

COMPUTING RESEARCH NEWS



Computing Research Association
Uniting Industry, Academia and Government to
Advance Computing Research and Change the World.

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CRN At-A-Glance

2019 CRA Board Election Results and 2019-2021 Executive Committee

CRA members have elected three new members to its board of directors: Lorrie Cranor, Divesh Srivastava and Marvin Theimer. Current board members Penny Rheingans, Shashi Shekhar, and Jaime Teevan were re-elected to the CRA board. Their terms run from July 1, 2019 through June 30, 2022.

The CRA board of directors has elected new board officers to serve two-year terms beginning July 1, 2019. At the February board meeting, Ellen Zegura was elected chair; Nancy Amato was elected vice-chair; Ran Libeskind-Hadas was elected secretary; and James Allan was elected treasurer.

See page 2 for full article.

2019 CRA Distinguished Service and A. Nico Habermann Awardees Announced

The CRA board of directors is pleased to announce its selections for the 2019 CRA Awards.

Edward Felten – Distinguished Service Award Winner

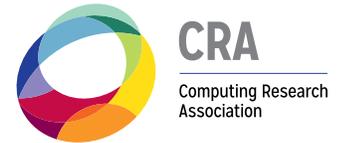
Maria Gini – A. Nico Habermann Award Winner

See page 4 for full article.

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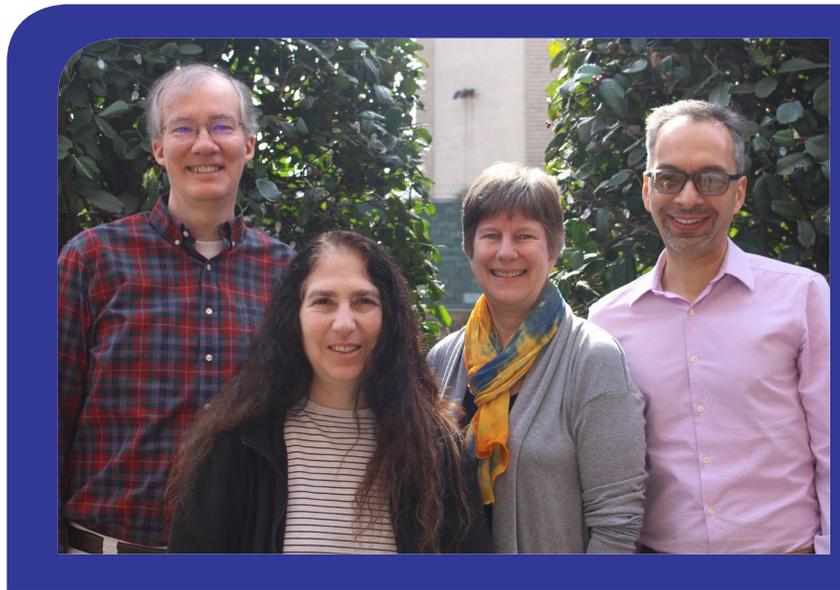
2019 CRA Board Election Results and 2019-2021 Executive Committee



CRA members have elected three new members to its board of directors: Lorrie Cranor, Divesh Srivastava and Marvin Theimer. Current board members Penny Rheingans, Shashi Shekhar, and Jaime Teevan were re-elected to the CRA board. Their terms run from July 1, 2019 through June 30, 2022. CRA would like to thank everyone who agreed to run for a position on the board this year. Retiring from the board as of June 30, 2019 are Ron Brachman, Chris Johnson, Josep Torrellas, and Min Wang. CRA would like to thank all retiring board members for contributions during their service on the board.

CRA Announces 2019-2021 Executive Committee

The CRA board of directors has elected new board officers to serve two-year terms beginning July 1, 2019. At the February board meeting, Ellen Zegura was elected chair; Nancy Amato was elected vice-chair; Ran Libeskind-Hadas was elected secretary; and James Allan was elected treasurer. The current executive officers (Susan Davidson, chair, Susanne Hambrusch, vice-chair, Greg Morrisett, secretary, and Ron Brachman, treasurer) will end their terms on June 30, 2019. CRA thanks them all for their outstanding service on the executive board.



CRA Board Chair Susan Davidson was presented with a gift for her service as board chair.

Board Election Results *(continued)*



Lorrie Cranor

Lorrie Faith Cranor is the director and Bosch Distinguished Professor in Security and Privacy Technologies of CyLab and FORE Systems Professor of Computer Science and of Engineering and Public Policy at Carnegie Mellon University. She also directs the CyLab Usable Privacy and Security Laboratory (CUPS) and co-directs the MSIT-Privacy Engineering Master's program. In 2016, she served as chief technologist at the US Federal Trade Commission. She is also a co-founder of Wombat Security Technologies, Inc, a security awareness training company. She is a fellow of the ACM and IEEE and a member of the ACM CHI Academy.



Divesh Srivastava

Divesh Srivastava is the head of Database Research at AT&T Labs-Research. He is a fellow of the Association for Computing Machinery (ACM), the vice president of the VLDB Endowment, on the ACM Publications Board and an associate editor of the ACM Transactions on Data Science (TDS). He has served as the managing editor of the Proceedings of the VLDB Endowment (PVLDB), as associate editor of the ACM Transactions on Database Systems (TODS), as associate editor-in-chief of the IEEE Transactions on Knowledge and Data Engineering (TKDE), as the co-chair of the program committees of many international conferences including ICDE 2019, CIKM 2018 and AMW 2017, and as general co-chair of SIGMOD 2013. His research interests and publications span a variety of topics in data management. He received his Ph.D. from the University of Wisconsin, Madison, and his Bachelor of Technology from the Indian Institute of Technology, Bombay, India.



Marvin Theimer

Marvin Theimer is a distinguished engineer at Amazon. He received a Ph.D. in computer science from Stanford University in 1986. Theimer then spent seventeen years as a researcher working at IBM's Almaden Research Center, Xerox PARC, and Microsoft Research on topics including distributed operating systems, ubiquitous computing, weakly-consistent replicated systems, peer-to-peer file systems, and global-scale peer-to-peer event notification systems. He left research in 2003 to work on Microsoft's Advanced Web Services and High Performance Computing products. Theimer joined Amazon in 2006 and has worked on a variety of projects, ranging from EC2's Virtual Private Cloud, to various distributed coordination services, to the Kinesis streaming data processing platform. He currently spends most of his time working with AWS's Commerce Platform and Identity-and-Access-Management teams.

2019 CRA Distinguished Service and A. Nico Habermann Awardees Announced



The CRA board of directors is pleased to announce its selections for the 2019 CRA Awards.



Edward Felten

Distinguished Service Award Recipient – Edward Felten

Professor of Computer Science and Public Affairs at Princeton University

Edward Felten has tirelessly worked at the intersection of computer science and policy, fighting to retain the "freedom to tinker," amongst other things. "Freedom to Tinker" is also the name of his influential [blog](#), which contains research and expert commentary on digital technologies in public life.

Felten consulted for the Federal Trade Commission (FTC) and went on to become its first chief technologist during the Obama administration. He had a significant role in important FTC initiatives about privacy, net neutrality, and other policy issues relating to information technology. In 2015, Felten went on to serve as deputy United States chief technology officer in the Office of Science and Technology Policy. He was in charge of shaping the Obama administration's AI policy, including chairing its "Preparing for the Future of Artificial Intelligence" report.

Felten currently serves as a member of the U.S. Privacy and Civil Liberties Oversight Board, which oversees executive branch policies and procedures related to protecting the nation from terrorism, in order to ensure the protection of privacy and civil liberties.



Maria Gini

A. Nico Habermann Recipient – Maria Gini

Professor of Computer Science at the University of Minnesota

Maria Gini is an outspoken advocate of diversity in computing. Throughout her career, she has worked tirelessly to recruit and retain students from underrepresented groups in computing at the local, national, and international level.

Gini is a respected and prolific researcher in the areas of intelligent agents, multi-agent systems, and robotics, and has been named a Fellow of both AAAI and IEEE. In addition to graduating 34 Ph.D. students and nearly 100 Master's students, and mentoring dozens of undergraduate researchers, Gini has used her visibility and prominence to make the field more welcoming for everyone. She has spoken at numerous venues about the importance of diversity in computing and the need to create a culture that embraces it.

She is deeply committed to diversity and possesses the combination of generous spirit, organizational skill, and boundless energy to carry out that commitment. Gini has created and run programs for women and minority men high school students, and co-directed the CRA-W Distributed REU (DREU) program for many years. She currently co-directs CRA-W's Grad Cohort for Women program, and regularly organizes and mentoring programs at AI and robotics conferences. Gini created and continues to run the Minnesota Regional Celebration of Women in Computing, and has long been involved in the Grace Hopper Celebration of Women in Computing, recently serving as program and general chair.

Gini has had a tremendous, positive impact on countless individuals as well as on the computer science community. Her efforts in these programs have directly resulted in hundreds of students choosing to pursue research careers.

Highlights of the 2019 CRA Computing Leadership Summit



On February 25, CRA hosted its annual Computing Research Leadership Summit for the senior leadership of CRA member societies (Association for the Advancement of Artificial Intelligence, Association for Computing Machinery, CS-Can/Info-Can, IEEE Computer Society, Society for Industrial and Applied Mathematics, and USENIX).

Several engaging talks at the Leadership Summit provided useful information on current issues important to the organizations, such as:

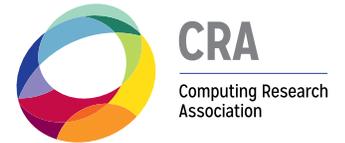
- Bart Selman gave an overview of the upcoming report, "Towards a 20 Year Artificial Intelligence Research Roadmap for the United States." The roadmap will address big AI challenges, and a draft is expected soon.
- Burçin Tamer presented about CRA's Center for Evaluating the Research Pipeline (CERP). CERP collects large amounts of data that provides a robust comparison group, which allows CRA to evaluate programs and academic departments can use CERP's data to compare their students to other groups.
- Kathryn McKinley gave a presentation on initiatives related to the handling of sexual harassment. She shared some actions that institutions can take including creating organizational bylaws specifically defining and banning harassment. Robert Cosgrove from the NSF's Office of Diversity and Inclusion explained NSF policies on sexual harassment.

During the society roundtable session, representatives of each organization discussed their current projects, future directions, and ongoing activities. Several societies discussed how they are handling the rapid growth of interest in AI and machine learning. Many societies are also increasing their diversity and inclusion efforts, and ACM's revised code of ethics for computing professionals has received tremendous uptake.

Two summit sessions were held jointly with the CRA board meeting:

- CRA Director of Government Affairs Peter Harsha discussed the current environment in D.C. for science policy, including FY19 appropriations, mid-term election impacts, and the policy landscape for AI research and development. Harsha mentioned that CRA will also host its Leadership in Science Policy Workshop in November 2019.
- Jim Kurose, assistant director of the CISE Directorate at NSF, gave an update on current and new initiatives.

CRA Launches BPCnet.org: A Resource Portal for Broadening Participation in Computing Efforts



By Mary Hall, University of Utah, and Shar Steed, CRA

In partnership with the National Science Foundation (NSF) and the National Center for Women in Information Technology (NCWIT), CRA announces an initial launch of [BPCnet.org](https://www.bpcnet.org), a resource portal designed to amplify the NSF CISE Directorate's efforts in broadening participation in computing (BPC). CRA anticipates that [BPCnet.org](https://www.bpcnet.org) will provide a much-needed clearinghouse for the community to learn about and engage with ongoing projects to diversify computing.

"CRA anticipates that BPCnet.org will provide a much-needed clearinghouse for the community to learn about and engage with ongoing projects to diversify computing."

The portal can be used by CISE PIs, academic leaders, and faculty in two main ways:

To Learn About Partnering Activities

Individual PIs can search the portal for potential partners who offer established BPC activities that address the PI's interests and specific needs of their institution. Partnering with an established BPC

program can assist the PI in developing meaningful BPC components of their proposals. Also, they can benefit from best practices that have been honed by the experience of the partners.

To Develop Departmental BPC Plans

A departmental BPC plan is a valuable resource for departments to aid faculty in tailoring their plans to available programs at their institution. It also permits individual faculty to contribute to a shared strategic vision for broadening participation in computing at their institution and in their local community. For this purpose, BPCnet provides connections to activities that are suitable for engaging departments with established BPC programs. Once available, it will also provide guidelines for developing departmental BPC plans.

BPCnet also provides links to published articles and programs that share essential knowledge and research on best practices for broadening participation in computing.

The initial launch of [BPCnet.org](https://www.bpcnet.org) is an important step in engaging the CRA and NSF CISE communities in advancing the goal of broadening participation in our field. As the community gains experience with the portal and new BPC programs are developed, we envision that the portal will evolve to further meet the needs of the community.

CRA looks forward to working with CISE PIs, academic leaders, and faculty on this important work because, as has been repeatedly demonstrated, computing research needs diverse perspectives in order to foster innovation.

Re-envisioning Computing in Undergraduate Education

By Jan Cuny, NSF CISE Program Director for Computing Education, Erwin Gianchandani, Deputy Assistant Director of NSF for CISE, and Jim Kurose, Assistant Director of NSF for CISE

Colleges and universities across the country are experiencing a significant influx of students in their undergraduate computer science (CS) courses. Many of these students are seeking the “traditional,” CS-centric undergraduate degrees that have evolved over decades, along with changes in our field. But many other students are quite different from the students whom we have found in our undergraduate majors. While they are interested in computing, they are more interested in creatively applying sophisticated computational skills and methods to a range of disciplines from biology to linguistics to art. They understand that CS knowledge is critical to helping them succeed in nearly any job, that “every field is becoming an information field.”[1]

This new generation of students pursuing CS courses is generally not well-served by our traditional CS course sequences. Indeed, in response to the interests of this new generation of students, some CS departments and colleges/universities are beginning to augment their existing computing programs, creating more flexible, interdisciplinary pathways. In “CS+X” or “X+CS” programs, for example, students may take courses in computer science (the “CS”) tailored to their desired discipline or disciplines (the “X”). In other cases, colleges/universities are adding new interdisciplinary programs in areas such as data science or machine learning. Still other colleges/universities are repositioning CS into Schools of Computer or Information Science, often broadening their educational offerings at the same time.

This month, the National Science Foundation launched a new program – *Improving Undergraduate STEM Education: Computing in Undergraduate Education (IUSE: CUE)* – to support institutions of higher education as they re-envision the role of computing in undergraduate education, restructuring curricula, programs, and pathways in recognition of the increasingly ubiquitous role that data and computation play across many other disciplinary and interdisciplinary pursuits.



Effecting change across the higher education landscape is not easy. Too often efforts are conducted in isolation, at single institutions. As a result, even successful transformations rarely achieve widespread adoption, in some cases because faculty and administrators at other institutions are unaware of them, and in other cases because the transformations themselves are seen as being dependent upon specific institutional characteristics

not widely shared by other institutions. *IUSE: CUE* aims to avoid these pitfalls by supporting *teams* of like colleges and universities working together, and by creating a *community* among these teams via national convenings and workshops.

In its inaugural year this spring, the *IUSE: CUE* program invites teams of 3-5 institutions of higher education, structured as Networked Improvement Communities (NICs),[2] to submit proposals. Team partners can be colleges/universities, selected along a range of characteristics: institutions of a similar type [research-primary, community colleges, Historically Black Colleges and Universities (HBCUs), Hispanic-Serving Institutions (HSIs), etc.], located in the same geographical region, operating within a single state system, having similar interdisciplinary research efforts, and so on. Within each institution, NSF encourages the inclusion of faculty from different disciplines and departments, as well as administrators, researchers, and evaluators. With this initial proposed funding[3], teams should begin the process of re-envisioning computing in undergraduate education at their institutions.

IUSE: CUE aims to support the initial planning stages of a re-envisioning or re-positioning of CS in undergraduate education. This should not be limited to modifications of a few courses but should impact the role that computing plays across the entire institution, remaking its educational programs and degree pathways. *IUSE: CUE* aims to support the initial planning for such change, funding activities such as convening partners, engaging additional partners, organizing the structure of their interactions, collecting initial common data, piloting new curricula, or

Re-envisioning Computing (*continued*)

developing professional development activities for faculty and their graduate students. NSF anticipates building upon these initial activities through additional investments in future years.

The new students showing up in CS courses are not only more diverse in their interests, but they are also more diverse in their demographics. Thus, the repositioning of CS at the undergraduate level might well provide an opportunity to address

a longstanding problem in computing—the underrepresentation of women, people of color, and persons with disabilities. *IUSE: CUE* projects must include diversity and inclusion as a key part of their work, aiming to recruit, welcome, and retain a broad group of students.

Finally, each *IUSE: CUE* project may also include a component on ethics. Increasingly, the decisions that we make as citizens, consumers, workers, and community members are shaped by digital technologies. While the benefits of these innovations are obvious, there are also many potential risks like the erosion of individual privacy and biases in algorithms that inform decision making. NSF is therefore encouraging proposers to use their efforts to re-envision the role of computing in undergraduate education to also better incorporate the study of ethics into their curricula, in order to train the next generation of computer scientists, data scientists, and engineers to think critically about the responsible development of such technologies. NSF's effort aligns with the *Responsible Computer Science Challenge* being led by the [Omidyar Network](#), [Mozilla](#), [Schmidt Futures](#) and [Craig Newmark Philanthropies](#).

We hope you'll join us by developing thoughtful proposals responsive to *IUSE: CUE* and begin the process of tackling the challenges—and opportunities—presented by the growth in both size and in breadth of interest in undergraduate CS courses and programs over the last several years. We are confident this program will pave the way toward the next generation of professionals and scholars grounded in the data and computational competencies demanded by all disciplines and sectors in the 21st-century digital economy.

Networked Improvement Communities (NICs)

Proposing teams responding to the NSF *IUSE: CUE* program should be structured, at least informally, as a NIC. That is, partners should share a common goal, have an agreed-upon common set of metrics around achieving that goal, and have well-established lines of communication for frequently updating and supporting one another on their activities and progress. Similar in many ways to any professional community in which individuals share interests and ideas, NICs are distinguished in that the partners seek to collectively accomplish a clearly-defined, measurable outcome. The effectiveness of this model lies in the NIC mantra to “learn fast, fail fast, and improve quickly,” positioning partnering organizations to continuously evaluate or reshape solutions through rapid cycles of planning, testing, evaluating, and decision making, or Plan, Do, Study, Act.

FOR MORE INFORMATION...

To learn more about *IUSE: CUE*, join NSF for a webinar on Thursday, March 14, 2019, at 2pm EDT. Details about the webinar are available [here](#). And please also join us for a Twitter chat @NSF_CISE (https://twitter.com/NSF_CISE) on Friday, March 15, 2019, at 2pm.

Please feel free to contact Jan Cuny (jcuny@NSF.gov), Fay Cobb Payton (fpayton@NSF.gov), and Stephanie August (saugust@NSF.gov) if you have questions or would like to discuss the *IUSE: CUE* funding opportunity further.

[1] Ed Lazowska in “The exploding demand for computer science education and why America needs to keep up,” GeekWire, published June 6, 2014, <https://www.geekwire.com/2014/analysis-examining-computer-science-education-explosion/>.

[2] Resources on NICs can be found at <https://www.nsf.gov/cgi-bin/goodbye?https://www.carnegiefoundation.org/resources/publications/>.

[3] CISE anticipates additional rounds of support for NICs re-envisioning computing in undergraduate education, pending the availability of funding.

Recap of the CCC's Thermodynamic Computing Workshop

By CCC Staff

The **Computing Community Consortium** (CCC) recently hosted a visioning workshop on **Thermodynamic Computing** in Honolulu, Hawaii in order to establish a community of like-minded visionaries; craft a statement of research needs; and summarize the current state of understanding within this new area of computing.

The premise behind thermodynamic computing is that striving for thermodynamic efficiency is not only highly desirable in hardware components, but may also be used as an embedded capability in the creation of algorithms. Can dissipated heat be used to trigger adaptation/restructuring of (parts of) the functioning hardware, thus allowing hardware to evolve increasingly efficient computing strategies? Recent theoretical developments in non-equilibrium thermodynamics suggest that it drives the organization of open systems as a natural response to external input potentials; that is, that these systems adapt as they dissipate energy, enter low dissipation homeostatic states and as a result 'learn' to 'predict' future inputs.^{[1][2]}

As a result, thermodynamic computers could offer much greater efficiency of computation as well as provide new ways to perform algorithmic techniques within areas like machine learning and neuromorphic computing. This workshop brought together researchers from multiple disciplines, including computer science, electrical engineering, physics, chemistry and biology, with the goal of building the foundations of such radically different computing systems.

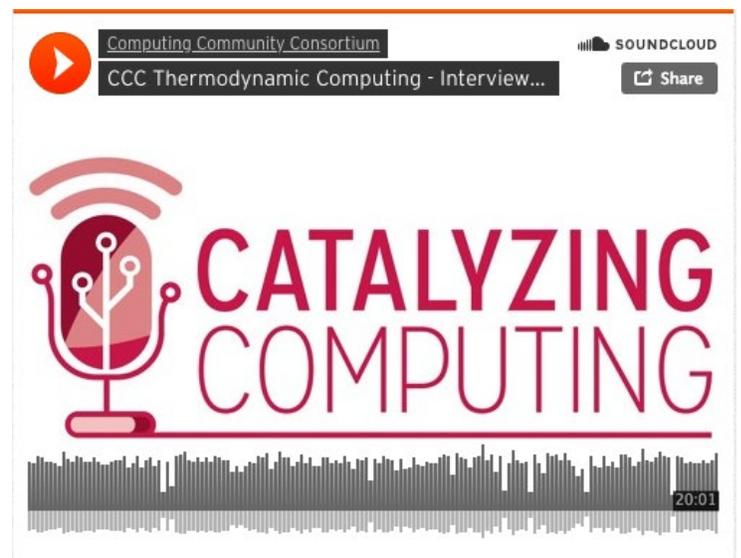
In **an audio interview** with CCC Program Associate Khari Douglas, two of the workshop organizers, **Tom Conte** (Georgia Tech) and **Todd Hylton** (UC San Diego) discuss their reasons for proposing the workshop and explain the potential impact thermodynamic computing could have on future technology.



Todd Hylton



Tom Conte



To learn more about Thermodynamic Computing visit the **workshop website** and stay tuned for the workshop report. Additional interviews with workshop participants and co-organizers will be coming soon. Check out the CCC's "**Catalyzing Computing**" podcast for more!

1. N. Ganesh, "A Thermodynamic Treatment of Intelligent Systems," *2017 IEEE International Conference on Rebooting Computing (ICRC)*, Washington, DC, 2017, pp. 1-4.
2. Perunov, Nikolay, Robert A. Marsland, and Jeremy L. England. "Statistical physics of adaptation." *Physical Review X* 6.2 (2016): 021036.

Recap of the Manoa Mini-Symposium on Physics of Adaptive Computation



CCC

Computing Community Consortium
Catalyst

By Josh Deutsch (UC Santa Cruz), Mike DeWeese (UC Berkeley),
and Lee Altenberg (University of Hawai'i at Manoa)



Susanne Still

In early January, the **Computing Community Consortium (CCC)** hosted a visioning workshop on **Thermodynamic Computing** in Honolulu, Hawaii in order to establish a community of like-minded visionaries; craft a statement of research needs; and summarize the current state of understanding within this new area of computing.

Following the Thermodynamic Computing workshop, the CCC sponsored the related **Manoa Mini-Symposium on Physics of Adaptive Computation** at the University of Hawai'i at Manoa. **Susanne Still** (University of Hawai'i) was one of the leaders of the Thermodynamic Computing workshop and organized the mini-symposium, which featured nine Thermodynamic Computing workshop participants as speakers. General attendees included faculty and grad students from the University of Hawai'i.

The speakers and the topics of their presentations were:

- **Seth Lloyd**, MIT - "**Learning to make energy free**" (related paper)
- **Gavin Crooks** - "Thermodynamic constraints of communication and interaction in coupled system"
- **Rob Shaw**, Haptik - "Computation with Shapes"
- **Lee Altenberg**, University of Hawaii Manoa - "**How much information can natural selection maintain?**"
- **Chris Watkins**, Royal Holloway - "**A model of evolution that satisfies detailed balance**"
- **Massimiliano Esposito**, University Luxembourg - "**Thermodynamic cost of Information Processing**"
- **Josh Deutsch**, UC Santa Cruz - "**How to make a computer out of junk DNA**"
- **Lidia del Rio**, ETH Zürich - "Quantum agents who reason in paradoxical scenarios"
- **Mike DeWeese**, UC Berkeley - "**Geodesic optimization in thermodynamic control**"

Featured below are research highlights as discussed in several of the speakers' presentations:



Manoa Mini-Symposium (continued)



Josh Deutsch

From **Josh Deutsch, UC Santa Cruz** -

"How to make a computer out of junk DNA":

This talk is about the relationship between evolution of a cell's genomics and artificial intelligence models, and how we could be missing a crucial component of the cell's intelligence by the way biological techniques compartmentalize our understanding of the cell's components.

Recently there has been a lot of work revisiting the question of the role of so-called "**junk DNA**" in biology. It turns out that only about 3% of our genome codes for proteins. It was hypothesized that the rest of it - the "junk DNA" - was the result of infiltration by viruses and other unfortunate mechanisms, and it was thought to have no purpose other than perpetuate its own existence.^[1]

I show that there is a simple mechanism that transforms this junk into something capable of doing *collective* computations that closely resembles the neural network models used to do the amazing things that we see today in artificial intelligence applications. I was able to figure out a mathematical mapping to get the creation rate as a function of bound and unbound RNA. With this theoretical prediction, I could then simulate a soup of RNA molecules being created and destroyed, and see if indeed this led to the same kind of learning seen in artificial neural networks. You can use such a model as an "associative memory" or as a way of learning input output relations, similar to the "**Hopfield Model**" or "**Boltzmann Machines**".

These models have a lot of interesting features not present in either conventional computer circuitry or conventional genetic regulatory networks. For one thing, you can mutate these network connections quite a lot, and it doesn't make much difference to their function. This means they're quite robust to noise, or evolutionary changes, so you would expect to see far more mutations in these kinds of networks and they would probably appear not to be under evolutionary constraint. Yet they would be doing a great deal of sophisticated computation.

Learn more about this [research here](#).



Manoa Mini-Symposium (continued)



Mike DeWeese

From Mike DeWeese, UC Berkeley - "Geodesic optimization in thermodynamic control":

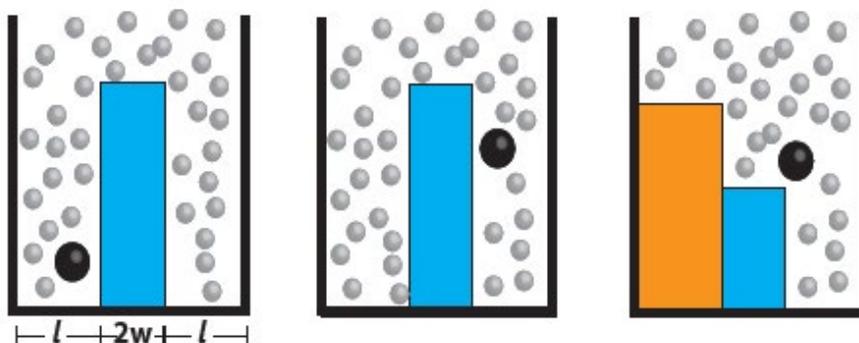
Utilizing a geometry-based technique developed previously by David Sivak and Gavin Crooks [2][3] Patrick Zulkowski and Mike DeWeese have been able to compute the optimal protocols for performing various operations on nanoscale devices, such as erasing a bit of information from a memory storage device subject to thermodynamic fluctuations. Achieving erasure in finite time necessarily drives the system out of equilibrium, requiring this new framework that can go beyond the more traditional equilibrium approaches. Since different protocols cost different amounts of work, this is an important step

towards understanding and ultimately designing nanoscale computational components that can operate efficiently near the limits imposed by physical law.

The authors have applied this approach to several outstanding problems relevant to future computing technology. In one paper they computed the optimal timecourse for lowering and raising a barrier between two wells, as well as that of the relative depth of the two wells, in order to erase a bit of information stored in the location of a colloidal particle subject to thermal fluctuations. They were able to obtain a simple closed-form mathematical expression for the minimum amount of energy that must be delivered to the system in the form of useful work that must be ultimately lost to the heat bath in order to perform this erasure in a finite time period. The study provides clear predictions for future experiments that can be performed using table top apparatus involving a bead in a fluid subject to spatially dependent forces from a laser.

These studies are important first steps towards the development of nanoscale components needed for the next generation of computational devices capable of overcoming, and even exploiting, the thermal environment.

You can learn more about this [research here](#).



Optimal bit erasure



Manoa Mini-Symposium (continued)



Lee Altenberg

From **Lee Altenberg, University of Hawai'i at Manoa** - "**How much information can natural selection maintain?**":

For the first 20 years after Manfred Eigen published his ideas about the “**error threshold**” and “**error catastrophe**” – limits on the amount of information that natural selection could maintain in the face of noisy replication – these ideas never received more than 15 citations a year. But since the 1990s the ideas literally “went viral” when sequencing of viruses revealed the relevance of Eigen’s ideas. Since 2010 the ideas are cited in over 300 papers a year and climbing. But several researchers (**Hermisson et al. 2002**, **Bull et al 2005**, **Tejero et al. 2011**, **Schuster 2013**, **Schuster 2015**), have pointed out that the “error catastrophe” is an artifact of Eigen’s needle-in-a-haystack

fitness model, and that more realistic models of fitness landscapes do not show a complete loss of genetic information above a threshold mutation rate.

Here I apply a measure introduced by **Strelhoff et al. (2010)** for how much information natural selection is injecting into a population to two models of natural selection: the classical multiplicative selection model in which fitness decreases exponentially with the number of mutant loci, and a “quasispecies yo-yo” model, constructed to exhibit four error thresholds in which the genotypes switch back and forth between mostly “0” bases and mostly “1” bases. The multiplicative model can be solved exactly, and reveals that the genetic information maintained in the population decreases gradually with increasing mutation rates. A similar outcome is found for the “yo-yo” model except that there is an extremely narrow range of mutation rates around the error thresholds where the genetic information drops, where the two competing quasispecies are nearly equal, and immediately rises again for higher mutation rates.

What we see in these results is that mutation rates can put a limit on the amount of information *per site* maintained by natural selection, but this does not limit the *total* information maintained, and longer and longer sequences can maintain more and more genetic information.

You can learn more about this [research here](#).

Learn more about the Manoa Mini-Symposium on Physics of Adaptive Computation on [the symposium website](#). For more information about the Thermodynamic Computing workshop check out the [recap blog](#).

[1] The **ENCODE project** examined what this DNA does and found that about 80% is transcribed and shows biochemical activity, however only about 5% of the genome can be identified as being under evolutionary constraint. This apparent contradiction is still the subject of much debate between those that maintain that this DNA is just inadvertently being transcribed to RNA, and those that believe that many recent works has shown specific biochemical pathways that junk DNA is involved in. There is however a large body of work finding specific functions of such non-coding RNA, but the amount that is clearly functional is still very much up in the air.

[2] <https://arxiv.org/abs/1208.4553>

[3] <https://arxiv.org/abs/1201.4166>

White House Order Prioritizes U.S. Artificial Intelligence (AI) Research



By CCC Staff, Peter Harsha, Director of Government Affairs, and Ann Drobnis, CCC Director

Today President Trump signed an executive order on **Maintaining American Leadership in Artificial Intelligence** calling on Federal agencies to prioritize investments in research and dedicating Federal resources to boost U.S. artificial intelligence (AI). In an accompanying **fact sheet**, the White House explained the goal of the order:

Americans have profited tremendously from being the early developers and international leaders in AI. However, as the pace of AI innovation increases around the world, we cannot sit idly by and presume that our leadership is guaranteed. We must ensure that advances in AI remain fueled by American ingenuity, reflect American values, and are applied for the benefit of the American people.

The order includes five “principles” that will guide the Federal strategy, called the “American AI Initiative”:

1. The United States must drive technological breakthroughs in AI across the Federal Government, industry, and academia in order to promote scientific discovery, economic competitiveness, and national security.
2. The United States must drive the development of appropriate technical standards and reduce barriers to the safe testing and deployment of AI in order to enable the creation of new AI-related industries and the adoption of AI by today’s industries.
3. The United States must train current and future generations of American workers with the skills to develop and apply AI technologies to prepare them for today’s economy and jobs of the future.
4. The United States must foster public trust and confidence in AI technologies and protect civil liberties, privacy, and American values in their application in order to fully realize the potential of AI technologies for the American people.
5. The United States must promote an international environment that supports AI research and innovation and opens markets for American AI industries, while protecting our technological advantage in AI and protecting our critical AI technologies from acquisition by strategic competitors and adversarial nations.

To achieve these goals, the order directs federal agencies to prioritize funding AI initiatives and open up their data and computing resources to AI experts. It has five key areas of emphasis:

1. Investing in AI Research and Development: Federal agencies are asked to “prioritize AI investments in their R&D missions.”
2. Unleashing AI Resources: Agencies will grant researchers access to Federal data, models, algorithms, and computer processing to “foster public trust and increase the value of these resources to AI R&D experts.”
3. Setting AI Governance Standards: There is currently a lack of an official set of standards regulating the development of these sensitive technologies. This initiative calls for the National Institute of Standards and Technology (NIST) “to lead the development of



White House Order (continued)

- appropriate technical standards for reliable, robust, trustworthy, secure, and portable AI systems.”
4. Building AI Workforce: The AI Initiative calls for Federal agencies to create on the job training programs to develop workers abilities to utilize AI systems and to retrain those displaced by automation. This includes “education in computer science and other growing STEM fields.”
 5. International Engagement and Protecting our AI Advantage: The US will work to promote an international environment that supports AI R&D but that also “protects the advantage of the United States in AI and technology critical to United States national and economic security interest against strategic competitors and foreign adversaries.”

As you may know, the **Computing Community Consortium (CCC)** has just finished a series of **three AI workshops** and an AI Townhall at AAAI 2019 that will be used to write a 20-year **Roadmap for AI Research**. The Executive Summary called **A 20-Year Community Roadmap for Artificial Intelligence Research in the US** has been released. The full report is due out for public comment by the end of March 2019. Please stay tuned to the **CCC blog** for the release of the draft and an opportunity to provide comment. Also, see the **National Science Foundation’s (NSF) Statement on the executive order to maintain American leadership in artificial intelligence**.



Evolving Academia/Industry Relations in Computing Research: Interim Report Released by the CCC



CCC

Computing Community Consortium
Catalyst

By CCC Staff

The Computing Community Consortium's (CCC) **Industry Working Group** has released their **Evolving Academia/Industry Relations in Computing Research: Interim Report**.

In 2015, the CCC sponsored an industry round table that produced the report "**The Future of Computing Research: Industry-Academic Collaborations**". Since then, several important trends in computing research have emerged such as the dramatic increase in undergraduate computer science enrollment, the increased availability of information technology, and the rising level of interactions between professors and companies, which has led to the sharing of critical industry resources (such as cloud computing and data).

This report considers how these trends impact the interaction between academia and industry in computing fields.

The interim report highlights the following conclusions:

- In certain computing disciplines, such as artificial intelligence, there are significant increases in the level of interaction between professors and companies, which take the form of extended joint appointments.
- Increasingly, companies are highly motivated to engage both professors and graduate students working in specific technical areas because companies view computing research and technical talent as a core aspect of their business success.

- This increasing connection between faculty, students, and companies has the potential to change (either positively or negatively) numerous things, including:
 - » The academic culture in computing research universities
 - » The research topics that faculty and students pursue
 - » The ability of universities to train undergraduate and graduate students
 - » How companies and universities cooperate, share, and interact

The interim report outlines areas of further investigation to help direct the computing research community to achieve the maximum benefits from these changes and minimize the negative outcomes.

As this is an **interim report**, we seek input from all the constituencies that can influence and are affected by these changes including industry, universities, and government agencies and in the roles of students, professors, industry representatives, and administrators. Please **submit your comments here**. We appreciate input from across the community as it will inform and strengthen the conclusions of the final report.

Expanding the Pipeline: CERP Data Buddies Survey Finishes Strong with More Insights About Students' Experiences



CRA-W

Computing Research Association
Women

By Heather M. Wright, Associate Director of CERP

The CRA Center for Evaluating the Research Pipeline (CERP) is growing as one of the largest resources of individual-level survey data on undergraduate and graduate students in computing degree programs. Through the **Data Buddies Project**, also known as the Data Buddies Survey or just Data Buddies, CERP has been collecting annual data from students since 2011. Additional funding granted from the National Science Foundation to CRA and CERP in 2014 enabled CERP to begin collecting focused longitudinal data, so that each year, a new cohort of students are tracked every year of their academic degree program until graduation.

As a result, CERP has a wealth of data that can provide valuable insights to students' trajectories into and out of academic computing programs at multiple levels. Between 2013 and 2017, CERP collected survey data from more than 40,000 undergraduate students and 14,000 graduate students in the United States and Canada. Data collected through the project are then provided back to the community through multiple initiatives, including the annual **Data Buddies Department Report** and CERP's **Data Visualization website**.

Departments that volunteer to send CERP's online survey link to students receive their annual report during the late spring semester. The report summarizes survey data specific to the department and delivers comparative data to offer context for survey results. A list of volunteer departments can be [found here](#). In addition, CERP updates its Data Visualization website with current survey data for public use. Through the interactive website, visitors can select data they wish to see in a visualized format.

So how did Data Buddies finish for the 2018 reporting year? CERP collected approximately 10,500 survey responses from undergraduate students and 4,000 responses from graduate students in computing-related degree programs. Of those, 18% of undergraduates and 34% of graduate students are part of CERP's longitudinal data collection efforts to track student engagement and persistence in the field over time.

Because students who are tracked over time may no longer be a student in-between surveys, CERP also collected data from approximately 1,500 non-students in an effort to understand their current status and whether or not they persisted in the field. This additional way of tracking students over time will

enable CERP to better connect the pathways of students who make transitions between higher education and their careers.

Increased Insights on Students' Experiences

While the Data Buddies Survey had been tweaked over the years, never before had it seen quite as large of a change as it did for the fall 2018 data collection year. In an effort to provide the computing community with data most aligned with evolving department needs, CERP collected feedback from volunteer departments between the spring of 2016 and 2018. Using that feedback, CERP overhauled the 2018 survey in a way that provided a balance between consistency for longitudinal data collection and improved insights to many questions often asked of educational research data in computing.

New this year, departments will learn more about their students' experiences as they relate to the department culture, resources, and coursework. They will also learn about their students' background in computing (e.g., took computer science AP courses or learned a programming language) and mathematics prior to entering college. Students who completed the survey also rated their research ability and proficiency in a number of skills known for success as both a student and future professional in the field, whether in academia, industry, or government.

Not only are these data valuable for academic departments interested in learning more about their student body, these data are essential for understanding which psychological, sociological, and environmental factors impact students who are considered underrepresented in computing. Ultimately, CERP's goal is to use Data Buddies data for rigorous statistical analysis and reporting in an effort to provide evidence-based research findings and best practices related to the



Expanding the Pipeline *(continued)*

broadening participation of students in the field. It is CERP's goal to also use these data as a way to understand how best to retain students in computing once they enter their academic programs.

Improved Program Evaluation

With these new insights offered by Data Buddies, CERP is also afforded better grounding for program evaluation. Program evaluation is a central part of serving the computing community. At present, CERP conducts evaluation for a large number of programs led by internal CRA committees, external organizations, and academic institutions. It is CERP's goal that new survey measures collected through Data Buddies will provide better resources for assessing the efficacy of various programs.

CRA-W, which is the CRA committee responsible for the creation of CERP and Data Buddies, is CERP's largest client for program evaluation. CERP evaluates the DREU and CREU programs, Grad Cohort for Women, Discipline-Specific Workshops, Grace Hopper Celebration Research Scholars program, and the Virtual Undergraduate Town Hall series. Some of CERP's work on CRA-W programs can be found on its [website](#) or [monthly infographics](#) published in Computing Research News.

Developing New Resources

In an effort to serve the community even further, CERP is using the opportunity of new data to create additional resources. In 2018, CERP received new National Science Foundation funding

to develop evidence-based best practices for broadening participation in computing. CERP is partnering with Colleen Lewis, an associate professor of computer science at Harvey Mudd College, to collect institutional-level data and work directly with departments to harness their department report, among other resources, to increase diversity in the field. Evidence-based best practices developed from this new work with Lewis will be made available through [CSTeachingTips](#), Computing Research News, CERP's website, and publications and presentations.

CERP also has in the pipeline a new annual report that will use aggregated Data Buddies data to provide overall results from the survey. It is CERP's hope that this new annual report will become a valuable resource for both researchers and practitioners seeking data on computing education research.

Get Involved and Influence Change

The Data Buddies Project has officially concluded data collection for the 2018 year, but CERP is recruiting new departments for future years to join its initiative to collect large-scale and representative data from undergraduate and graduate students.

Joining the project is easy and free. If you belong to a department serving computer science, computer engineering, information technology, or any other degree program pertaining to computing and technology, sign up by using [our mobile-friendly form](#). Your department is not required to be a CRA member to participate in Data Buddies.

About the Author

Heather Wright serves as Associate Director of CERP at the Computing Research Association. She leads program evaluation and supports the center's research efforts to help broaden participation in computing fields.

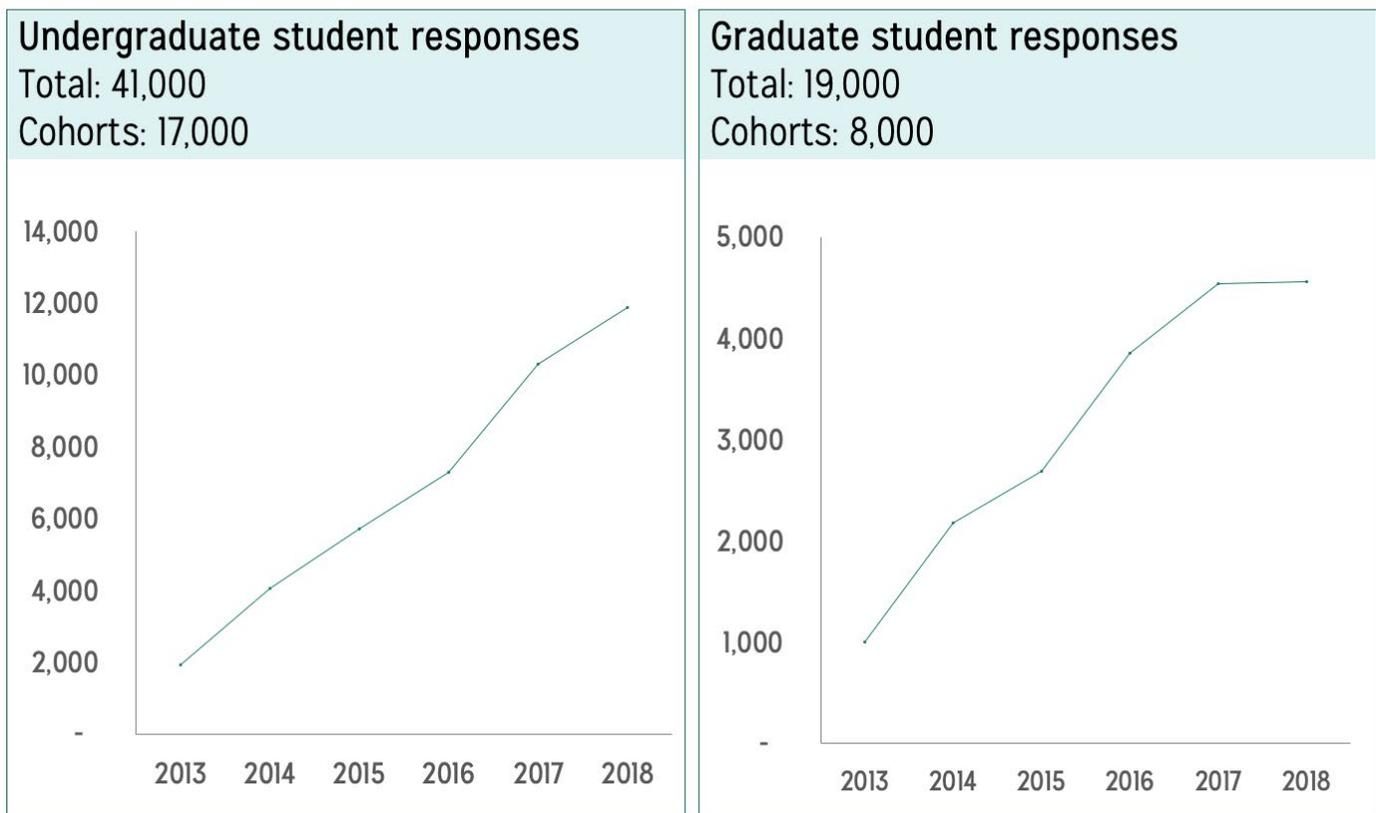
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Data Buddies Survey Collected 60,000 Responses Over the Past Six Years

By Burçin Tamer, Director of CERP

Data Buddies Survey: 2013-2018

Number of responses: 60,000
Longitudinal cohorts: 25,000



Numbers are rounded up to the nearest thousand. Number of responses for the year 2018 are provisional.

The Data Buddies Survey (DBS) began collecting data in 2013 after two years of piloting. The project was initiated by CRA-W as part of a National Science Foundation grant to collect data from undergraduate and graduate students in computing nationwide to use as a robust comparison group for systematically evaluating CRA-W programs. Since then, the annual survey has grown and been used widely for both research and evaluation. In

2014, CERP added a longitudinal component to its data collection efforts and started recruiting cohorts of students who take the DBS to follow-up with them in an annual basis.

DBS 2018 came to a close at the end of February 2019, concluding its sixth year of data collection. This graphic provides an overview of the amount of data collected over



Data Buddies Survey *(continued)*

these six years. The survey has collected approximately 60,000 total responses and 25,000 of these respondents agreed to join CERP's longitudinal cohorts. As the line charts illustrate, the number of respondents increased greatly over time, partially as a result of an increasing number of departments participating in the project.

DBS is a rich data source that provides important information to the community on the state of computing higher education from the students' perspective. Participating departments

gain insights about their students and are able to track their departments' progress over time through the customized department reports they receive every spring. These customized reports also enable the departments to compare their students to students in other comparable departments in a wide variety of metrics.

Visit <https://cra.org/cerp/data-buddies/> to find out more about the Data Buddies project, view sample department reports, and sign-up to become a data buddy.

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. Subscribe to the CERP newsletter [here](#).

This material is based upon work supported by the National Science Foundation under grant numbers (CNS-1246649, DUE-1431112, and DUE 1821136). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

By Ran Libeskind-Hadas

In *The Origin of Species*, Charles Darwin wrote: “I can understand how a flower and a bee might slowly become, either simultaneously or one after the other, modified and adapted in the most perfect manner to each other, by the continued preservation of individuals presenting mutual and slightly favourable deviations of structure.”

Darwin was imagining how pairs of species—in this case, flowers and bees—might symbiotically coevolve.



Ran Libeskind-Hadas

Indeed, many pairs of species appear to have evolved in tandem either in a mutually beneficial way or, in some cases, in a type of arms war between host and parasite species, with the parasite evolving features to exploit the host and the host evolving features to defend itself against the parasite.

My research explores algorithmic methods for determining whether a pair of species are likely to have coevolved and, if so, finding the “best” scenarios that explain their evolutionary histories. This work explores the computational complexity of these reconciliation problems, seeks to develop efficient reconciliation algorithms where possible, and, ultimately, to implement these algorithms in practical tools for biologists and educators.

The computational complexity of these reconciliation problems depends on the particular biological events that we seek to model. We’ve shown that in some models the reconciliation problem is not only NP-hard but it’s even difficult to find an approximately optimal solution. In other cases, the reconciliation problem can be solved by efficient polynomial time algorithms.

Encouraging Undergraduate Student Research

Over the last 15 years, I’ve worked with undergraduates – both from Harvey Mudd and other colleges and universities – on a variety of problems related to these phylogenetic reconciliation problems. First- and second-year students have made valuable contributions to the development of software tools and third- and fourth-year students proved the NP-hardness of the reconciliation problem in one widely studied biological model, proved the APX-hardness of the problem in another

Board Member Highlight (continued)

model, and have developed efficient polynomial time algorithms for a number of these problems.

Over a five-year span, multiple groups of students developed a software reconciliation tool called Jane 4 that integrates many of our efficient algorithms. Jane 4 is among the most widely used tools for this problem among evolutionary biologists.

While I'm very excited about the research area itself and its potential for supporting the research of biologists, I'm equally excited about working with enthusiastic and curious undergraduates. I've found that when a bright undergraduate is provided with a well-scoped problem, and I don't tell them in advance that I think it's a difficult problem, they often make extraordinary progress

and, ultimately, often end up as the first authors of conference and journal papers. It's difficult for me to imagine a greater pleasure than being witness to a student making their first original discovery and seeing them realize that they possess the potential to become an exceptional researcher.

On the CRA board, I hope to encourage and promote all activities related to undergraduate research and the pipeline to graduate school. In spite of ballooning undergraduate enrollments in computer science, the number of students going on for Ph.Ds has remained relatively flat. By providing enthusiastic undergraduates with rich and rewarding research opportunities, we ultimately nurture the long-term health of our research community.

About the Author

Ran Libeskind-Hadas is the R. Michael Shanahan Professor of Computer Science at Harvey Mudd College. He is a member of the board of directors of the Computing Research Association and has served three terms as the co-chair of the CRA Education Committee. He received an A.B. in applied mathematics from Harvard University and a M.S. and Ph.D. in computer science at the University of Illinois Urbana-Champaign (UIUC). He is the recipient of the UIUC Distinguished Alumni Educator Award and both the junior and senior faculty teaching and mentoring awards at Harvey Mudd.



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Column Editor

Expanding the Pipeline
Patty Lopez, Intel

Arizona State University

Assistant Professor in Artificial Intelligence, Machine Learning, and Natural Language Processing

The Fulton Schools of Engineering at Arizona State University (ASU) and the School of Computing, Informatics, and Decision Systems Engineering (CIDSE) seeks applicants for a tenure-track faculty position in Artificial Intelligence (AI), Machine Learning and Natural Language Processing. All aspects of AI and Machine Learning will be of interest including knowledge representation, deep learning, adversarial learning, sparse learning, optimization methods, and reinforcement learning. Areas of NLP will include question answering, natural language understanding, connecting language and machine perception, dialog systems, document understanding, natural language generation, and machine translation. The originality and potential impact of each candidate's work are higher priorities than the specific area of research.

The AI and Machine Learning groups in the School of Computing, Informatics, and Decision Systems Engineering include faculty working on a variety of topics including natural language processing, computer vision, automated planning, knowledge representation and machine learning with applications to robotics, security and intelligent tutors. Extensive collaborations exist across the university, including School of Human Evolution and Social Change (<https://shesc.asu.edu/>), Department of Biomedical Informatics (<https://health.asu.edu/departmen->

<https://biodesign.asu.edu/>), the Biodesign Institute (<https://biodesign.asu.edu/>), School of Criminology and Criminal Justice (<https://ccj.asu.edu/programs/bs/criminology-and-criminal-justice>) and the Center for the Study of Religion and Conflict (<https://csrc.asu.edu/>). The current opening is intended to broaden this expertise and expand collaborations.

Required qualifications: Earned Ph.D., or terminal degree, in Computer Science, Operations Research, Software Engineering, or a closely related field by the time of appointment. Required qualifications also include demonstrated evidence of research capability and commitment to teaching excellence. Desired qualifications: Record of acquiring external funding and publication in top-tier journals/conferences as appropriate to the candidate's rank, and a commitment to participating on and leading transdisciplinary teams addressing problems of high societal impact.

Appointments will be at the Assistant Professor rank commensurate with the candidate's experience and accomplishments, beginning August 2019.

Faculty members are expected to develop an internationally recognized and externally funded research program, develop and teach graduate and undergraduate courses, advise and mentor graduate and undergraduate students, and undertake service activities. ASU strongly encourages transdisciplinary collaboration and use-inspired, socially relevant research. Although the tenure home may be in any of the Ira A. Fulton

Schools of Engineering, the School of Computing, Informatics, and Decision Systems Engineering (CIDSE) is currently the most involved in the interest areas of this search.

Review of applications will begin March 11, 2019; if not filled, reviews will occur on the 1st and 15th of every month thereafter until the search is closed. Apply at <https://hiring.engineering.asu.edu/>, candidates will be asked to submit the following through their Interfolio Dossier:

Cover letter

Current CV

Statement describing research interests

Statement describing teaching interests

Contact information for three references

For more information or questions about this position, please contact the search committee chair, Dr. Chitta Baral at chitta@asu.edu.

Arizona State University is a VEVRAA Federal Contractor and an Equal Opportunity/Affirmative Action Employer. All qualified applicants will be considered without regard to race, color, sex, religion, national origin, disability, protected veteran status, or any other basis protected by law. Please see ASU's full non-discrimination statement (ACD 401) at <https://www.asu.edu/aad/manuals/acd/acd401.html> and ASU's Title IX policy can be located at <https://www.asu.edu/titleIX>.

Augusta University

Tenure Track / Tenured Position at the Associate or Full Professor level in Affiliation with Savannah River National Laboratory (Job Opening #15244)

The School of Computer and Cyber Sciences at Augusta University was founded in 2017 with the mission to provide high-engagement, state-of-the-art education and research across its Computer Science, Information Technology, and Cybersecurity disciplines, and with the vision of becoming a national leader in Cybersecurity. The School is embarking on a path of unprecedented growth to become a comprehensive research and education college, with substantial increases in faculty, and graduate and undergraduate enrollment.

Augusta, Georgia, is becoming a primary hub for cybersecurity in the United States, and the area is poised for explosive development. It is located at the center of a number of academic, governmental and corporate partnerships critical to the nation's cyber security, including the U.S. Army Cyber Center of Excellence, the National Security Agency Georgia, the future home of the United States Army Cyber Command, and the nearby Savannah River National Laboratory in SC. The State of Georgia invested \$100M in Georgia Cyber Center at Augusta University, a 167,000-square-foot research and education facility which opened on July 10, 2018 and is home to the School of Computer and Cyber Sciences. The second,

165,000-square building of the Center is under construction to be completed in December of 2018.

Savannah River National Laboratory (SRNL) is one of the U.S. Department of Energy's 17 national laboratories and is a world leader in science and technology. SRNL offers a unique combination of capabilities, infrastructure, and expertise that are not available anywhere else in the United States. As the designated laboratory for Environmental Management, SRNL has been called upon to provide intellectual leadership and innovative solutions to address complex challenges in environmental stewardship, national security and secure energy manufacturing.

Augusta University and Savannah River National Laboratory jointly established this faculty position to strengthen their relationship and individual capabilities through the use of this collaborative faculty position.

Applicants must hold a PhD in Computer Science or a related discipline at the time of appointment, have demonstrated excellence in research, and a strong commitment to teaching. Candidates must have an established record of leadership excellence. Outstanding candidates in cybersecurity and related areas of computer science will be considered with a target appointment date of Fall 2019. Review of applications and candidate interviews will begin immediately and continue until the position is filled.

Information about the school and a description of open positions are

available on the school website at <http://www.augusta.edu/ccs>. To be considered as an applicant, the following materials are required: (1) Cover letter, (2) Curriculum vitae including a list of publications, (3) Statement describing research accomplishments and future research plans, (4) Description of teaching philosophy and experience, (5) Names of at least three references

Augusta University

Tenure Track and Tenured Positions at the Assistant, Associate, and Full Professor Levels

The School of Computer and Cyber Sciences at Augusta University was founded in 2017 with the mission to provide high-engagement, state-of-the-art education, and research across its Computer Science, Information Technology, and Cybersecurity disciplines, and with the vision of becoming a national leader in Cybersecurity. The School is embarking on a path of unprecedented growth to become a comprehensive research and education college, with substantial increases in faculty, and graduate and undergraduate enrollment.

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the future home of the United States Army Cyber Command, and the nearby Savannah River National Laboratory in South Carolina. The State of Georgia invested \$100M in Georgia Cyber Center at Augusta University, a 167,000-square-foot research and education facility which opened on July 10, 2018 and is home to the School of Computer and Cyber Sciences. The second, 165,000-square building of the Center is under construction to be completed in December of 2018.

Augusta University has embarked on an ambitious, multi-year effort to significantly expand its computing, cybersecurity, and data science activities. Applications are being invited for 12 tenure-track and tenured positions at the Assistant, Associate, and Full Professor levels, with responsibilities to advance education and research in all mainstream areas of computer science and possibly drawing from closely related or emerging fields.

Information about the school and a description of open positions are available on the school website at <http://www.augusta.edu/ccs>.

Applicants must hold a PhD in Computer Science or a related discipline at the time of appointment, have demonstrated excellence in research, and a strong commitment to teaching. Outstanding candidates in all areas of computer science will be considered with a target appointment date of Fall 2019. Review of applications and candidate interviews will begin immediately and continue until the positions are filled.

To be considered as an applicant, the following materials are required:

- Cover letter
- Curriculum vitae including a list of publications
- Statement describing research accomplishments and future research plans
- Description of teaching philosophy and experience
- Names of at least three references

Bryn Mawr College

3 Year Lecturer or Visiting Assistant Professor

The Department of Computer Science at Bryn Mawr College invites applications for a full-time, three-year visiting position in Computer Science starting August 2019. An advanced degree (completed Ph.D. preferred, but ABD with Master's will be considered) in Computer Science is required. For more details on the position, please visit the Interfolio link below.

To apply, submit a cover letter; curriculum vitae; a teaching statement; sample syllabi of courses able to offer and course evaluations from past courses (if available); together with three letters of reference via Interfolio at:

<https://apply.interfolio.com/60452>

Review of applications will begin immediately and continue until position is filled.

Clemson University

Assistant Professor

The School of Computing at Clemson University invites applications from a culturally diverse pool of candidates for a position in the computer science division. Candidates from all areas of computer science will be considered. Preference will be given to candidates at the rank of Assistant Professor, though the rank of Associate Professor will be considered.

More information may be found at

<http://www.clemson.edu/cecas/departments/computing/connect/tenuretrackCS2019.html>

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

Davidson College

Visiting Assistant Professor - Department of Mathematics and Computer Science

The Department of Mathematics and Computer Science at Davidson College invites applications for a two-year position in computer science at the Visiting Assistant Professor level with a start date of July 1, 2019. Completion or imminent completion of the Ph.D. in computer science or a closely related field is required, and undergraduate teaching

experience is preferred. Candidates must be committed to outstanding teaching and continuing scholarly activity within a liberal arts context. The teaching load is 5-semester courses per year.

Consistently ranked among the nation's top liberal arts colleges, Davidson College is a highly selective, independent liberal arts college located in Davidson, North Carolina, close to the city of Charlotte. At Davidson, we believe the college grows stronger by recruiting and retaining a diverse faculty and staff committed to building an inclusive community.

For more information and details on how to apply, please see <http://employment.davidson.edu>.

Review of applications will begin February 15, 2019, and will continue until the position is filled.

AA/EOE

DePaul University

Faculty Position in Network Technologies

DePaul University's School of Computing invites applications for a faculty position in Network Technologies to begin in Fall 2019. Candidates with a PhD will be considered for a tenure-track position. Others will be considered for a full-time non-tenure-track faculty appointment, which is renewable annually, based on performance.

We are particularly interested in candidates who demonstrate outstanding teaching and deep knowledge in routing

and switching, data center technologies, virtualization, cloud technologies, software-defined networks and Internet of Things (IoT) technologies. You will also have opportunities to join established research projects in areas that include Internet of Things (IoT), network security, cellular networks, and software-defined networks.

Successful candidates will be part of a highly-recognized and well-established graduate and undergraduate programs in Network Engineering and Security that make use of extensive network laboratory facilities utilizing equipment from Cisco, Juniper, Palo Alto and others. Information about our academic programs can be found here:

<https://www.cdm.depaul.edu/academics/Pages/MSInNetworkEngineeringandManagement.aspx>

DePaul's School of Computing, part of the College of Computing and Digital Media (CDM), is committed to the teacher-scholar model that supports outstanding teaching and research activities. The School of Computing has a strong track record of supporting interdisciplinary and industry collaborations. With over 60 full-time faculty and more than 3,000 undergraduate and graduate students, our school offers a PhD program in Computer and Information Sciences, fourteen graduate and nine undergraduate programs that include Network Engineering and Security, Data Science, Computer Science, Software Engineering, Cybersecurity, Cyber Physical Systems, Human Computer Interaction, and Game Development.

Located in the heart of Chicago's Loop, the central business district of Chicago, our college also offers numerous opportunities for industry partnerships.

We seek candidates who demonstrate a commitment to high-quality teaching. Candidates for a tenure-track position must also demonstrate solid research results and the promise of continuing productive research. In addition, candidates will be expected to take a leading role in curriculum development. Additional responsibilities include supervising student projects, developing lab exercises, and fostering collaborations with industry in the Chicago area.

Candidates for this position must have at minimum a Master of Science degree in computer science, network technologies, telecommunications, cloud technologies, or a related field and at least 4 years of professional experience. Candidates for the tenure-track position must also have a PhD degree. Rank and salary are commensurate with qualifications and experience.

We will give preference to candidates who have advanced industry network certifications and extensive teaching experience. We will also give preference to candidates with a PhD in a related discipline, established research results and a record of successful industry collaborations.

Apply at <https://facultyopportunities.depaul.edu/postings/2299>

For priority consideration, application material must be received by February

Professional Opportunities

1st, 2019. Applications will be accepted until the position is filled but no later than March 31st, 2019. For questions please email gbrewste@depaul.edu.

All applicants should include a teaching statement (2 pages maximum) that details their experiences in teaching and curriculum development, in addition to other application materials. The applicant resume/CV should clearly list all courses in network technologies previously taught. Candidates for a tenure-track position must also include a research statement (2 pages maximum) describing research goals, projects and future work.

Candidates are sought that have expertise and experience in at least one of these technologies related to web development: web frameworks, front end development, mobile development, cloud computing, web services, and DevOps.

The School of Computing is part of DePaul's College of Computing and Digital Media (CDM). It is located in the heart of Chicago's Loop, the central business district of Chicago and offers a variety of undergraduate and graduate programs including Computer

Science, Information Technology, Human Computer Interaction, Game Development, and Information Security.

DePaul students come from many backgrounds and cultures from a diverse urban setting. Thus CDM is interested in recruiting and maintaining a diverse faculty. Members of all underrepresented groups, such as women, veterans, and persons with disabilities are encouraged to apply. As an Equal Employment Opportunity employer, DePaul University provides job

DePaul University

*Professional Lecturer in
Information Technology*

The School of Computing at DePaul University invites applications for a full-time, non-tenure-track faculty position beginning in Fall 2019. The appointment is initially for one academic year and is renewable, contingent upon satisfactory performance. We seek a candidate with a commitment to high-quality teaching particularly in the area of web development. Job responsibilities include teaching, curriculum development, and committee service.

Candidates should either have (1) an MS or PhD degree in Computer Science, Information Technology, Software Engineering, or a closely related area or (2) a BS or MS degree with significant professional, technical, and teaching experience.



ASSISTANT PROFESSOR Computer Science VACANCY #: 929921

Recruitment Range: Commensurate with Qualifications
Closing Date: Open Until Filled

East Carolina University's Department of Computer Science invites applications for a position at the tenure-track Assistant Professor level. The primary emphasis areas for computer science faculty are teaching excellence; collaborative, funded research and scholarship; and service to promote student success and enhance the quality and reputation of the computer science program. Active involvement in outreach to industry is highly valued. Candidates should be committed to innovation and creativity in computer science education methods and approaches. Teaching assignments may range from core computer science courses such as algorithmic problem solving, and discrete structures, to concentration courses such as operating systems, computer network and software engineering, or graduate courses such as software construction, cloud computing and data base management systems. Candidates will develop active, collaborative research programs and seek external funding support. Candidates will provide service to the university, community, and profession.

Additional details about the position, including the full job description, qualifications, and instructions for submitting application materials may be found by accessing this link: <https://ecu.peopleadmin.com/postings/24516>

Applicants must complete a candidate profile online via the PeopleAdmin system at <http://jobs.ecu.edu> along with a cover letter, curriculum vitae, a statement of teaching philosophy, experience and interests, a statement of research interests/plans and a list of references, including contact information.

Equal Opportunity/Affirmative Action Employer

opportunities to qualified individuals, in accordance with applicable federal, state, and local EEO laws.

Apply at <https://facultyopportunities.depaul.edu/postings/2303>

For priority consideration, application materials must be received by March 15, 2019; applications will be accepted until the position is filled. Applications should include CV, statement of teaching interests, a cover letter, and three letters of recommendation that address the candidate's teaching qualifications or potential. Contact Steve Jost, sjost@cdm.depaul.edu for additional inquiries.

Ecole Polytechnique

Assistant Professor Positions

The Computer Science Department will recruit up to 6 full-time assistant professors, starting September 2019. Details of the positions will be available soon at:

<http://www.lix.polytechnique.fr/Labo/Eric.Goubault/positions-2019.htm>

Ecole Polytechnique is the best engineering University in France and one of the top worldwide. It has a long tradition of excellence in Mathematics, Physics and Computer Science.

Franklin & Marshall College

Visiting Position in Computer Science

Franklin & Marshall College invites applications for a one-year visiting

position (with the potential for a second year) in Computer Science beginning Fall 2019. Applicants should possess a Ph.D. in Computer Science or a related field or be ABD. The rank will be Visiting Assistant Professor or Visiting Instructor depending on qualifications.

Applicants must submit materials at Interfolio. Details on the application process are available at <https://apply.interfolio.com/57499>. We will review applications until the position is filled; we assure full consideration to applications **completed by February 15, 2019**.

Franklin & Marshall College is committed to having an inclusive campus community where all members are treated with dignity and respect. As an Equal Opportunity Employer, the College does not discriminate in its hiring or employment practices on the basis of gender, sex, race, ethnicity, color, national origin, religion, age, disability, family or marital status, sexual orientation, or any protected characteristic. Individuals who need an accommodation due to a disability in order to submit an application or attend an employment interview should contact Human Resources at (717) 358-4817.

George Mason University

Teaching Faculty

The George Mason University Department of Computer Science, in the Volgenau School of Engineering, invites applications for renewable term, non tenure-track Assistant Professor

and Instructor positions beginning Fall 2019. George Mason University has a strong institutional commitment to the achievement of excellence and diversity among its faculty and staff, and strongly encourages candidates to apply who will enrich Mason's academic and culturally inclusive environment.

Responsibilities:

Responsibilities include teaching undergraduate computer science courses as well as service duties associated with the department's undergraduate degree programs.

Required Qualifications:

Applicants for Assistant Professor positions must have received a Ph.D. in computer science or related field by the start date of the position. Applicants who have received an MS degree in Computer Science or a related field by the start date of the position will be considered for Instructor positions. Applicants should possess a strong commitment to and demonstrated excellence in teaching.

Preferred Qualifications:

While applicants in all areas of computer science will be given serious consideration, we are particularly interested in candidates in the areas of computer science education, programming languages, data analytics and software engineering. Preference will be given to candidates with teaching experience. Administrative and/or managerial experience is a plus.

About the Department:

The department has over 50 faculty members with wide-ranging research and a strong commitment to teaching. The CS department has over \$8 Million in annual research funding and has 11 recipients of NSF's prestigious CAREER awards. For more information on the department, visit our web site: <http://cs.gmu.edu>

George Mason University is the largest public research university in Virginia, with an enrollment of over 35,000 students studying in over 200 degree programs. Mason is an innovative, entrepreneurial institution with national distinction in a range of academic fields. It was classified as an R1 research institution in 2016 by the Carnegie Classifications of Institutes of Higher Education, and was ranked number one in the 2013 U.S. News and World Report "Up-and-Coming" list of national universities. Mason is located in Fairfax in Northern Virginia at the doorstep of the Washington, D.C., metropolitan area, with unmatched geographical access to a number of federal agencies and national laboratories. Northern Virginia is also home to one of the largest concentrations of high-tech firms in the nation providing excellent opportunities for interaction with industry. Fairfax is consistently rated as being among the best places to live in the country, and has an outstanding local public school system

For full consideration please submit a faculty application and application materials online at <http://jobs.gmu.edu>

for position number F200AZ. To apply, you will need a statement of professional goals including your perspective on teaching (to attach as 'Other Doc'), a complete C.V. with publications and teaching history, and the names of three references. The review of applications will begin on February 18, 2019 and will continue until the positions are filled.

George Mason University is an equal opportunity/affirmative action employer, committed to promoting inclusion and equity in its community. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, gender identity, sexual orientation, national origin, disability, or protected veteran status.

The George Washington University

Professor of Practice

The Department of Computer Science at The George Washington (GW) University in Washington DC invites applications for a Professor of the Practice position starting as early as August 2019. This non-tenure track faculty position offers a professional teaching career track with a well-defined promotion path and privileges. The appointment may be made at the rank of Assistant, Associate, or Full Professor of Practice.

Responsibilities:

This position will have as its primary focus the development and delivery of a "CS for All" course and curriculum appropriate for students across the

University. Specific responsibilities include course design, lecturing, and managing teaching assistants and graders, as well as outreach to other departments to ensure that this course supports the integration of computing into the curriculum across many disciplines. The position may also support other curricular, advising, and teaching needs within the Computer Science Department.

An initial multi-year appointment will be offered in accordance with the University's Faculty Code.

Minimum Qualifications:

Applicants for the Professor of Practice position must be highly effective classroom teachers who can demonstrate excellent educational leadership and organizational skills. They must demonstrate a commitment to educating a broad and diverse group of students and to increasing the participation and success of students from groups underrepresented in computer science. Applicants must have a Ph.D. in Computer Science or closely related field by the date of appointment.

Enquiries and Application:

To enquire, please email to cssearch@gwu.edu or call 202-994-7181. To apply, complete the online faculty application, at <http://www.gwu.jobs/postings/64917> and upload: (1) a detailed curriculum vitae; (2) a statement of teaching interest regarding teaching philosophy and experience, including evidence of course and curriculum design and implementation

and commitment to promoting inclusion and diversity; (3) teaching evaluations or summaries as evidence of teaching effectiveness; (4) a short cover letter describing your background and interests in teaching undergraduates at George Washington University; (5) A diversity statement detailing how past or future contributions to diversity and inclusion will improve the experience of students at GWU. Please have three references email their letters directly to cssearch@gwu.edu. Review of applications will begin on March 11, 2019 and will continue until the position is filled.

EEO/AA Policy:

The university is an Equal Opportunity/Affirmative Action employer that does not unlawfully discriminate in any of its programs or activities on the basis of race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity expression, or on any other basis prohibited by applicable law.

BACKGROUND SCREENING STATEMENT:

Employment offers are contingent on the satisfactory outcome of a standard background screening.

Haverford College

Visiting Assistant Professor of Computer Science

Haverford College welcomes applications for a Visiting Assistant Professor position in the Department of Computer Science

beginning fall 2019. The appointment is for a minimum of two years, contingent upon a successful performance review and budgetary considerations.

For more information and to apply, visit: <http://apply.interfolio.com/59198>

Indiana State University

Assistant Professor of Computer Science

The Department of Mathematics and Computer Science at Indiana State University invites applications for a tenure-track position in Computer Science at the rank of Assistant Professor. EOE/Minority/Female/Individual with Disability/Veteran.

To apply - <http://cs.indstate.edu/info/positions.html>

Kansas State University

Instructor

The Department of Computer Science (CS) at Kansas State University seeks applicants for Instructor with an BS in CS or related field and an MS in CS or Education. Experience teaching online preferred.

Go to http://www.cs.ksu.edu/employment/faculty_staff/ for position description and application procedures or call 785-532-6350.

Kansas State University actively seeks diversity among its employees.

Kansas State University is an EOE of individuals with disabilities and protected veterans. Background check required.

Kennesaw State University

Assistant Professor of Computer Science

Kennesaw State University is now accepting applications for a nine-month, tenure track Assistant Professor of Computer Science faculty position in the Department of Computer Science which begins August 2019. Responsibilities will include teaching, scholarship, and service in the area of Computer Science. A Ph.D. in computer science, a related field, or its foreign equivalent is required.

For more than 50 years, Kennesaw State University has been known for its entrepreneurial spirit and sense of community. Offering campuses in Marietta and Kennesaw, the university is located just north of Atlanta and combines a suburban setting with access to one of the country's most dynamic cities. As Georgia's third-largest university, Kennesaw State offers more than 100 undergraduate and graduate degrees, including a growing number of doctoral programs. Designated by the Board of Regents of the University System of Georgia as a comprehensive university and an R2 institution: Doctoral universities - high research activity by the Carnegie Classification, Kennesaw State is committed to becoming a world-class academic institution positioned to broaden its academic and research missions and expand its scope on a local, regional and national level. For a full description of

this position, application deadlines, and application procedures, visit <https://facultyjobs.kennesaw.edu>.

Kennesaw State University, a member of the University System of Georgia, is an Equal Opportunity/Affirmative Action employer and does not discriminate on the basis of age, color, disability, national origin, race, religion, sex, sexual orientation, and/or veteran status. Georgia is an Open Records state.

McGill University

Faculty Lecturer Position

The School of Computer Science at McGill University invites applications for an appointment as faculty lecturer. The initial appointment is for 3 years with the possibility of re-appointment. Candidates must have at least a graduate degree in Computer Science or related discipline, and demonstrated excellence in teaching computer science at the university level. Candidates with a PhD will be prioritized. Salary will be commensurate with qualifications.

The School is looking for candidates who are able to teach a wide range of 1st and 2nd year computer science courses, and ideally have expertise in one of our priority areas. These cover the larger area of systems (e.g., operating systems, database systems, networks), algorithms and programming languages. The successful candidate must be committed to excellence in undergraduate teaching, and is expected to actively participate in the School's activities around undergraduate teaching.

Montreal is a historic and cosmopolitan city, and considered one of the best cities for students. The School of Computer Science offers a collegial environment with opportunities for interaction with world-class researchers that take their teaching responsibilities very seriously. The School teaches to a very diverse student body and embraces inclusiveness. The School offers a wide set of different programs, both in the Faculty of Science and the Faculty of Arts.

For more information and to submit your application, see: <https://www.cs.mcgill.ca/about/careers/>

The selection process will begin by February 15, and continue until the position is filled.

McGill University is committed to diversity and equity in employment. It welcomes applications from: women, Aboriginal persons, persons with disabilities, ethnic minorities, persons of minority sexual orientation or gender identity, visible minorities, and others who may contribute to diversification. All qualified applicants are encouraged to apply; however, in accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada.

Milwaukee School of Engineering

Computer Science Faculty

The Electrical Engineering and Computer Science (EECS) department at the

Milwaukee School of Engineering (MSOE) seeks applicants to fill multiple CS Faculty Positions at all ranks. MSOE expects, rewards, and supports a strong primary commitment to excellence in teaching.

The EECS department offers an undergraduate degree in CS with a focus on artificial intelligence as well as an established software engineering (SE) undergraduate degree. Significant investments are being made to support MSOE's academic mission including the construction of the \$34M Dwight and Dian Diercks Computational Science Hall that will house the SE and CS programs.

Candidates with expertise in any field of CS or SE are encouraged to apply. Applicants must have an earned doctorate degree in a computing field by the beginning date of the appointment, and proficiency in oral and written communication is required.

To apply to this position, please visit <https://www.milwaukeejobs.com/apply/add/33841216>

It is the policy of MSOE to provide equal employment opportunity to all individuals regardless of their race, ethnicity, color, creed, religion, sex, age, national origin, physical or mental disability, military and veteran status, sexual orientation, gender identity, genetic characteristics, marital status or any other characteristic protected by local, state or federal law. This policy applies to all jobs at the University and to all the terms, benefits, and conditions of employment/enrollment.

NEC Laboratories America

*Researcher - Data Science
& Systems Research*

NEC Laboratories America (www.nec-labs.com) conducts research in support of NEC's US and global businesses. Our lab has a broad research program that covers many areas and maintains a balance of fundamental and applied research.

The Data Science and Systems Research Department at NEC Labs aims to build novel big data solutions and service platforms that simplify complex computer systems management, and to develop new information technology that supports innovative applications, from big data analytics to the Internet of Things. Our research is both experimental and theoretical, covering many domains in data science and system research, such as: time series mining, graph mining, deep learning, text mining, anomaly detection, signal processing, cloud computing, data centers, software-defined networking and streaming processing.

The goal of our research is to fully understand the dynamics of big data from complex systems, retrieve patterns to profile them and build innovative solutions to help end user managing those systems. We have built a number of analytic engines and system solutions to process and analyze big data and support various applications in detection, prediction and optimization. Our research leads to both award-winning NEC products and publications in top conferences.

Position Requirements:

- PhD in CS, EE or related field, or Master's degree with 5+ years of relevant experience, or Bachelor's degree with 10+ years of relevant experience
- Domain expertise
- Ability to conduct research independently
- Creativity and independent problem solving
- Ability to work in small teams

NEC Laboratories America is located in Princeton, NJ, home of the Princeton University and one of New Jersey's most beautiful and idyllic towns. The area offers many exciting cultural, entertainment and outdoor activities. The office is minutes away from Princeton University and an hour from New York, Philadelphia, and the Atlantic Ocean. For more information about NEC Labs, access www.nec-labs.com, and submit your CV and research statement through our career center at https://www.appone.com/MainInfoReq.asp?R_ID=2154125.

EOE-M/F/V/D

New Jersey Institute of Technology

*Tenure-Track Faculty Position(s) in
Finance and/or Business Data Science
AY 2019-2020*

The Martin Tuchman School of Management at New Jersey Institute of Technology invites applications for a tenure-track faculty position in business data science beginning in the 2019-2020

Academic Year. All professorship ranks will be considered commensurate with qualifications and accomplishments of the applicant. Candidates must have earned their Ph.D. in finance, data mining, machine learning, business analytics, applied mathematics, and other data science or closely associated academic area, as well as have a strong interest in FinTech, marketing, MIS and/or artificial intelligence and machine learning.

Successful candidates must demonstrate a record of scholarly accomplishment and a commitment to contributing original research into leading peer-reviewed publications. In addition, the applicant should be interested in teaching the full array of finance and/or business data science and related courses at the undergraduate and graduate levels. In particular, we are seeking candidates who will contribute significantly to the Business Data Science Ph.D. Program and financial technology B.S. and M.S. programs. Salary and benefits are competitive and commensurate with experience. The individual must have completed the Ph.D. at time of appointment in September 2019.

ABOUT THE SCHOOL: The Martin Tuchman School of Management is accredited by the AACSB and offers an undergraduate program in business with concentrations in various business and management disciplines and a full range of graduate programs, including MS in Management, MBA, Executive MBA, and PhD in Business Data Science.

ABOUT THE UNIVERSITY: NJIT is a comprehensive public research university and the State of New Jersey's Science and Technology University located in Newark, New Jersey and in close proximity to New York City. In its 2019 edition, U.S. News & World Report ranks NJIT 106th in the National Universities category, and names NJIT on the Best Value Schools and Most Ethnically and Economically Diverse.

Applications must be submitted at <https://njit.csod.com/ats/careersite/JobDetails.aspx?site=1&id=922>. Include curriculum vitae, statement of teaching and research interests, and list of three references. Please direct any questions to Dr. Zhipeng Yan (zyan@njit.edu) or Dr. Cheickna Sylla (cheickna.sylla@njit.edu), Search Committee Co-Chairs. To assure full consideration, applications must be received by January 10, 2019.

As an EEO employer, NJIT is committed to building a diverse and inclusive teaching, research, and working environment and strongly encourages applications from individuals with disabilities, minorities, veterans and women.

NYU Tandon School of Engineering

Industry Faculty, Department of Computer Science, New York University

The Department of Computer Science at the NYU Tandon School of Engineering invites applications for a full time, non-tenured, renewable faculty position in Cyber Security as *Director of Cyber Security Education (Online MS Program)*

(see position description below), with a start date of June 1, 2019. New York University (NYU) is one of the top private universities in the United States. We have an illustrious past as Brooklyn Poly and NYU Polytechnic School of Engineering.

Our mission is to excel in research, teaching and entrepreneurship. We aim to inspire and educate engineers for the 21st century. We are committed to quality, integrity, and respect for each other. We take pride in our high numbers of women students and students who are the first in their family to go to college. We seek faculty who have a real passion for a culturally diverse environment. Tandon belongs to the Higher Education Recruitment Consortium (HERC), which assists with dual-career searches.

We foster innovation and entrepreneurship that make a difference in the world:

- Our faculty and students are part of the high-tech start-up culture in New York City and in downtown Brooklyn.
- We support four "future lab" business incubators that connect our students and faculty to today's innovation economy.
- We collaborate closely with other universities throughout NYC.
- We maintain strong partnerships with NY city and state governments and with industry and corporate communities.

With NYU's unrivaled global network of campuses, we promote a truly global engineering education. We are deeply committed to teaching and learning,

and we lead in online education and in K-12 STEM outreach. Our students conduct Vertically Integrated Research projects and participate in an extensive undergraduate summer research program.

The Director of Cyber Security Education (Online MS Program) will lead a team of faculty and staff (Tandon Online) to develop and deliver curriculum and courses for the online Cyber Security MS program. The Director will possess an authoritative understanding of cyber security and develop a clear understanding of existing cyber security (MS) graduate programs, in order to orchestrate a program through which our students develop workforce-ready computational and analytical skills and mindsets.

You should be an excellent teacher. You should have a Masters degree or Ph.D. (preferred) in Computer Science or a closely related discipline and a record of industrial experience and/or teaching in these areas.

You should submit:

- Cover letter
- Current CV
- Recent teaching evaluations
- A teaching statement describing experience and teaching philosophy
- Names and contact information for three references.

Please submit materials electronically at <https://apply.interfolio.com/59178>

We will review applications starting February 2019 and will continue until

we fill the position; we encourage you to submit early.

New York University is an Equal Opportunity Employer. NYU does not discriminate due to race, color, creed, religion, sex, sexual orientation, gender and/or gender identity or expression, marital or parental status, national origin, ethnicity, citizenship status, veteran or military status, age, disability, unemployment status or any other legally protected basis, and to the extent permitted by law. Qualified candidates of diverse ethnic and racial backgrounds are encouraged to apply for vacant positions at all levels.

Peking University

Researchers at Advanced Institute of Information Technology (AIIT)

Advanced Institute of Information Technology, Peking University was jointly established by Peking University and the government of Zhejiang Province. Located in Hangzhou where G20 summit was held, it was officially put into operation on the occasion of the 120th anniversary of Peking University in May 2018. As an affiliation to Peking University, it is led by Prof. John Hopcroft, honored with the A.M.Turing Award in 1986, Fellow of the U.S. National Academy of Sciences and National Academy of Engineering, Wen Gao, Academician of Chinese Academy of Engineering, Qimin Zhan, Academician of Chinese Academy of Engineering, Hong Mei, Academician of Chinese Academy of Sciences, Ru Huang, Academician of

Chinese Academy of Sciences, serving as chief scientists, Jason (Jingsheng) Cong, Fellow of the U.S.National Academy of Engineering, serving as the chief scientific consultant and Professor Guoyou Zhang serving as the chief economist. Under the support of a series of world-class advanced manufacturing such as smart security and functional fiber in the Yangtze River Delta region (Hangzhou Bay and Greater Bay Area), the Institute focuses on the development of core technologies for future digital economic industries such as artificial intelligence, smart city, smart medical care, and intelligent manufacturing. Working with leading enterprises from all sectors such as Alibaba Cloud, etc, the Institute extensively attracts the world's top talents to carry out innovative research & development and to enhance the innovative capacity for building a modern industrial innovation hub integrating into the world market.

Positions and Qualification

The Institute includes six research centers: AI Empowerment Research Center, Advanced Vision System Research Center, Intelligent Medical Science Research Center, Intelligent Software Technology and Application Research Center, Internet of Things Research Center, Intelligent Computing Research Center. Applicants should have master's degree or above in relevant fields, have strong professional skills, rich work experience in related fields, and the ability to independently conduct innovative research and development. Applicants

with articles published in top journals and conferences in related fields are preferred.

Salary and Benefits:

All newly hired researchers will be provided with necessary R&D platform. Salaries and benefits are internationally competitive and are to be individually negotiated in each case, commensurate with the candidate's academic credentials.

To Apply:

Applicants should send a full curriculum vitae; copies of 3-5 representative publications and future research & development plans to recruiting@aait.org.cn

Applications before July 1st 2019 will be given full consideration.

For more information, please visit <http://www.aait.org.cn>

Sacred Heart University

Full-time Faculty

The School of Computer Science and Engineering at Sacred Heart University, in CT, seeks applicants for multiple full-time faculty positions as part of its 2019 cluster hire.

PhD in CS or related field is required. Go to: bit.ly/shu-cluster-2019 for position descriptions and next steps. First round of reviews will start in February.

Sacred Heart University is an equal-opportunity employer.

Southern Illinois University Edwardsville

*Assistant/Associate Professor,
Computer Science*

The Department of Computer Science at Southern Illinois University Edwardsville invites applications for a tenure-track faculty position.

For complete details, see: <http://www.siu.edu/employment/engineering/FY19-129.shtml>

State University of New York at Binghamton

Department of Computer Science

*Thomas J. Watson School of Engineering
and Applied Science*

Assistant Professor

<http://cs.binghamton.edu>

The Computer Science Department at Binghamton University has one tenure-track assistant professor position beginning Fall 2019. Applicants should have a Ph.D. in Computer Science or related discipline, a strong research record, and a commitment to research and teaching. Qualified applications are invited from candidates with specializations in the areas of Data Science/Data Analytics/ Core Machine Learning.

Further details and application information are available at:

<https://binghamton.interviewexchange.com/jobofferdetails.jsp?JOBID=104489>.

Applications will be reviewed until positions are filled. First consideration will be given to applications received by **February 17, 2019**.

Binghamton University is an Equal Opportunity/Affirmative Action/Disability/Veterans Employer.

SUNY Korea

*Assistant/Associate/Full Professor and
Lecturer Positions*

The Computer Science Department of SUNY Korea (<https://sunyk.cs.stonybrook.edu/>) invites applications for tenure-track and Lecturer positions, to start in Fall 2019, Spring 2020 or sooner.

(A) Tenure-Track Faculty Position: An excellent faculty member is sought at all levels in all core areas of computer science. 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 – State University of New York (SUNY), Stony Brook, NY (<https://www.cs.stonybrook.edu/>). Applicants should hold a PhD in Computer Science or closely related area and exhibit a strong commitment to research and teaching.

(B) Lecturer Position: An excellent full-time lecturer is sought at the junior or senior level. The candidate is expected to teach introductory and advanced CS undergraduate and possibly graduate courses. It is possible for an excellent candidate to be converted into tenure-track at SUNY Korea at a later time.

Engaging in research is encouraged but not mandatory. Applicants should hold a PhD or MS in Computer Science or a closely related area and exhibit a strong commitment to teaching. The SUNY Korea CS department offers BS, MS, and PhD degrees and is tightly integrated with the highly ranked CS department at Stony Brook University. The academic degrees awarded at SUNY Korea are identical to those of Stony Brook University, and the language at SUNY Korea is English.

SUNY Korea (<http://www.sunykorea.ac.kr/>) is located in the new master-planned city of Songdo, Korea, hosting both global organizations and multinational corporations. Incheon international airport is just 25 minutes away and Seoul with its fascinating blend of Asian cultures is less than 1 hour away.

More information about the positions can be found at <https://sunyk.cs.stonybrook.edu/about-us/career/> and applicants should apply at <https://hiring.cs.stonybrook.edu/> (Select "SUNYK" for "Site").

Review of applications will start immediately and will continue until the positions are filled.

Applications from non-Korean citizens, women, and minorities are encouraged to apply.

Swarthmore College

Visiting Assistant Professor

The Department of Computer Science at Swarthmore College invites applications

for multiple two-year positions at the rank of Visiting Assistant Professor to begin Fall semester 2019. Applications accepted at <http://apply.interfolio.com/56920>.

Swarthmore College is a highly selective liberal arts college, located in the suburbs of Philadelphia, whose mission combines academic rigor with social responsibility. The Computer Science Department currently has nine tenure-track faculty and four visiting faculty. Faculty teach introductory courses as well as advanced courses in their research areas. We have grown significantly in both faculty and students in the last five years. Presently, we are one of the most popular majors at the College and expect to have over 60 Computer Science majors graduating this year (2019).

Applicants must have a Ph.D. in Computer Science or expected by Fall 2019. Applicants strong in any area of computer science will be considered. Applications will be reviewed on a rolling basis until all positions are filled.

Swarthmore College actively seeks and welcomes applications from candidates with exceptional qualifications, particularly those with demonstrable commitments to a more inclusive society and world. Swarthmore College is an Equal Opportunity Employer. Women and minorities are encouraged to apply.

Trinity College

Assistant Professor of Computer Science

Applications are invited for a tenure-track position in computer science at the rank of Assistant Professor to start in the fall of 2019. Candidates must hold a Ph.D. in computer science at the time of appointment. We are seeking candidates with teaching and research interests in applied areas associated with data analytics, such as database and information systems, data mining and knowledge discovery, machine learning, and artificial intelligence, but other related areas will also be seriously considered.

Applications should be submitted to: <https://trincoll.peopleadmin.com/>.

Applications will be accepted and reviewed until the position is filled.

Trinity College is an Equal-Opportunity/Affirmative-Action employer.

University of California, Berkeley

Lecturer

The Data Science Program at the University of California, Berkeley invites applications for a pool of qualified temporary lecturers to teach Data Science Connector courses should an opening arise, but applications will be accepted until February 3, 2020 to fill ongoing needs. For more information about the position, including required qualifications

and application materials, go to: <https://aprecruit.berkeley.edu/JPF02074>.

For questions, please contact Kalford Mills at kmills@berkeley.edu.

UC Berkeley is an AA/EEO employer.

University of California, Davis

Visiting Assistant Professor

The Department of Statistics at the University of California, Davis, is soliciting applications for two **Visiting Assistant Professor** positions starting July 1, 2019.

We seek applicants with excellent research potential in areas of faculty interest, and effective teaching skills. Preference is given to candidates who have a strong interest in the research in and teaching of computational statistics and data science. Applicants are required to have completed their Ph.D. by the time of their appointment, but no earlier than July 1, 2014. The teaching load is 4 quarter-long courses.

To apply, go to <https://recruit.ucdavis.edu/apply/JPF02677>. Applications will be reviewed starting April 1, 2019.

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



Department of Computational Media
Associate Professor, Human Computer Interaction (HCI)

The Department of Computational Media <https://www.so.e.ucsc.edu/departments/computational-media> at the University of California, Santa Cruz invites applications for a tenured Associate Professor in Human Computer Interaction (HCI). We seek outstanding applicants who have demonstrated research and teaching expertise in scientific, technical or design aspects of HCI, considered broadly, including user experience, human-centered design, social computing, computer-supported cooperative work, social media, collective intelligence, interaction design, and/or the design and evaluation of wearable, mobile, robotic or ubiquitous systems.

The successful candidate is expected to continue their established research program, advise graduate students in their research area, obtain external funding, develop and teach courses within the undergraduate and graduate curriculum, perform university, public, and professional service, and be able to work with students, faculty and staff from a wide range of social and cultural backgrounds. The successful candidate is expected to be appointed as the inaugural Vice Chair of Computational Media for the Human Computer Interaction MS program, and in that role will direct and lead the program. The Vice Chair will teach in the program, work as a bridge between the substantial human computer interaction research at UC Santa Cruz and this professional program, be a liaison between the Human Computer Interaction MS program and the Games and Playable Media MS and Serious Games MS programs, and serve as the program's representative to the Academic Senate and the central administration.

We welcome candidates who understand the barriers facing women and minorities who are underrepresented in higher education careers (as evidenced by life experiences and educational background), and who have experience in equity and diversity with respect to teaching, mentoring, research, life experiences, or service towards building an equitable and diverse scholarly environment.

LINK TO THE FULL FLIER:
<https://organization.so.e.ucsc.edu/sites/default/files/inline-files/JPF00664-19.pdf>

ACADEMIC TITLE
Associate Professor

SALARY
Commensurate with qualifications and experience; academic year (9-month basis).

BASIC QUALIFICATIONS
A Ph.D. or equivalent foreign degree in Computer Science, Digital Media, Human Computer Interaction, Computer Games, Computational Media, Psychology, or other relevant field; demonstrated record of research; demonstrated experience in university teaching at the graduate and undergraduate levels; a demonstrated record of extramural funding; and a demonstrated record of University and public service.

POSITION AVAILABLE
July 1, 2019 (with academic year beginning September 2019), contingent upon final budgetary approval.

APPLICATION REQUIREMENTS
Applications are accepted via the UCSC Academic Recruit online system; all documents and materials must be submitted as PDFs.

APPLY AT:
<http://apptrkr.com/1374868>
Please refer to Position # JPF00664-19 in all correspondence.

- Documents/Materials**
- Letter of application that briefly summarizes your qualifications and interest in the position
 - Curriculum vitae
 - Statement addressing contributions to diversity through research, teaching, and/or service (required). Guidelines on diversity statements can be viewed at <https://senate.ucsc.edu/committees/caad-committee-on-affirmative-action-and-diversity/DivStateGuidelines.pdf>.
 - Statement of research plans
 - Statement of teaching interests and experience
 - 3-4 selected publications
 - 3 confidential letters of recommendation*

Please note that your references, or dossier service, will submit their confidential letters directly to the UC Recruit System.

*All letters will be treated as confidential per University of California policy and California state law. For any reference letter provided via a third party (i.e., dossier service, career center), direct the author to UCSC's confidentiality statement at <http://apo.ucsc.edu/confstm.htm>.

RECRUITMENT PERIOD
Full consideration will be given to applications completed by Thursday, January 31, 2019. Applications received after this date will be considered only if the position has not been filled.

UC San Diego



Assistant Professor - in Human Augmentation

UCSD Cognitive Science seeks to fill Assistant Professor in Human Augmentation for research, teaching & supervising students. PhD or equivalent degree by 7/1/19 required.

View full advertisement and apply at <http://apptrkr.com/1375591>.

Salary is commensurate with experience. Apply by 3/1/19 for full consideration.
UCSD is an AA/EOE.

University of Chicago

Clinical Assistant Professor/Associate Professor/Professor

The Department of Computer Science at The University of Chicago invites applications for all ranks of the Clinical appointment (Clinical Assistant Professor, Clinical Associate Professor, and Clinical Professor). These full-time, benefit-eligible appointments are for an initial three-year term, with a possibility of renewal. This is a teaching-focused position with no research responsibilities, and a teaching load of six courses across three academic quarters of the year (Fall, Winter, Spring). Successful candidates will teach introductory programming and courses in topics of interest to students in the M.S. in Computational Analysis and Public Policy (MS-CAPP) or the Masters Program in Computer Science (MPCS). These could include (but are not limited to) courses in web development, cloud computing, linear algebra, natural language processing, advanced topics in machine learning, and other courses at the intersection of public policy and computer science.

Successful candidates will have exceptional competence in teaching and superior academic credentials. Completion of a Master's degree in Computer Science or a related field is required prior to the start of appointment; a Ph.D. in Computer Science or a related field is preferred. Several years of professional experience in industry, government, or the non-profit sector preferred.

Applicants must apply online at the University of Chicago Academic Careers website at <https://tinyurl.com/clinical-capp-2019>

To be considered an applicant, the following materials are required:

- Cover letter
- Curriculum vitae or resume
- One-page teaching statement, which should include a list of potential electives.
- The names and contact information for three references, one of who can address the candidate's teaching ability or potential

Review of complete applications will begin February 25, 2019, and continue until all positions are filled.

Professional Opportunities

The M.S. in Computational Analysis & Public Policy (<https://capp.uchicago.edu>) is a rigorous, two-year program offered jointly by the Harris School of Public Policy and the Department of Computer Science at The University of Chicago. The core curriculum is built a foundational knowledge of computer science, statistics, and public policy analysis. Students then go on to advanced course work in econometrics, machine learning, big data methods, data visualization, and application development all while learning how to apply these skills in the policy realm. MS-CAPP graduates have become civic technologists, data scientists, and policy researchers bringing modern technology to bear on the societal problems that matter most.

The Masters Program in Computer Science (<http://csmasters.uchicago.edu>) is a terminal MS degree in Computer Science that provides a rigorous introduction to the foundations of Computer Science, while also providing in-depth and hands-on instruction in cutting-edge and industry-driven topics, including Web and Mobile Application Development, Big Data, Cloud Computing, Data Analytics, etc. The program attracts a diverse mix of students including full-time students who are typically no more than 5 years out of college, part-time students who already work in an industry, and international students.

The University of Chicago is an Affirmative Action/Equal Opportunity/Disabled/Veterans Employer and does not discriminate on the basis of race, color, religion, sex, sexual orientation,

gender identity, national or ethnic origin, age, status as an individual with a disability, protected veteran status, genetic information, or other protected classes under the law. For additional information please see the University's Notice of Nondiscrimination at http://www.uchicago.edu/about/non_discrimination_statement/. Job seekers in need of a reasonable accommodation to complete the application process should call 773-702-0287 or email ACOppAdministrator@uchicago.edu with their request.

University of Georgia

Department of Computer Science

Lecturer in Computer Science

The Department of Computer Science at the University of Georgia invites application for one full-time, non-tenure track Lecturer positions starting August 2019.

For more details and application information, please see <http://www.cs.uga.edu/news-and-events/hiring-non-tenure-track-lecturer-position>.

To apply, please go to <http://www.ugajobsearch.com/postings/58519>



THE UNIVERSITY OF
CHICAGO

Academic Career Opportunities

Position Title: Lecturer
Req # 04038

The Department of Computer Science at the University of Chicago invites applications for the position of full-time Lecturer. This is a two-year position with the possibility of renewal. This position includes teaching two courses per quarter in the fall, winter and spring quarters, and ongoing professional development. The position will be part of the Service Employees International Union as a Lecturer 3. The relationship between the lecturers and the university is governed in part through a Collective Bargaining Agreement. Responsibilities include teaching six courses per year and ongoing professional development. Candidates must be qualified to teach at least one of algorithms, discrete mathematics, or introduction to programming. Preference will be given to candidates who are qualified to teach upper-level undergraduate courses in one or more of the following areas: data science, machine learning, systems, or theory.

Completion of a Master's degree in Computer Science or a related field is required prior to the start of appointment is required; a Ph.D. in Computer Science or a related field is preferred, and prior college teaching experience is preferred.

The Chicago metropolitan area provides a diverse and exciting environment. The local economy is vigorous, with international stature in banking, trade, commerce, manufacturing, and transportation, while the cultural scene includes diverse cultures, vibrant theater, world-renowned symphony, opera, jazz and blues. The University is located in Hyde Park, a Chicago neighborhood on the Lake Michigan shore just a few minutes from downtown.

Applicants must apply on line at the University of Chicago Academic Careers website at <https://tinyurl.com/ya43psl6>.

To be considered an applicant, the following materials are required:

- Cover letter
- Curriculum vitae or resume
- One-page teaching statement
- The names and contact information for three references, one of who can address the candidate's teaching ability or potential

Review of complete applications will begin February 25th, and continue until the positions are filled.

The University of Chicago is an Affirmative Action/Equal Opportunity/Disabled/Veterans Employer and does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender identity, national or ethnic origin, age, status as an individual with a disability, protected veteran status, genetic information, or other protected classes under the law. For additional information please see the University's Notice of Nondiscrimination at http://www.uchicago.edu/about/non_discrimination_statement/. Job seekers in need of a reasonable accommodation to complete the application process should call 773-702-0287 or email ACOppAdministrator@uchicago.edu with their request.

<https://tinyurl.com/ya43psl6>

Review of candidates will begin on February 15, 2019 and will continue until the position is filled.

Please see <http://www.cs.uga.edu> for more information about the job and the Department.

University of Maryland, Baltimore County

CHAIR, DEPARTMENT OF INFORMATION SYSTEMS

The University of Maryland, Baltimore County (UMBC) seeks a collaborative and entrepreneurial leader to serve as Chair for the Department of Information Systems. Leading one of the University's longest-standing and largest departments, the next Chair will play a pivotal role in shaping the future of the Department.

UMBC is an emerging, dynamic, and diverse public research honors university in Baltimore, Maryland, known for its innovation and undergraduate teaching. With about 14,000 total students, UMBC is a mid-size university with a welcoming, close-knit community. With this reputation and location, the Department of Information Systems is well poised to continue building relationships across campus and externally with nearby funding agencies and major corporate collaborators, such as the National Science Foundation and the Northrop Grumman Corporation.

The successful candidate shall have a track record of leading collaborative efforts on research and teaching and is

expected to lead growth and capitalize on the opportunity to shape the department, set the vision for its future, and establish its identity. The new Chair will also sustain and broaden relationships with University and external partners to increase opportunities for interdisciplinary research, funding, cooperative education, and employment. In addition, the next Chair will lead a strategy in building faculty capacity and reputation while focusing on retention and strengthening research and graduate programs.

UMBC has engaged Isaacson Miller, a national executive search firm, to assist with this important search. Applications received by March 15, 2019 will receive full consideration. All inquiries, nominations, referrals, and resumes with cover letters will be held in strict confidence and should be directed to:

<http://www.imsearch.com/6835>

Andrew Lee, Partner

Martens Roc, Senior Associate

Isaacson, Miller

UMBC values safety, cultural and ethnic diversity, social responsibility, lifelong learning, equity, and civic engagement. Consistent with these principles, the University does not discriminate in offering equal access to its educational programs and activities or with respect to employment terms and conditions on the basis of a UMBC community member's race, creed, color, religion, sex, gender, pregnancy, ancestry, age, gender identity or expression, national origin, veterans

status, marital status, sexual orientation, physical or mental disability, or genetic information.

UMBC is an Affirmative Action / Equal Opportunity Employer.

University of Texas Rio Grande Valley

Lecturer in Computer Science

The Department of Computer Science at the University of Texas Rio Grande Valley (UTRGV) invites applications for a full-time lecturer position in computer science to begin in Fall 2019.

Please see the full description of the position at the following link: <https://careers.utrgv.edu/postings/20186>

Washington State University Vancouver

Non-tenure-track Clinical Assistant Professor level position in computer science with expertise in application programming and Linux/Unix programming tools. See complete notice at: <https://admin.vancouver.wsu.edu/human-resources>

Washington State University Vancouver

Computer Science Faculty

Washington State University Vancouver invites applications for a full-time tenure-track position at the assistant professor level beginning 8/16/2019. Candidates from

all areas of computer science, including theory, will be considered with preference given to 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) have published promising scholarly work in the field and (5) contribute to our campus diversity goals (e.g. incorporate issues of diversity into mentoring, curriculum, service or research).

Duties include: (1) Teach undergraduate and graduate courses including networks; (2) Conduct research in at least one of the expertise areas listed above; (3) Secure external funding for research; and (4) Participate in service to the department and university through committee work, recruitment, and interaction with industry.

WSU Vancouver serves about 3,400 graduate and undergraduate students 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 five campuses. For more information: <http://ecs.vancouver.wsu.edu>. WSU Vancouver is committed to building a culturally diverse educational environment.

Application: Please visit www.wsujobs.com and search postings by location.

Applications must include: (1) 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; (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; and (4) a statement on equity and diversity (guidelines found at <https://admin.vancouver.wsu.edu/sites/admin.vancouver.wsu.edu/files/Diversity%20Statement%20Guidelines.pdf>). Application deadline is **April 7, 2019.**

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 non-U.S. citizens.

Washington University in St. Louis

Postdoctoral Fellow

The networking and security lab at WashU is soliciting applications for postdoctoral fellows with a start date of September 1st, 2019, or earlier. The position is for two years extendable to three, and spans all areas of cybersecurity with an initial focus on exploring the darkweb and its

evolution. The postdoctoral fellow will have considerable autonomy in defining other security-related projects. Teaching opportunities are available if desired.

Interested applicants should email a CV, cover-letter, and contact information of 2-3 references to Roch Guerin (guerin@wustl.edu).

Wayne State University

Department of Computer Science

Lecturer or Senior Lecturer

Applications are invited for a Director of Undergraduate Education. This is a teaching faculty position at the Lecturer or Senior Lecturer level beginning in Fall 2019. This position is being created to support our growing undergraduate program and offers an exciting opportunity for a motivated individual with interests in developing innovative Computer Science curriculum for an ethnically and culturally diverse undergraduate student body. In addition to teaching at the undergraduate level, the position includes a leadership role in undergraduate program assessment and administration of undergraduate teaching. The teaching load will reflect the service activities of this appointment. Candidates are expected to have a Ph.D. in Computer Science or a closely related field, or a M.S. in Computer Science with significant teaching experience, and to demonstrate potential for excellence in both teaching in CS education.

The Department of Computer Science has 23 tenured or tenure-track faculty

and 5 teaching faculty. The Department has 75 Ph.D. students and over 50 Master's students. The Department has experienced rapid undergraduate enrollment growth over the past several years and now has over 800 undergraduate majors. More information about the department can be found at <http://www.cs.wayne.edu>.

As a leading force in the revitalization of the City of Detroit, Wayne State University serves as an excellent campus for pursuing transformative research, education, and service initiatives. WSU attracts an ethnically, culturally, and educationally diverse student population from the Southeast Michigan region, as well as students from across the country. This student population offers an excellent opportunity for conducting innovative teaching-related research on CS education for diverse students.

Besides enjoying the beautiful fall scenery as well as winter skiing in Michigan, within a 20-mile radius of Wayne State campus, you will find several Metro Detroit suburbs that are consistently ranked in top 100 in Money Magazine's Best Places to Live.

Application Instructions

Applicants should submit a cover letter, teaching statement, diversity statement and curriculum vitae with the contact information of three references. For full consideration, applications must be received by February 15, 2019.

Apply online at jobs.wayne.edu (posting number: 0044143). Nominations and inquiries should be directed to Prof. Loren Schwiebert at loren@wayne.edu.

Wayne State University is a premier, public, urban research university located in the heart of Detroit where students from all backgrounds are offered a rich, high quality education. Our deep-rooted commitment to excellence, collaboration, integrity, diversity and inclusion creates exceptional educational opportunities preparing students for success in a diverse, global society. WSU encourages applications from women, people of color, and other underrepresented people. Wayne State is an affirmative action/equal opportunity employer.