grow substantially in the next few years - and with other departments on campus. The CIS Department is part of the College of Arts and Sciences and is housed within the Lorry Lokey Science Complex. The department offers B.S., M.S. and Ph.D. degrees. More information about the department, its programs and faculty can be found at http://www.cs.uoregon.edu.

Applications will be accepted electronically through the department's web site. Application information can be found at
http://www.cs.uoregon.edu/Employment/. Applications received by December 15, 2015 will receive full consideration. Review of applications will continue until the positions are filled. Please address any questions to faculty.search@cs.uoregon.edu.

The U0 is an equal opportunity, affirmative action institution committed to cultural diversity and compliance with the ADA. The University encourages all qualified individuals to apply, and does not discriminate on the basis of any protected status, including veteran and disability status.

## University Of Oregon

Department Of Computer and Information Science
Instructor Position
The Department of Computer and Information Science (CIS) seeks to fill one faculty position at the instructor level, beginning January 2016. This is a fulltime, benefits-eligible, non-tenure-track appointment. The position is a one year, renewable academic-year contract, with an initial appointment for six months.

The CIS Department seeks a dynamic individual to teach courses in our computational thinking series for premajors, non-majors, and computing and information technology minors. The most important criterion for the position is extensive knowledge of core Computer Science topics. We especially welcome candidates who can develop new courses and innovative teaching methods. The candidate should be knowledgeable regarding national curriculum trends in computer science education, and be interested in collaborating with faculty in curriculum development.

The minimal requirement for this position is a master's degree in computer science or a closely related field; a doctoral degree is

## Professional Opportunities

preferred. A record of excellence in teaching is expected. Candidates with experience teaching large-enrollment classes are especially welcome.

The University of Oregon is an AAU research university located in Eugene, two hours south of Portland, and within one hour's drive of both the Pacific Ocean and the snow-capped Cascade Mountains. The CIS Department is part of the College of Arts and Sciences and is housed within the Lorry Lokey Science Complex. The department offers B.S., M.S. and Ph.D. degrees. More information about the department, its programs and faculty can be found at http://www.cs.uoregon.edu.

Applications will be accepted electronically through the department's web site. Application information can be found at http://www.cs.uoregon.edu/Employment/. Submit a letter of interest, curriculum vitae, statement of teaching interests, evidence of teaching performance, and names of three references; applicants are also encouraged to send a video sample of their teaching. Applications received by September 15, 2015 will receive full consideration. Review of applications will continue until the position is filled. Please address any questions to faculty.search@cs.uoregon.edu.

The UO is an equal opportunity, affirmative action institution committed to cultural diversity and compliance with the ADA. The University encourages all qualified individuals to apply, and does not discriminate on the basis of any protected status, including veteran and disability status.

## 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 science, working on an interdisciplinary research
project studying subjective well-being 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.

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: September 1, 2015
Approximate Start Date: January 1, 2016
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 contingent on funding.

This work is with Professor Lyle Ungar and the University of Pennsylvania's World Well-Being Project (WWBP), a collaboration between computer scientists and psychologists pioneering techniques for measuring physical and psychological wellbeing 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. Primary Contact: Professor Lyle Ungar, ungar@cis.upenn.edu

## University of PennsyIvania

Senior Data Scientist

The World Well-Being Project (WWBP)
is seeking a Senior Data Scientist to join our interdisciplinary team. The position will apply machine learning and natural language processing techniques to large social media and clinical data sets to answer questions related to subjective well-being and health outcomes. Individuals in this role are expected to be comfortable working as software engineers and quantitative researchers, and supervising junior programmers.

To view responsibilities, qualifications, and apply for the position, follow this link: https://jobs.hr.upenn.edu/ postings/11374

The University of Pennsylvania is an EOE/ Affirmative Action Employer. Position contingent on funding. More about the project can be found at wwbp.org. Contact applications@wwbp.org with questions.

## University of Southern California, Los Angeles, CA

Viterbi School of Engineering - Department of Computer Science

## Teaching Faculty [All Ranks]

The Computer Science Department (http:// cs.usc.edu) at the USC Viterbi School of Engineering (http://viterbi.usc.edu) seeks candidates for teaching positions to teach undergraduate and graduate courses. These are full time, benefits eligible faculty positions on the non-tenure track. Competitive candidates will have the training and experience necessary to teach effectively in a highly-ranked Computer Science department that advances undergraduate students through an accredited BS degree program and graduate students enrolled in MS and PhD programs. While we are interested in candidates with backgrounds in all areas

## Professional Opportunities

of Computer Science we are particularly interested in candidates with expertise in Algorithms, Artificial Intelligence, Databases, Games, Programming Languages, Networks/ Systems, and Software Engineering Relevant industry experience is valued for candidates interested in teaching gamesrelated courses

These are primarily teaching positions; all candidates are expected to have a strong commitment to teaching. Faculty will spend the majority of their time on teaching and teaching-related duties with reduced obligation for research and University service. Qualified candidates should have a doctoral degree in Computer Science (or equivalent) by the date of appointment. Salary and benefits are competitive.

While we seek applications at the level of Lecturer, in exceptional cases, applicants with longer teaching experience may also be considered for a commensurate position (e.g., Senior Lecturer).

Applicants should submit their applications online at: https://goo.gl/OXAQvp

Applications must include a cover letter, a detailed curriculum vitae, a teaching statement, and names of at least three professional references, at least two of whom must be familiar with, and able to comment on, the applicant's teaching experience. Applicants may also optionally include a research statement. Applications should be received by October 15, 2015. Applications received after this deadline may not be considered.

The USC Viterbi School of Engineering is among the top tier engineering schools in the world. It counts 180 full-time, tenuretrack faculty members, and it is home to the Information Sciences Institute, two National Science Foundation Engineering Research Centers, a Department of Energy EFRC (Energy Frontiers Research Center), and the Department of Homeland Security's first University Center of Excellence,

CREATE. The school is affiliated with the Alfred E. Mann Institute for Biomedical Engineering, the Institute for Creative Technologies and the USC Stevens Center for Innovation. Research expenditures typically exceed \$180 million annually. With 37 tenure-track, 33 research faculty, and ll teaching faculty, the USC Department of Computer Science is one of the nation's leading centers of research and education in the field.

USC is an equal-opportunity educator and employer, proudly pluralistic and firmly committed to providing equal opportunity for outstanding persons of every race, gender, creed and background. The University particularly encourages women, members of underrepresented groups, veterans and individuals with disabilities to apply. USC will make reasonable accommodations for qualified individuals with known disabilities unless doing so would result in an undue hardship. Further information is available by contacting uschr@usc.edu.

## University of Utah

Visualization Faculty Member
The University of Utah is seeking a Visualization faculty member as part of a new faculty cluster in Sustaining Biodiversity where biodiversity research is combined with learning research in a novel multi-disciplinary approach. Four tenuretrack or tenured faculty will be hired over two years jointly between the Natural History Museum of Utah and one of several campus entities including the Scientific Computing \& Imaging Institute.

Details on responsibilities and application instructions are at https://utah.peopleadmin. com/postings/43404. Further information is at https://nhmu.utah.edu/sustainingbiodiversity.

Review of applications will begin October 1, 2015, and continue until positions are filled

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/.

## Washington State Vancouver

## Computer Science Faculty

Washington State University Vancouver invites applications for a full-time tenuretrack position at the assistant professor level beginning 8/16/2016. Candidates are sought with expertise in computer networks, wireless networks or sensor networks.

Required qualifications: Ph.D. in
Computer Science or Software Engineering by the employment start date and demonstrated ability to (1) develop a funded research program, (2) establish industrial collaborations, (3) teach undergraduate/ graduate courses, and (4) contribute to our campus diversity goals (e.g. incorporate issues of diversity into mentoring, curriculum, service or research). Preferred qualifications: (1) already have published promising scholarly work in the field and (2) relevant industrial background.

Duties include: (1) teaching at undergraduate and graduate levels including the topics of networks; (2) participation and documentation of distinguished scholarly activities including research, innovative teaching and laboratory development; (3) securing external funding for research programs; and (4) service to the department and university through committee work, recruitment, and interaction with industry.

WSU Vancouver serves about 3,000 graduate and undergraduate students

## Professional Opportunities

CRA
Computing Research Association
and is fifteen miles north of Portland, Oregon. The rapidly growing School of Engineering and Computer Science (ENCS) equally values both research and teaching. WSU is Washington's land grant university with faculty and programs on four campuses. For more information: http://ecs.vancouver.wsu.edu. WSU Vancouver is committed to building a culturally diverse educational environment.

To apply: Please visit www.wsujobs. com and search postings by location. Applications must include: (I) cover letter with a clear description of experience relevant to each of the required and preferred qualifications; (2) vita including a list of at least three references, and (3) A statement (two page total) of how candidate's research will expand/ complement the current research in ENCS and a list of the existing ENCS courses the candidate can teach and any new courses the candidate proposes to develop. Application deadline is November 29, 2015.

WASHINGTON STATE UNIVERSITY IS AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EDUCATOR AND EMPLOYER. Members of ethnic minorities, women, special disabled veterans, veterans of the Vietnam-era, recently separated veterans, and other protected veterans, persons of disability and/or persons age 40 and over are encouraged to apply. WSU employs only U.S. citizens and lawfully authorized nonU.S. citizens.

## Western Michigan University

Department of Computer Science - College of Engineering and Applied Sciences

Faculty Positions in Computer Science
Applications are invited for three tenuretrack positions at the assistant professor level in the Department of Computer Science at Western Michigan University (Kalamazoo, MI) starting January 2016.

Applicants must have a Ph.D. in Computer Science or a closely related field. Candidates with expertise in any area of computer science are welcome to apply, but preference will be given to candidates with particular expertise in big data, computer security and embedded systems/internet of things.

Successful candidates will be capable of establishing an active research program leading to funding, supervising graduate students, and teaching courses at both the undergraduate and graduate levels. Other duties include development of undergraduate and graduate courses, advising and service at the University,

## MITIIIIIII <br> Postdoctoral Fellowships at the Institute for Quantum Computing

The Institute for Quantum Computing is inviting applications for postdoctoral positions in all aspects of quantum information processing, bridging areas from fundamental theory to physical implementations.

Quantum information science aims to develop transformational technologies that harness the power of quantum mechanics. The Institute for Quantum Computing (1QC) is a world-leading institute for rescarch in quantum information at the University of Waterloo. IQC has 22 faculty members (growing to 33) whose research programs span the areas of Applied Mathematics. Chemistry, Combinatorics \& Optimization, Computer Science, Electrical \& Computer Engineering. Physics \& Astronomy, and Pure Mathematics, IQC members have the opportunity to interact with other research groups at the University, such as the Centre for Applied Cryptographic Rescarch and the nearby Perimeter Institute for Theoretical Physies. New infrastructure, including an advanced nanofabrication and metrology centre, support an expansion of experimental research programs at IQC. We are based in the new Mike and Ophelia Lazaridis Quantum-Nano Centre, a state-of-the-art facility at the heart of the University of Waterloo campus, which provides unprecedented opportunities for rescarch, collaboration and innovation.

We seek promising candidates to help advance the understanding of the foundations of quantum information, to develop new quantum applications and algorithms, and to implement these ideas in laboratory experiments and engineered systems. A PhD and proven ability, or strong potential, for excellence in research is required.

For information on how to join IQC as a postdoctoral fellow, please visit the Available positions link at https:///waterloo.ca/institute-for-quantum-computing/

The preferred deadline for receiving applications is November 1, 2015, but applications may be considered year-round. Candidates are also encouraged to visit the NSERC website to learn about the prestigious Banting Postdoctoral Fellowship. The deadline for the Banting Fellowship applications is September 23, 2015; qualificd candidates should contact a potential supervisor immediately.

All qualified candidates are encouraged to apply; however Canadians and permanent residents will be given priority. The University of Waterloo encourages applications from all qualified individuals, members of visible minorities, native peoples, and persons with disabilities.

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Current active research areas include networks, embedded systems/internet of things, compilers, computational biology, massive data analytics, scientific computing, parallel computing, security, privacy, formal verification, parallel debugging, and data mining. More information regarding Western Michigan University, the College of Engineering and Applied Sciences and the Department of Computer Science are

## Macricostas School of Arts \& Science Assistant Professor - Tenure-Track Computer Science Department

## Spring 2016

Western Connecticut State University seeks outstanding applicants for a tenure-track. Assistant Professorship, in Computer Science, starting in January 2016. The CS Department's mission is to offer a broad and up-to-date curriculum that provides students with a comprehensive foundation that permits graduates to adapt to new technology and new ideas. WCSU students benefit from small class sizes and a faculty focus on teaching and learning. With more than 100 majors, the Computer Science Department offers a BS in Computer Science, a BA in Applied Computing, and is taking part in the development of an interdisciplinary BA in Digital \& Interactive Media Art.
Teaching duties include courses for Computer Science majors and for Computer Science general education. The full-time teaching load is 12 credit hours per semester. The successful candidate will also advise students and serve on departmental and University com mittees.
Qualifications: The successful candidate will have a PhD in Computer Science or a closely related discipline followed by at least two years of relevant industry or academic experience. S/he will demonstrate proficiency in more than one programming language including $C_{++}$, have the ability to teach a wide variety of undergraduate courses including, but not limited to, courses in software engineering, programming languages, and theoretical computer science. S/he will show a capability for research and/or advancing a research agenda, and demonstrate a willingness to participate in faculty governance. All qualified applicants are expected to display evidence of excellence in teaching at the university level. Excellent written and oral communication skills are required. WCSU is a dynamic, diverse workplace and the ability to work with students, faculty and staff from diverse backgrounds and cultures is highly valued.
Minimum Starting Salary and Benefits: $\$ 59,668$; WCSU offers a competitive salary commensurate with the candidate's experience and a comprehensive benefit package. Additional information can be found on our website at www.wcsu.edu/rr/benelitts. There are grant opportunities to support research and conference attendance.
Application Materials: Interested candidates should submit a cover letter, a current vitae, graduate transcripts, a statement of teaching philosophy, contact information of three professional references to facultyvitae@wcsu.edu. Reterence search \# $600-272$ in the subject line. All application materials must be received by close of business, September 18, 2015.

WCSU is an ANEO Educator/Employer.
available at http://www.wmich.edu, http://www.wmich.edu/engineer, and http://www.cs.wmich.edu, respectively.

The Carnegie Foundation for the Advancement of Teaching has placed WMU among the 76 public institutions in the nation designated as research universities with high research activity.

WMU is an Affirmative Action/Equal Opportunity employer consistent with applicable Federal and State law. All qualified applicants are encouraged to apply. To do so, please visit http://www. wmujobs.org and provide a cover letter, curriculum vitae, statement of research goals, teaching statement, and names and contact information of at least three references.

## Whitman College

Two Tenure-Track Positions
Two tenure-track positions in Computer
Science at the rank of Assistant or Associate Professor. Effective August, 2016. Ph.D. in Computer Science or a related discipline is required. Area open; possibilities include, but are not limited to, algorithms, Al, assistive technology, computational biology, CS education, databases, data science, ethics of computing, graphics, HCl , parallel and distributed computing, programming languages, software engineering, systems, and theory.

The successful candidates will offer a variety of courses in computer science, including courses that contribute to the College's general education requirements, and will participate in the development of this new program. The annual teaching load is five courses and oversight of senior projects in the Department of Mathematics and Computer Science. The College provides a generous sabbatical leave program and professional development support for both research and teaching.

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

The online application will prompt you to submit all of the required materials: a letter of application; separate statements addressing the candidate's teaching interests and scholarly/performance agenda; curriculum vitae; the contact information for three people who will be contacted for letters of reference; graduate transcripts; and complete sets of teaching evaluations or other evidence of demonstrated or potential excellence in undergraduate instruction.

In their application, candidates should address their 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, applicants should explain how their classroom and scholarly practices will serve to create and sustain an inclusive learning environment.

To ensure full consideration, applications should be submitted by September 20, 2015.

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.

