

# 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

### Highlights from the CRA Virtual Conference 2020

For nearly 50 years, the Computing Research Association (CRA) has brought the leadership of the computing research community together every other year at Snowbird, UT to discuss community issues. The COVID-19 pandemic interrupted our plans to hold an in-person event this year, just like it has disrupted much of our way of life, both professionally and personally. After canceling the in-person event, CRA quickly pivoted to provide the conference in an online format with specialized content addressing the current environment and challenges during these unprecedented times. **The conference videos are now available here.**

*See page 2 for full article.*

### CRA Committee on Industry/Academia Interactions Releases Report

Recent trends such as increasing industry demands for technical talent from academia, as well as changes in the academic environment with increased industry interactions have prompted the need for a fresh look at the relationships between academia and industry. The CRA ad hoc committee on Industry/Academia Interactions was created to study these trends and determine how CRA can have an impact. The committee conducted a survey of computing department chairs in January 2020, and used the information gathered to recommend opportunities to CRA to engage further. **The committee report is available here, and a summary and link to the video presentation is below.**

*See page 4 for full article.*

### Reports on Surveys of Computer Science Faculty and Academic Units/Chairs: COVID-19 Impact

CRA conducted two surveys about the COVID-19 disruption in summer 2020.

- **Results of a Summer 2020 Survey of Computer Science Faculty: The Transition to Online Teaching last Spring and Planning for the Fall**
- **Summer 2020 Survey of Computer Science Academic Units/Chairs: Impact of COVID-19 So Far and Planning for the Fall**

CRA Director of Statistics and Evaluation Betsy Bizot recently presented the results at the ACM Education Advisory Committee Meeting. Click [here](#) to view the clip of her presentation.

*See page 6 for full article.*

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# Highlights from the CRA Virtual Conference 2020

For nearly 50 years, the Computing Research Association (CRA) has brought the leadership of the computing research community together every other year at Snowbird, UT to discuss community issues. The COVID-19 pandemic interrupted our plans to hold an in-person event this year, just like it has disrupted much of our way of life, both professionally and personally. After canceling the in-person event, CRA quickly pivoted to provide the conference in an online format with specialized content addressing the current environment and challenges during these unprecedented times. CRA Board members Ran Libeskind-Hadas and James Allan stepped up as chair and co-chair of the Virtual Conference.

The event began with opening remarks from CRA Executive Director Andrew Bernat, CRA Board Chair Ellen Zegura, CRA Treasurer James Allan and CRA Secretary Ran-Libeskind-Hadas. Throughout each conference session, there were interactive opportunities for participants to contribute questions and comments. The conference videos are now available [here](#) and lightning talk videos are available [here](#).

## Opening Talks from National Science Foundation Leadership

**Sethuraman Panchanathan**, Director of the National Science Foundation and the first computer scientist to serve in this role, opened with an inspiring talk emphasizing the agency's commitment to diversity. NSF CISE Assistant Director Margaret Martonosi described how NSF CISE is adapting to these unprecedented times with initiatives such as supporting the [CRA/CCC CIFellows](#) 2020 program, funding COVID inspired RAPIDs, offering REU flexibility, and transitioning to virtual review panels. She also detailed CISE's broadening participation efforts and issues of security and ethics in computing.

## Panel Sessions on Challenges During Unsettling Times

There were five panel sessions around this broad theme: teaching, research and collaboration, mentoring students and colleagues, challenges for chairs, and equity and systemic racism. Departments are all facing similar issues, including moving the academic unit's educational and research activities online; dealing with faculty hiring and

staffing constraints; and addressing budget shortfalls. Sessions provided a community forum to share best practices for continuing to navigate the unpredictable challenges imposed during the coronavirus pandemic and addressing community issues around race, equity, and equality.

## Results of a Summer 2020 Survey of Computer Science Faculty and Academic Units

CRA conducted two surveys about the COVID-19 disruption in summer 2020. The first surveyed computer science faculty members who made the transition from teaching in-person to teaching online as the result of the COVID-19 pandemic. The survey asked faculty members about their perceptions of the challenges in moving to emergency online instruction and also about planning for the fall 2020 term. In early July, CRA surveyed the chairs of doctoral and non-doctoral departments. They were asked about the impact of COVID-19 so far on their faculty, department operations, student job searches, and budgets. They were also asked about their expectations and

concerns for fall 2020. Both reports are available [here](#). CRA Director of Statistics and Evaluation Betsy Bizot recently presented the survey results at the ACM Education Advisory Committee Meeting. Click [here](#) to view the clip of her presentation.

## The Changing Policy Landscape for Computing Research

The video presentation by Peter Harsha, CRA's Director of Government Affairs, shed light on the current state of federal support for computing and science funding, plus CRA's recent actions, all while giving a behind-the-scenes tour of CRA's recently renovated office space. The first part of his talk covered more traditional areas for CRA – the state of federal funding for computing research and a review of some of the key pieces of legislation under consideration that could significantly alter federal investments in research and federal research agencies. In the second part, he discussed areas in which [CRA Government Affairs](#) is spending an increasing amount of effort: on government efforts to protect emerging technology, on the wide range of immigration restrictions proposed by

## Conference Highlights *(continued)*

the current Administration, on aspects of computing research and social justice, and the ubiquity of computing as a topic for policymakers and the challenges these all present.

### Looking Forward

CRA values the community building that comes with the gathering of leadership and is moving forward with plans to hold a full in-person Conference at Snowbird August 3-5, 2021. CRA will resume the regular conference pattern of every other year, with a conference in 2022 and subsequent even-number years.

The CRA Virtual Conference 2020 was organized by Chair Ran Libeskind-Hadas (Harvey Mudd College) and Co-Chair James Allan (University of Massachusetts, Amherst). CRA would also like to thank the CRA Conference at Snowbird 2020

**organizing committee**, led by Jaime Teevan and Penny Rheingans, who worked hard to develop the original program. Thanks to everyone who contributed to making this year's event a success!



# CRA VIRTUAL CONFERENCE 2020

## CRA's Strategic Planning Effort

Last year, the CRA Board embarked on a process to develop a strategic plan to guide the organization into the future. At the conference, there were two interactive sessions to discuss from CRA members and CRA's Strategic Planning initiative and gather feedback. This exercise to collect information occurred at a point when the plan has shape, yet room for constructive input regarding the priorities and essential factors for successful implementation of the emerging CRA Strategic Plan. CRA shared draft versions of the **revised mission, priority outcomes, objectives, and initiatives** that have been developed following extensive analysis and board input over the past year. The community feedback will be used to help determine what to focus on first and to identify key success factors.

# CRA Committee on Industry/Academia Interactions Releases Report



Recent trends such as increasing industry demands for technical talent from academia, as well as changes in the academic environment with increased industry interactions have prompted the need for a fresh look at the relationships between academia and industry. In late 2019, a CRA ad hoc committee on Industry/Academia Interactions was created to study these trends and determine how CRA can have an impact. The committee was formed as a follow up activity from the CCC white paper on "*Evolving Academia/Industry Relations in Computing Research*" to better understand the scope of industry engagements across CRA member institutions. This initiative fits with CRA's mission to enhance innovation by joining with industry, government and academia to strengthen research and advanced education in computing and aligns with goals identified in the CRA Strategic Planning effort. The committee conducted a survey of computing department chairs in January 2020, and used the information gathered to recommend opportunities to CRA to engage further. The committee report is available [here](#), and a summary and [link to the video presentation](#) is below.

## Summary of Survey Results

- In January 2020, a survey was sent to 221 computing department chairs.
  - » 105 responses --- indicates strong interest by CRA member organizations.
  - » Over 60% also said that they were open to engaging further on this topic.
- Findings show that significant industry engagement is under way between faculty and industry, with an increasing trend.
- There was a mix of positive and negative aspects of industry/academia engagements, with the positives outweighing the negatives.
- There are also correlations between industry interactions and department size, as well as between department size and proximity to a "tech hub" geographic region.
- A wealth of information from the survey can help guide future CRA activities related to industry-academia engagements.
- It is important to note that these findings pre-date the recent worldwide impacts of the COVID-19 pandemic.

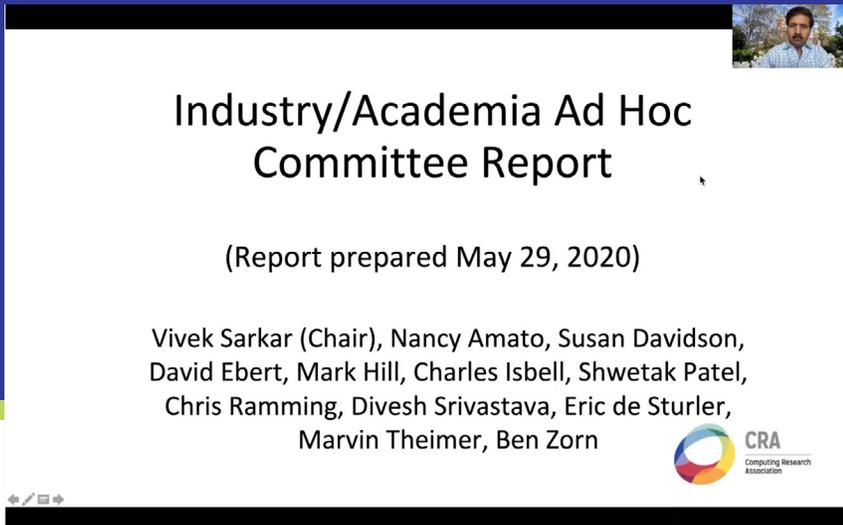
## Next Steps

Based on the findings thus far, the committee's recommendations include the following:

1. Conduct additional surveys to get a more complete picture of current opportunities and challenges related to industry-academia interactions:
2. Create a follow-on report on best practices for departments and companies in industry/academia engagements related to computing research.
3. Consider forming a new CRA programmatic committee focused on fostering, amplifying, and sustaining industry's contributions to the broad landscape of computing research.

## Report Released *(continued)*

The CRA Board approved the formation of this programmatic committee at the July Board meeting.



**Industry/Academia Ad Hoc  
Committee Report**

(Report prepared May 29, 2020)

Vivek Sarkar (Chair), Nancy Amato, Susan Davidson,  
David Ebert, Mark Hill, Charles Isbell, Shwetak Patel,  
Chris Ramming, Divesh Srivastava, Eric de Sturler,  
Marvin Theimer, Ben Zorn



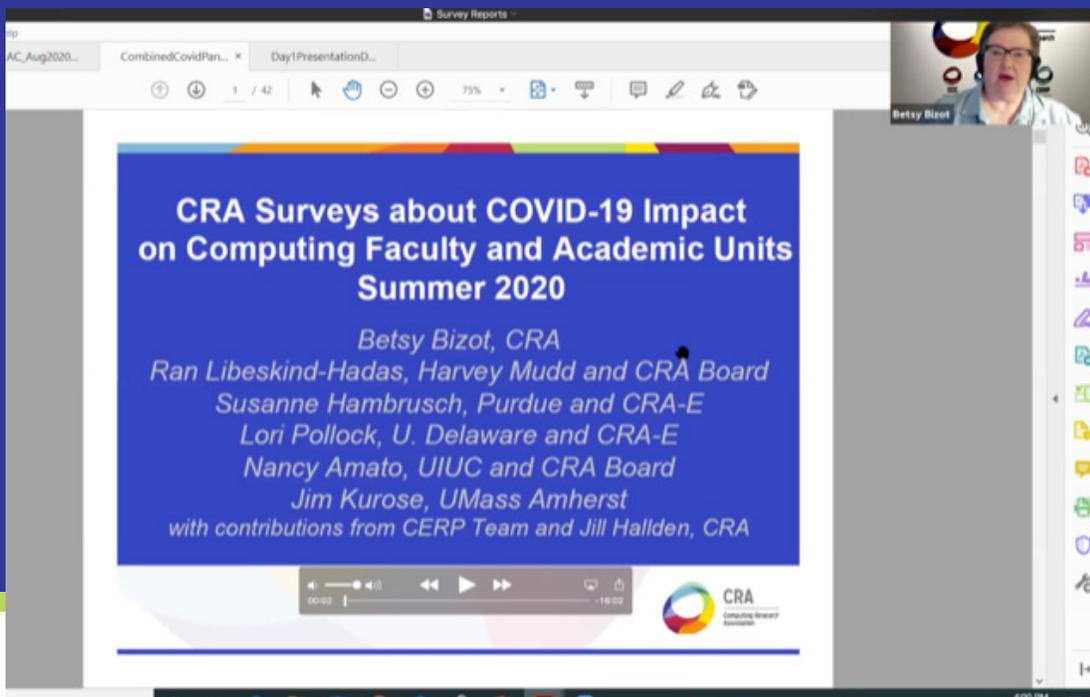

Watch CRA Board Member **Vivek Sarkar**, chair of the CRA Industry/Academia Committee, share the survey results and recommendations from the committee *in this video*.

Click [here](#) to view the full committee report and [here](#) to view slides from the video presentation.

### CRA Industry/Academia Committee

- Vivek Sarkar (Chair, Georgia Institute of Technology)
- Nancy Amato (University of Illinois)
- Susan Davidson (University of Pennsylvania)
- Eric de Sturler (Virginia Tech)
- David Ebert (Purdue University)
- Mark D. Hill (University of Wisconsin)
- Charles Isbell (Georgia Institute of Technology)
- Shwetak Patel (University of Washington)
- Chris Ramming (VMware)
- Divesh Srivastava (AT&T Labs-Research)
- Marvin Theimer (Amazon)
- Benjamin Zorn (Microsoft)

CRA conducted two surveys about the COVID-19 disruption in summer 2020.



## Results of a Summer 2020 Survey of Computer Science Faculty: The Transition to Online Teaching last Spring and Planning for the Fall

In June 2020, CRA conducted a survey of computer science faculty members at doctoral and non-doctoral institutions who made the transition from teaching in person to teaching online as the result of the COVID-19 pandemic. The survey asked faculty members about their perceptions of the challenges in moving to emergency online instruction, both for themselves and for their students, and about what resources were available (or not) to help with the transition. It also asked about planning for the fall 2020 term.

## Summer 2020 Survey of Computer Science Academic Units/Chairs: Impact of COVID-19 So Far and Planning for the Fall

In summer 2020 the COVID-19 situation for computing departments continued to change rapidly. In early July, CRA surveyed the chairs of doctoral and non-doctoral departments. They were asked about the impact of COVID-19 so far on their faculty, department operations, student job searches, and budgets. They were also asked about their expectations and concerns for fall 2020.

## COVID Impact (*continued*)

### **Key findings from the surveys were that:**

- Faculty thought the greatest challenges for their students were family obligations, internet issues (insufficient or slow), mental health issues, and time zone differences.
- Faculty thought their own greatest challenges were that it was hard to implement their preferred teaching style online, and that online instruction took a lot more time.
- Faculty who moved a course online in the spring said that if they had to teach the same course online again, they were most likely to add more online discussion and interaction, add more pre-recorded material, and adapt materials to increase student independence in learning.
- Chairs thought that junior faculty were most affected by the disruption, and that their greatest challenges were uncertainty about the arrival of graduate student RAs in the fall, and child care.
- Some budget reductions are already taking place widely and others are expected

### **Key recommendations are:**

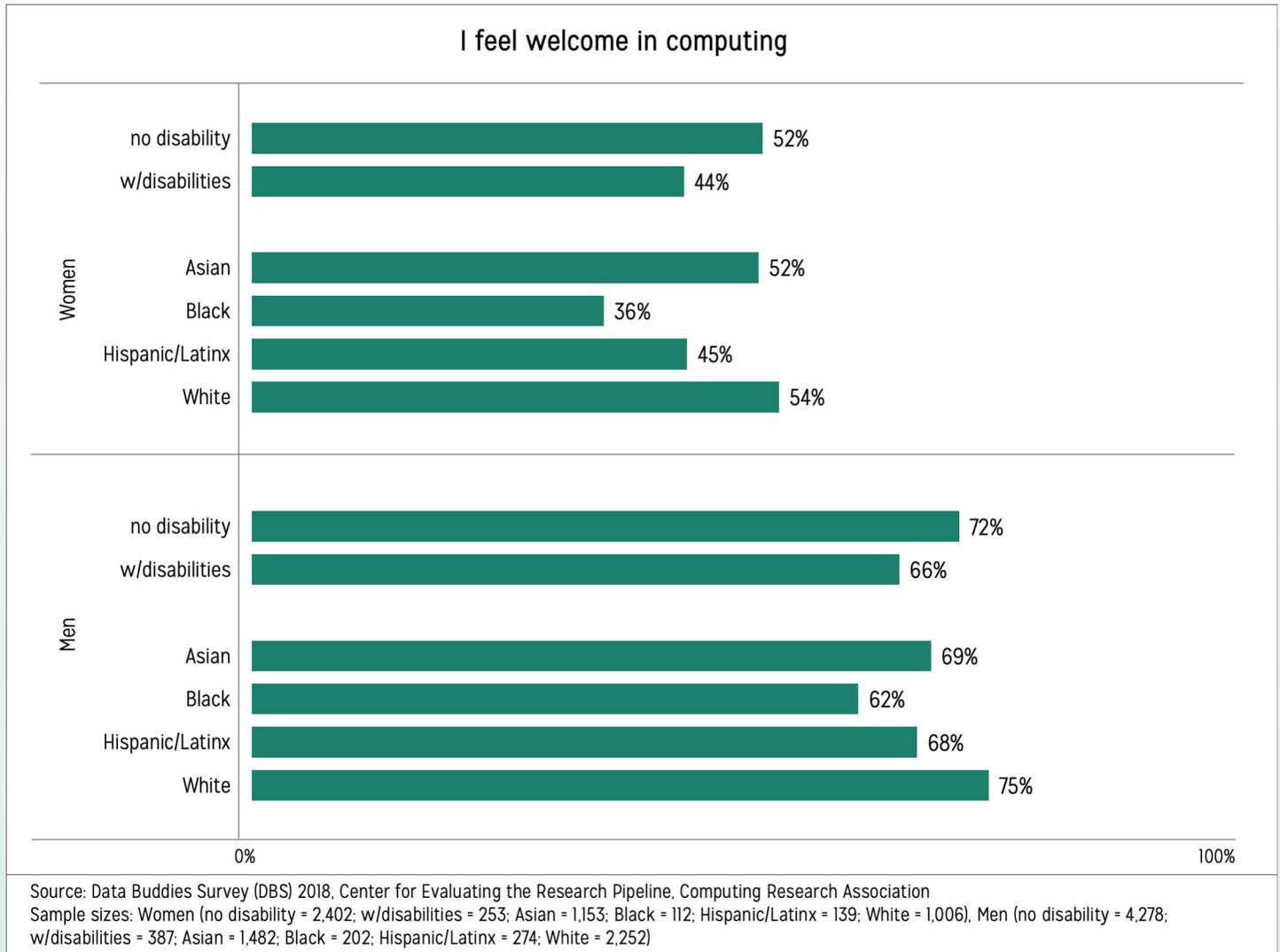
- Increase communication
- Improve efforts to build community to reduce isolation and increase engagement
- Address need for mentoring and support, especially for junior faculty and for groups traditionally underrepresented in computing
- Monitor the situation for continued change and long-term impacts

CRA Director of Statistics and Evaluation Betsy Bizot recently presented these results at the ACM Education Advisory Committee Meeting. Click [here](#) to view the clip of her presentation.



# Who is Welcome in Computing?

By Burçin Tamer, Director of CERP



Intrinsic factors such as level of interest in the field do not guarantee successful recruitment and retention of all students in computing. Many students who come from demographic backgrounds that are currently underrepresented in computing do not start off being uninterested in computing. In fact, studies [1] at the middle and high school levels have found

that students from some of the racial/ethnic groups currently underrepresented in computing, specifically Black and Hispanic students, report a higher level of interest in computing than their White counterparts. Somewhere along the line, those Black and Hispanic students do not end up in computing majors when they get to college.

There are many psychological and socio-economic reasons why some students' pathways diverge from a career in computing (e.g., lack of prior exposure, not having enough role models in the field). How welcoming the field has to do with of a number of these reasons. For instance, if classes are structured in a way that strongly emphasizes prior engagement



## Who is Welcome in Computing? (continued)

with computing, students who are coming from disadvantaged backgrounds will be less likely to succeed and to feel like their experiences are valued in computing.

This graphic presents a picture of how welcoming the field of computing is to different groups of students. It shows undergraduate students' responses to a question in the 2018 **CRA Data Buddies Survey** (DBS) asking their level of agreement with the statement "I feel welcome in computing". The bars represent percentage of students in each group who selected "somewhat agree" or "strongly agree". The analysis specifically focused on the intersections of race/ethnicity and gender, and disability and gender.

Across all racial and ethnic groups and regardless of disability status, women feel less welcomed in computing than men do with only 54% or less reporting agreement with being welcomed in computing. Among women, White and Asian women feel the most welcome followed by Hispanic and Black women. Only 36% of Black women said they would agree with the statement "I feel welcome in computing". Fifty two percent of women without any disabilities and 44% of women with disabilities said they felt welcome in computing.

On the other hand, 75% of White men in the DBS sample reported feeling welcome in computing. This percentage was 69% for Asian men, 68% for Hispanic men, and 62% for Black men. While 72% of men with

no disabilities said they felt welcome in computing, this number was only 66% for men with disabilities.

To put these numbers in perspective, the percentage of White men (75%) who reported feeling welcomed in computing was more than double that of Black women (36%). This rather large range in percentages indicates the significant differences in how students from different backgrounds experience being in the field of computing. Given the importance of feeling welcomed in the field for retaining (and for recruiting) students, these results indicate that computing community is facing a challenge that needs to be addressed urgently if efforts to broaden participation in computing are to succeed.

### References:

[1] Google Inc. & Gallup Inc. (2017, December). Encouraging Students Toward Computer Science Learning. Results From the 2015-2016 Google-Gallup Study of Computer Science in U.S. K-12 Schools (Issue Brief No. 5). Retrieved from <https://goo.gl/iM5g3A>

### Notes:

The survey data used in this graphic were collected during fall 2018 by CERP via the **Data Buddies Project**.

Students were asked to rate their level of agreement with the statement "I feel welcome in computing" on a scale of 1 (strongly disagree) to 5 (strongly agree).

The survey sample contains 8,795 students who responded to the question of interest (feeling welcome in computing). Of these 7,320 students reported both gender and disability status, and 7,800 reported both race/ethnicity and gender.

Only individuals who identified as woman or man are included here as a result of a very small sample size for students who identified as non-binary.



## Who is Welcome in Computing? *(continued)*

The survey included the following racial/ethnic groups: African/African American/Black, American Indian/Alaska Native, Arab/Middle Eastern, Caribbean/Puerto Rican, Caucasian/European/White, East Asian, Southeast Asian, South Asian, Other Asian, Mexican American/Chicano, Other Hispanic/Latino/a, Native Hawaiian/Pacific Islander, Other. Students identifying with any of the Asian identities were grouped together; and students who identified as Caribbean/Puerto Rican, Mexican American/Chicano, and Other Hispanic/Latino/a were grouped together. Students who identified as American Indian/Alaska Native, Arab/Middle Eastern, or Native Hawaiian/Pacific Islander were not included in this analysis due to small sample sizes. Students who selected more than one race/ethnicity were also not included in the graphic shown here but the results do not change when they are included in each of the racial/ethnic groups they selected.

The disability status was based on students' self-reported identification.

Two proportion t-tests show that differences (conducted within women and men) between Black women and White women, and Black women and Asian women; White men and men from the three other racial/ethnic groups; Black men and Asian men; women with disabilities and women with no disabilities; men with disabilities and men with no disabilities are statistically significant at 5% significance level.

The averages for the 1-5 scale values for each group is: Women (no disability = 3.44; w/disabilities = 3.18; Asian = 3.46; Black = 3.10; Hispanic/Latinx = 3.37; White = 3.42), Men (no disability = 3.93; w/disabilities = 3.84; Asian = 3.85; Black = 3.71; Hispanic/Latinx = 3.84; White = 4.00).

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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, CNS 1840724, 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.

# CERP Announces Web App to Access Statistics Relevant to The CRA Community on BPCnet.org



CERP

Computing Research Association  
Evaluation

*By Evelyn Yarzebinski, CERP Research Associate*

In support of the NSF [CISE initiative to Broaden Participation in Computing \(BPC\)](#) and [BPCnet.org](#), CERP has created a web app to facilitate access to statistics helpful to the CRA community. This web app can be used to quickly generate statistics for use in NSF proposals, particularly those that require BPC Plans.



CERP will continue regular development of this web app; the current version contains two sources of data:

- IPEDS Completed Degrees (filtered to display only completed computing degrees at a given institution. “Computing degree” is broadly defined as any area of studies falling under [CIP code](#) of “11) Computer and Information Sciences and Support Services”)
- CCD Enrollment (filtered to display for K-12 data only)

The web app allows the user to create a customized table to display the data. Users can select 1 or more years of data and can choose to display or aggregate data across the IPEDS and CCD categories of sex and race/ethnicity. Data is also displayed on the institution, state, and national levels to provide additional context for each data point. Users can save the resulting table for future reference via Copy and Download buttons located at the top of the web app.

You can access the current version of the app here: <https://bpcnet.org/statistics/>.

To receive notifications regarding new content on BPCnet.org, including future versions of this web app, consider [joining the BPCnet.org mailing list](#).



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# CCC Welcomes New Council Members and Leadership!

By CCC Staff



**Liz Bradley**

*University of Colorado-Boulder*



**Dan Lopresti**

*Lehigh University*

July 1st is the start of a new term at CCC!

The **Computing Community Consortium** (CCC) is happy to announce that **Liz Bradley** from the **University of Colorado-Boulder** is the new Chair and **Dan Lopresti** from **Lehigh University** is the Vice Chair. **Mark D. Hill** from the **University of Wisconsin-Madison** is the Chair Emeritus. The CCC Chair and Vice Chair both serve two-year terms; at the culmination of the two years, the Vice Chair typically becomes the new Chair.

The CCC also welcomes **six new council members**, nominated by colleagues in the computing research community, who began their three-year terms today:

- **Kathleen Fisher, Tufts University**
- **William D. Gropp, University of Illinois Urbana-Champaign**
- **Brian LaMacchia, Microsoft Research**
- **Melanie Moses, University of New Mexico**
- **Helen Nissenbaum, Cornell Tech**
- **Holly Yanco, UMass Lowell**

The CCC and CRA thank those council members whose terms ended on June 30th for their exceptional dedication and service to the CCC and to the broader computing research community:

- **Juliana Freire, New York University**
- **Keith Marzullo, University of Maryland**
- **Greg Morrisett, Cornell Tech University**
- **Jen Rexford, Princeton University**
- **Ben Zorn, Microsoft Research**

The CCC Council is comprised of 20 members who have expertise in diverse areas of computing. They are instrumental in leading CCC's visioning programs, which help catalyze visions for future computing research. Members serve staggered three-year terms that rotate every July. New members are added every July following an open nomination process conducted by a subcommittee of the CCC with oversight by CRA and NSF. Nominations from the community are encouraged at any time. Learn more about the nomination process and what CCC Council members do [here](#).

# CCC Releases Evolving Methods for Evaluating and Disseminating Computing Research White Paper



By CCC Staff

The **Computing Community Consortium (CCC)** has released a white paper titled *Evolving Methods for Evaluating and Disseminating Computing Research*. This white paper was written by Future of the Research Enterprise (FRE) task force members **Ben Zorn** (Microsoft Research), **Tom Conte** (Georgia Tech), **Keith Marzullo** (University of Maryland), and **Suresh Venkatasubramanian** (University of Utah).



## Evolving Methods for Evaluating and Disseminating Computing Research



The **FRE task force** was assembled in 2019 to study the evolution of the computing research ecosystem, including topics such as the impact of academia-industry relations, the peer review process, and the future of open source projects. Based on interviews with members of the computing research community, the task force wrote the *Evolving Methods for Evaluating and Disseminating Computing Research* white paper, which presents the trends the task force observed, discusses the impacts of changing review and dissemination processes, and suggests methods to reduce the negative impacts of these trends.

Overall the task force found that **“Trends impacting computing research are largely positive** and have increased the participation, scope, accessibility, and speed of the research process,” however **“Challenges remain in securing the integrity of the process**, including addressing ways to scale the review process, avoiding attempts to misinform or confuse the dissemination of results, and ensuring fairness and broad participation in the process itself.” (p. 1).

In response to these trends and challenges, the task force recommends:

- **“Regularly polling members of the computing research community**, including program and general conference chairs, journal editors, authors, reviewers, etc., to identify specific challenges they face to better understand these issues.
- **An influential body**, such as the Computing Research Association (CRA), **regularly issues a “State of the Computing Research Enterprise” report** to update the community on trends, both positive and negative, impacting the computing research enterprise.
- A deeper investigation, specifically to **better understand the influence that social media and preprint archives have on computing research**, is conducted.
- **Initiate an investigation of the impact of COVID-19** on the broader computing research enterprise, including the impact on evaluation and dissemination.” (pp. 1-2).

**Learn more about the evolving trends in computing research and read the recommendations of the FRE task force in the white paper, which can be accessed here.** The white paper is also available on [arXiv](#). For citation use: Zorn B., Conte T., Marzullo K., & Venkatasubramanian S. (2020) *Evolving Methods for Evaluating and Disseminating Computing Research* <https://cra.org/ccc/resources/ccc-led-whitepapers/> or arXiv identifier: arXiv:2007.01242 [cs.CY].

# CCC Computational Support for Substance Use Disorder Prevention, Detection, Treatment, and Recovery Workshop Report Released



By CCC Staff

**The Computing Community Consortium (CCC) is pleased to announce the release of the Computational Support for Substance Use Disorder Prevention, Detection, Treatment, and Recovery Workshop Report!**

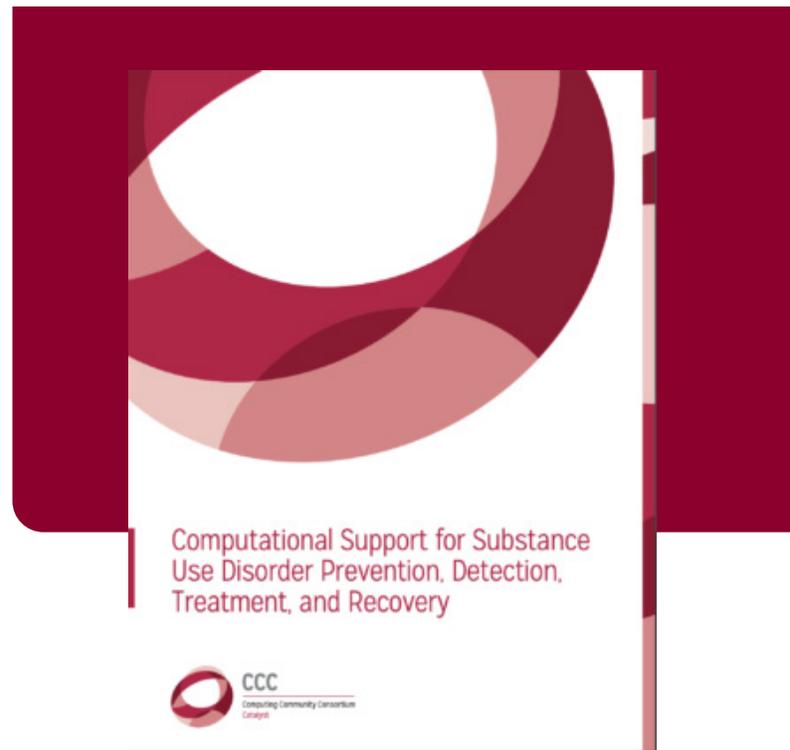
Chaired by Lana Yarosh from the University of Minnesota, the Computational Support for Substance Use Disorder Prevention, Detection, Treatment, and Recovery November 2019 workshop brought together an interdisciplinary group of leading researchers and practitioners to identify opportunities and challenges for enabling innovative computational support for prevention, detection, treatment, and long-term recovery from SUDs. The steering committee members were Suzanne Bakken (Columbia University), Alan Borning (University of Washington), Munmun De Choudhury (Georgia Institute of Technology), Cliff Lampe (University of Michigan), Elizabeth Mynatt (Georgia Tech), Stephen Schueller (University of California Irvine), and Tiffany Veinot (University of Michigan).

As outcomes from this visioning process, three broad opportunity areas for computational support in the SUD context were identified (see section 3 of the report for more details):

1. Detecting and mitigating risk of SUD relapse,
2. Establishing and empowering social support networks, and
3. Collecting and sharing data meaningfully across ecologies of formal and informal care.

The workshop also identified cross-cutting challenges that affect how SUD computational support research is planned, carried out, and disseminated:

- Ethical considerations for working with stigmatized and vulnerable populations,
- Identifying and managing privacy risks and concerns data collection,



- Identifying and reducing potential harm when deploying computational SUD interventions,
- Enhancing theoretical underpinnings of interventions and how they may fit into broader theories of change,
- Recognizing and responding to the disproportionate burden of SUD in specific disparity populations, and
- Implementing, transferring, and sustaining interventions to create a path for innovative technical work to influence practice.

**To learn more about the research recommendations that emerged at the workshop, read the full report [here](#).**

## CRA and CERP Welcome Colin Karnes



CRA has recently hired Colin Karnes as a research assistant for CRA's **Center for Evaluating the Research Pipeline** (CERP). In this role, Colin supports CERP activities, as they relate to CERP's research and administrative tasks.

Prior to joining CRA, Colin worked as a graduate research assistant at the Department of Public and Nonprofit Studies at Georgia Southern University. Colin holds a Master of Public Administration degree from Georgia Southern University (2019) and a Bachelor of Arts in Social Sciences from the University at Buffalo (2014). He has experience in public education, nonprofit administration, and corporate governance. In his free time, Colin enjoys reading, volunteering, and exploring Washington, DC.

## In Memoriam: Frances Allen

CRA is sad to report that former CRA and CRA-W Board Member Frances “Fran” Allen passed away on August 4. Fran spent her career advancing the field of computing and inspired generations of technologists. She was a computing pioneer - the first woman to **receive the A.M. Turing Award** (2006) and the first woman to be named an IBM Fellow in 1989. Fran served as a speaker for CRA-W’s Discipline-Specific Mentoring program in 2008 and Career Mentoring Workshop in 2005.



Photo credit: IBM

From the **IBM announcement**:

As a pioneer in compiler organization and optimization algorithms, Fran made seminal contributions to the world of computing. Her work on inter-procedural analysis and automatic parallelization continues to be on the leading edge of compiler research. She successfully reduced this science to practice through the transfer of this technology to products such as the STRETCH HARVEST Compiler, the COBOL Compiler, and the Parallel FORTRAN Product.

As much as Fran will be remembered for her technical vision and her foundational work in computing, she will equally be remembered for her passion to inspire and mentor others, fostering an environment of perseverance and hard work throughout the IBM community.

...

When she wasn’t exploring new computing opportunities, Fran’s passions were climbing mountains and studying environmental issues. She was a member of the American Alpine Club and the Alpine Club of Canada, participating in exploratory expeditions to the Arctic and on the Chinese/Tibet border.

She will be dearly missed by CRA, CRA-WP and the entire computing community.

# CUE.NEXT: Envisioning the future of computing in undergraduate education



*Larry Birnbaum, Northwestern University*

*Susanne Hambrusch, Purdue University*

*Clayton Lewis, University of Colorado*

## Introduction

Computing and Computer Science have become relevant to undergraduate education in all disciplines. Academic institutions are challenged to meet the demand of the growing and increasingly diverse student body seeking to learn more about computing, computer science, and the role of computation in their own disciplines. Courses and curricula aimed at teaching CS majors generally do not meet the needs of this growing student audience.

Three NSF-funded workshops were held between November 2019 and January 2020 to initiate a national dialog on envisioning the future of computing in undergraduate education (CUE).<sup>1</sup> Applications were solicited from teams of 2 to 5 faculty, educators, or administrators. Each team including at least one member from a computing-centric department (including CS, CE, ECE, IS) and at least one member from a non-computing centric discipline. The three workshops drew a total of 201 participants forming 50 teams from 66 institutions, with slightly more than half the participants (106) from non-computing departments. The majority of the participants came from Ph.D. granting institutions; non-Ph.D. or -M.S. granting institutions included ten 4-year liberal arts colleges, four HBCU's, one community college, and one Hispanic serving institution. This article summarizes perspectives, challenges, and potential strategies around a variety of themes that emerged during the discussions. For the full workshop report see <https://sites.northwestern.edu/cuenext/>.

## I. Curriculum Design

### I.1 Approaches to CUE Curriculum Design

The most often-heard participant comments about creating and implementing successful CUE curricula are itemized below.

#### **Non-computing participants observe:**

- Have a low barrier approach to contextualized computing, with a focus on the impact on humanity and society.
- Have shorter pathways and shorter prerequisite chains.
- Have ongoing communication between CS and other domains to help CS faculty understand the computational needs of non-computing disciplines.

<sup>1</sup> This work is supported by the NSF under grant number CNS-1944777. Any opinions, findings, and conclusions or recommendations expressed are those of the authors and do not necessarily reflect NSF's views.

## CUE.NEXT (*continued*)

- Recognize CUE-like efforts that are already happening in some non-computing departments (media, arts, biology, etc).
- Recognize that computing is one family of problem-solving techniques among many, and that discipline-specific knowledge and skills are needed.
- Recognize that CS students in non-CS courses often fail to engage with the other discipline. Just as non-CS students can be turned off by coding, CS students can be turned off by writing, or artistic expression.
- Stop using CSI as a weed-out course; stop making computing/programming look scary.
- The need for strong programming skills is contested in some disciplines. Most people in non-CS disciplines may not program much.

### Computing participants observe:

- Students from other disciplines want to enroll in CS courses for which they don't have the prerequisites. This particularly affects courses in machine learning and AI.
- The programming languages most appropriate for other disciplines change over time, and it is time-consuming to adjust curriculum to track this.
- Most people in non-CS disciplines may not program much, but knowledge of programming is essential if quality computational tools are to be created.
- Data-centric computing might offer an alternative path into high-level computing courses with the right mixture of topics.
- Student workload has to be reasonable. Many CS courses require much more time than other courses. Is that always necessary to achieve our learning objectives? Do we want to project a weed-out image?
- Other departments often don't think they need intellectual engagement with CS. They just want service courses for their students.

Two approaches to curriculum development emerged from the discussions. In the **CS-centered** approach, computing faculty work with representatives from other disciplines to identify the most important computer science principles and practices for inclusion in courses intended for students in those other disciplines but offered by computing-centric departments. In the **discipline-centered** approach, faculty from a discipline outside of computing work with computing faculty to develop curricula and courses addressing computational knowledge and skills for that discipline.

A strength of the CS-centered approach is that it can readily draw on the knowledge and experience of computing faculty around computing pedagogy, as well as an understanding of important aspects of computer science that even highly knowledgeable users of computing technology may lack, such as software engineering. The challenge of this approach is ensuring that the curriculum adequately connects with the needs of learners in other disciplines. "CS + X" approaches generally are CS-centered, in that they typically use existing CS courses. But to fully meet the objectives of CUE, these courses need to be tailored to fit the needs of students in other disciplines.

A discipline-centered approach ensures that the curriculum will meet the needs of learners in that discipline, and that computing concepts are presented in a context that will be meaningful to those learners. But work will be needed to make sure that key aspects of computing, like software engineering, are adequately addressed.

## CUE.NEXT (*continued*)

### 1.2 Critical Issues to be Addressed

#### Non-computing participants observe:

- Context matters! Abstract examples don't motivate.
- CS courses are technicalities-first, rather than problem-first.
- Identify core learning goals for computing. Develop a common core. Once articulated, faculty can adopt them and assessment can measure against them.
- Be aware of the challenges non-CS/STEM students face:
  - » Fear (content, competence)
  - » Anxiety (failure, time to graduation)
  - » Preparation (lack of foundational vocabulary, comprehension, and skills)
  - » Stereotypes ("not cool", who has access, lack of role models)
- Faculty incentives and shared resources are the key challenges limiting scalability and sustainability.

#### Computing participants observe:

- CS courses have high enrollment and designing courses for non-majors has low priority at the current time.
- Staffing courses for CS majors is currently a challenge. Unclear how departments could manage an additional load.
- Non-majors in CS courses may be perceived by CS instructors as weakening the rigor of the courses targeted at majors.
- Managing students with diverse backgrounds in a single class is hard and requires a redesign of the course.
- Students taking computing courses in non-CS departments are often not prepared for further CS courses.
- Faculty incentives and shared resources are the key challenges limiting scalability and sustainability.

The recommendations made include:

#### Develop incentives for qualified faculty to get involved and actively contribute to CUE.

Computing departments are struggling to meet the demand from their own majors. Faculty in other disciplines have their own priorities. Few institutions can hire new faculty specifically for CUE. Innovation in incentives for existing faculty will be needed.

#### Develop and disseminate sharable resources.

While some faculty want **content modules** they can **adopt**, others instead want **models of pedagogy** that they can **adapt** for their courses.

#### Enable paths into more advanced computing topics.

Learners need to be able to increase their mastery of computational problem solving, while retaining their disciplinary identities. Early courses must provide enough computational knowledge and skill for students to engage with more advanced topics in computing that matter for their discipline.

## CUE.NEXT (continued)

### 2. Diversity and Inclusion

In many settings, sadly, computing has developed a culture, or is perceived as having a culture, of arrogance and exclusivity, in which the uninitiated are made to feel inferior and/or unwelcome. Diversity and inclusion need to be addressed wherever computing is taught, as there is always the possibility that students may display condescending attitudes, and for other students to feel left behind. Some participants felt that faculty, too, may see knowledge of computing as a kind of medicine that needs to be administered to those unfortunates who don't have it, and may not recognize the value of approaches in other disciplines. *Fixed mindset* attitudes, as opposed to *growth mindset* attitudes, still exist on campus and in our society. When these attitudes are experienced in the classroom, learners may feel that they "don't have what it takes".

Participants identified a number of key elements that CUE efforts should incorporate.

- "Technology first, application second" computing courses can limit engagement. Many students are more interested, certainly initially, in what computing can do than in how it works. Courses that **begin with a focus on applications** can have wider appeal.
- Use a **broad concept of audience(s)**. Inclusion in CS should support women, students with disabilities, LGBTQ students, first-generation college students, and students from rural areas, as well URM students and students from diverse ethnic backgrounds. Assume that all CS courses include students with all of these backgrounds when designing them. Faculty should understand the background, interests, and circumstances of students they hope to attract and retain.
- Create courses or workshops that strengthen students' background, aimed at underrepresented groups, either pre-college, or students already in college. Such **bridge programs** must **actively link** computing to students' goals and interests. Just offering a computing course for a non-computing department that has a diverse student body will not by itself broaden participation in computing. Even in these contexts additional effort that will likely be required to reach the diverse student constituency we need to reach.
- Care should be taken in creating a **welcoming environment** in classes from day one. Computing departments should recognize that many students feel they do not belong.
- CS courses are known for highly competitive, timed tests. These create barriers for students who have less background, and possibly broader interests, than classmates. **Mastery- or competency-based assessments** reward learning at the pace and path that individual students need, providing multiple opportunities to learn difficult material, with less stress on competition.

### 3. The Need for Innovation

Participants from computing and non-computing disciplines alike emphasized that greater innovation is needed, especially for institutions struggling with limited resources. Key ideas viewed as having potential for innovation include the following.

**Online tutorial material** on virtually any topic in computing is freely available online. Integration of online materials in traditional learning approaches needs to be better understood. **Peer mentoring** is already successfully used within CS at larger institutions. It would be especially exciting to create approaches that allow students in non-computing disciplines to learn about computing, without relying entirely on faculty to invest scarce time and effort. But such approaches need to be managed carefully to ensure that students who have less background, or might be assumed by peers to have less background, aren't marginalized. Projects, if chosen by students, can increase intrinsic motivation, so that students are measuring their progress against concrete goals rather than relying on grades on assignments or exams for feedback.

## CUE.NEXT *(continued)*

Diversity-aware hackathons can create substantial learning opportunities on a no-credit basis. Study abroad concepts and practices could be generalized to support a year in a different department on the same campus. Finally, “virtual” departments could be created to facilitate faculty cooperation across discipline lines.

Since the CUE.NEXT workshops were held, we have all experienced the abrupt transformation of higher education forced by the COVID pandemic. While we certainly hope that much of this disruption will prove temporary, we also believe that some instructors will seize the opportunity to experiment with new ways to teach, to assess learning, and to connect with students. This in turn may open up new possibilities for innovative approaches to CUE courses and curricula.

In the coming year, we plan to organize virtual follow-up workshops focused on further exploring CUE. Please check <https://sites.northwestern.edu/cuenext/> for information about upcoming workshops and the full CUE report.

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## AAAS Science & Technology Policy Fellowships

### ABOUT STPF

This professional-level fellowship is the premier opportunity for outstanding computer and information scientists to learn first-hand about policymaking, bring valuable expertise to policy and enhance scientific representation in the federal government.

Fellows serve yearlong assignments in the federal government in Washington D.C. and represent a broad range of backgrounds, disciplines and career stages. STPF is seeking candidates with strong background in mathematics and computer science, an interest in career transformation, and a desire to impact federal policy.

### QUALIFICATIONS

Eligibility requirements include U.S. citizenship and a doctoral level STEM degree.

### STIPEND & BENEFITS

- \$80,000-105,000.
- Health insurance
- Travel/training and relocation allowances.

### APPLICATION DEADLINE:

November 1, 2020

### FELLOWSHIP YEAR:

September 1, 2021 – August 31, 2022

### APPLY NOW:

[https://fellowshipapp.aaas.org/app/main?utm\\_campaign=stpf-2020-jobs&utm\\_medium=web&utm\\_source=jobpost&utm\\_term=cs-1](https://fellowshipapp.aaas.org/app/main?utm_campaign=stpf-2020-jobs&utm_medium=web&utm_source=jobpost&utm_term=cs-1)

## All Souls College, Oxford

*Five-Year Post-Doctoral  
Research Fellowship in Theoretical  
Computer Science*

**Salary:** £42,813 to £45,742 (including housing allowance of £9,899 if eligible)

**Hours:** Full-Time

**Contract:** Contract/Temporary

All Souls College invites applications for a Post-Doctoral Research Fellowship in Theoretical Computer Science. The Fellowship is for five years, fixed-term, and non-renewable. All Souls elects postdoctoral fellows in a range of subjects every other year, and these are intended to offer opportunities for outstanding early-career researchers to establish a record of independent research. Applicants must have been awarded their doctorates after 1 August 2018 or expect to have been awarded their doctorate by 1 October 2021.

For more information about the College, further particulars for the position, and to submit applications online, see <http://www.all-souls.ox.ac.uk>.

Applications are due by 12noon (UK time) on Friday, 11 September 2020, and reference a week later. Interviews will be on 15 and 16 January 2021, and the election will take place on 23 January 2021.

The College is committed to promoting diversity. Applications are particularly welcome from women and from black and minority ethnic candidates, who are under-represented in academic posts in Oxford.

## Baidu Research Cognitive Computing Lab

*Postdoctoral Researchers in  
Cognitive Computing*

Baidu Research Cognitive Computing Lab (CCL) is looking for outstanding researchers with strong background in machine learning, statistics, applied mathematics, systems, databases, NLP, computer vision, security, theoretical computer science, etc. Our mission is to develop next generation cognitive computing technologies for better connecting billions of users to services. Our postdoctoral researchers are expected to focus on basic research in broad AI-related fields. This would be an excellent opportunity for fresh PhD graduates in CS, Statistics, EE, Amath, etc., to spend 1 – 3 years in an industrial research environment to prepare for their long-term research careers either in academia or research labs.

Qualifications:

1. PhD in Computer Science, Statistics, Electrical Engineering, Mathematics, Operation Research, or related fields.
2. Excellent publication record in major CS conferences or premier Stat/EE/SIAM journals. Examples are CVPR, FOCS, KDD, ACL, WWW, ICML, SIGMOD, JMLR, PAMI, IEEE Info. Theory, major statistics/mathematics journals, SIAM J. Computing, SIAM J. Optimization, etc.
3. Strong analytical and problem-solving skills.
4. Team player with good communication skills.

Locations: Bellevue WA, Sunnyvale CA, or Beijing China. Please send CV to [ccl-job@baidu.com](mailto:ccl-job@baidu.com)

## Brown University

*Postdoctoral Research Associate, Data Science Initiative*

Brown University's **Data Science Initiative** (DSI) seeks applications for one or more one-year postdoctoral fellowship positions in the area of data science with a start date of August 1, 2020 (flexible).

We seek candidates who work in the areas of Brown's TRIPODS themes, namely geometry and topology of data, causal and model-based inference, machine learning and prediction, and data analysis on massive graphs and networks. This position also provides the opportunity to engage in development and application of new methods to data related to COVID-19.

Please apply and find more details on Interfolio. <https://apply.interfolio.com/76880>

To receive full consideration, complete applications should be received by July 30, 2020, but we will continue to review applications until the position is filled.

Brown University is committed to fostering a diverse and inclusive academic global community; as an EEO/AA employer, Brown considers applicants for employment without regard to, and does not discriminate on the basis of, gender, race, protected veteran status, disability, or any other legally protected status.

## Carnegie Mellon University School of Computer Science

*Faculty Hiring*

The School of Computer Science consists of seven departments, spanning a wide range of topics in computer science and the application of computers to real-world systems. Faculty positions are specific to each department, though in certain cases, joint positions are also possible.

We are seeking tenure, research, and systems track faculty candidates with a strong interest in research, an earned Ph.D., and outstanding academic credentials. Candidates for tenure track appointments should also have a strong interest in graduate and undergraduate education.

We are also seeking teaching track faculty candidates. You should have a Ph.D. in Computer Science or a related computing discipline, a background of demonstrated excellence and dedication to teaching, the ability to collaborate with other faculty in a fast-paced environment, and must be prepared to teach in a wide variety of settings, including large undergraduate lecture courses and classes delivered in non-traditional formats.

Candidates with a commitment toward building an equitable and diverse scholarly community are particularly encouraged to apply. We continuously seek to improve the diversity of our student, staff and faculty populations, including and especially through annual faculty hiring processes. Our hiring committees thoroughly review the qualifications of every applicant,

and are particularly enthusiastic about applicants whose background and experiences would make them unique among our faculty. Applications from candidates who have a demonstrated track record in mentoring and nurturing women and students from groups traditionally underrepresented in computer science are strongly encouraged.

We will begin accepting applications beginning August 1, 2020. To ensure full consideration of your application, please submit all materials no later than December 18, 2020. In your cover letter, please indicate clearly the department(s) you are applying to. You can learn more about our hiring plans and application instructions by visiting <http://www.cs.cmu.edu/employment-scs>.

For more information about the hiring priorities in a particular department, please visit a department site below:

Computational Biology Department: <http://www.cbd.cmu.edu/tenure-track-faculty-positions-2/open/>

Computer Science Department: <https://csd.cmu.edu/careers/faculty-hiring>

Human-Computer Interaction Institute: <https://hcii.cmu.edu/careers/list>

Institute for Software Research: <http://www.isri.cmu.edu/jobs/index.html>

Language Technologies Institute: <http://lti.cs.cmu.edu/news/lti-hiring>

Machine Learning Department: [http://www.ml.cmu.edu/Faculty\\_Hiring.html](http://www.ml.cmu.edu/Faculty_Hiring.html)

Robotics Institute: <http://ri.cmu.edu/about/hiring-faculty-positions/>

Please send email to [faculty-search@cs.cmu.edu](mailto:faculty-search@cs.cmu.edu) with any questions.

Carnegie Mellon University shall abide by the requirements of 41 CFR §§ 60-1.4(a), 60-300.5(a) and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities, and prohibit discrimination against all individuals based on their race, color, religion, sex, or national origin. Moreover, these regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, national origin, protected veteran status or disability.

## City University of Hong Kong

### Worldwide Search for Talent

City University of Hong Kong is a dynamic, fast-growing university that is pursuing excellence in research and professional education. As a publicly-funded institution, the University is committed to nurturing and developing students' talents and creating applicable knowledge to support social and economic advancement.

**Professor/Associate Professor/  
Assistant Professor**  
**Department of Computer Science**  
**[Ref. A/430/09]**

The Department of Computer Science has internationally known research groups in a number of areas, including bioinformatics, cloud computing, evolutionary computation, information security, machine learning and data science, mobile computing, multimedia computing and graphics, and software engineering. The Department is ranked the 11th best Computer Science Department globally by the US News & World Report (2019).

For further details, please visit <http://www.cityu.edu.hk/hro/en/job/current/academic.asp?ref=uac-a430>.

City University of Hong Kong is an equal opportunity employer and we are committed to the principle of diversity. Personal data provided by applicants will be used for recruitment and other employment-related purposes.

## College of Charleston

### Assistant Professor of Computer Science

The Computer Science Department at the College of Charleston invites applications for one tenure-track Assistant Professor position starting Fall 2020.

Preference will be given to candidates with expertise in computer graphics, game programming, computational music, spatial audio, motion capture animation, interactive sensor-driven art or sculpture installations, projection mapping, artificial intelligence and machine learning applied in the arts, robotics applied in the arts, computational creativity, multi-user and collaborative systems for the arts, and

related areas to support the Computing in the Arts (CITA) program and our other undergraduate and graduate programs.

The rapidly-growing Computer Science department has approximately 500 majors who are enrolled in five undergraduate degree programs, and two master's programs. In particular, Computing in the Arts program has over 100 students and offers an interdisciplinary experience by combining computer science and programming with concentrations in art, music, theater, digital media, interaction and game development (<http://cita.cofc.edu>). An earned Ph.D. degree (by August 15, 2020) in Computer Science or closely related field is required.

Apply online at <https://jobs.cofc.edu/postings/9892>

## The College of New Jersey

### Lecturer - Computer Science (non-tenure track)

The Department of Computer Science at The College of New Jersey (TCNJ) invites applications for a ten-month, renewable, non-tenure-track faculty position in computer science starting August 2020. Candidates should have a doctorate or master's degree in Computer Science, or a closely related field; demonstrated excellence in teaching; and a strong commitment to the education of undergraduates. Candidates with equivalent experiences - from industry or other backgrounds - will also be considered.

The Computer Science program is ABET CAC-accredited, offers state-of-the-art laboratories and equipment, and is housed in the new TCNJ STEM building. Founded in 1855, TCNJ is a selective public institution that has earned national recognition for its commitment to excellence.

Final offer of employment is contingent upon the successful completion of background and reference checks.

For more details and how to apply please see: [https://tcnj.taleo.net/careersection/00\\_ex\\_faculty/jobdetail.ftl?job=20000625&lang=en](https://tcnj.taleo.net/careersection/00_ex_faculty/jobdetail.ftl?job=20000625&lang=en)

## Georgia Institute of Technology

### Postdoctoral Fellow - Cybersecurity

The School of Electrical and Computer Engineering at the Georgia Institute of Technology has an immediate new opening for a full-time Postdoctoral Researcher in the area of Cybersecurity.

The successful applicant will work with Prof. Brendan Saltaformaggio and the Cyber Forensics Innovation (CyFI) Laboratory at Georgia Institute of Technology in Atlanta, GA. Applicants should be motivated to both join existing projects as well as propose new opportunities and directions.

More information about the CyFI Lab's research can be found here: <https://cyfi.ece.gatech.edu/>

Georgia Tech prides itself on its technology resources, collaborations, high-

quality student body, and its commitment to diversity, equity, and inclusion.

Georgia Tech is an equal education/employment opportunity dedicated to building a diverse community. We strongly encourage applications from women, underrepresented minorities, individuals with disabilities, and veterans. Georgia Tech has policies to promote a healthy work-life balance.

### Minimum Qualifications:

- Background in research focusing on cybersecurity, cyber forensics, malware analysis, program analysis, mobile security, IoT security, or a similar domain.
- Excellent written communication skills demonstrated by prior publications.
- Creative experience in asking and answering important research questions by leading on prior research activities.
- Completed or near completion of a PhD in computer science, computer engineering, or related area.

### Preferred Qualifications:

1. Experience in cyber attack forensics, web application security, and automated vulnerability/malware analysis.
2. Breadth of background knowledge of IoT devices, mobile apps, cloud backends, and network security using active and passive techniques.

Apply here: <https://academicjobsonline.org/ajo/jobs/16139>

## Georgia Southwestern State University

### Assistant/Associate Professor, Computer Science

Tenure track Assistant/Associate Professor in Computer Science position, starting in August 2020. Duties include teaching a wide variety of undergraduate and graduate courses, conducting research and participating in faculty governance. Doctoral degree required. [www.gsw.edu/Careers](http://www.gsw.edu/Careers)

## Indian Institute of Information Technology Sri City

### Recruitment of Assistant Professors/ Associate Professors

IIIT Sri City (IIITS) is located in a large industrial town Sri City (about 60 KMs from Chennai on the Nellore Highway). IIITS has special focus on teaching/research in areas such as **AI & Machine Learning, Cyber Security, Software Engineering (with system development experiences), Big Data Analytics, Natural Language Processing, and all ECE areas**. IIITS is looking for highly qualified and motivated individuals to join the team of faculty.

For further details such as Institute Profile, Interest Areas, Pay/Reward Structure, etc., please visit the following link.

<http://www.iiits.ac.in/careersiits/faculty/>

## Max Planck Institute for Security and Privacy

*Junior Research Group Leader*

### The Max Planck Institute for Security and Privacy in Bochum, Germany is inviting applications for Junior Research Group Leader positions

Our Junior Research Group program offers young scientists the opportunity to develop their own independent research program. We welcome applicants from all areas of security and privacy, including foundations, cryptography, software and hardware security, as well as human and other interdisciplinary aspects (e.g., computer science and psychology, economy, law, policy, ethics, etc). The positions are funded for 5 years. Applicants must have completed a doctoral degree in computer science or related areas and must have demonstrated outstanding research vision, and potential to successfully lead a research group. Successful candidates are expected to build a highly visible research agenda, to mentor Ph.D. students, and to participate in collaborative projects.

The Max Planck Institute for Security and Privacy is located in Bochum, Germany. We maintain an open, international, and diverse work environment and seek applications from outstanding researchers regardless of national origin. Our working language is English. We collaborate with several major research institutions worldwide and have high international visibility. We offer competitive salaries and support for Ph.D. students, as well as generous travel, administrative, and technical support.

Please apply at <https://apply.cis.mpg.de/register/mpispjrgl>

You need to upload your CV, a research plan, an optional teaching statement, and 3-5 references. Reviewing of applications will start immediately and will continue until the positions are filled. The expected starting date for the positions is Fall 2020, open to negotiations. Informal inquiries can be addressed to applications [jrgl@mpi-sp.org](mailto:jrgl@mpi-sp.org)

## Occidental College

### Visiting Instructor in Computer Science

Occidental College is seeking applicants for a 1-year, full time Visiting Instructor who will teach four courses (a combined 3/3 load) during the 2020-2021 academic year, starting in August 2020. There is the possibility for renewal in future years. In each semester, the successful candidate will teach an introductory course in statistics with labs and our Computer Organization course with labs.

Applicants should have a Master's degree in computer science or related fields, with Ph.D. and college-level teaching experience preferred.

Review of applications will begin on June 15 and will continue until the position is filled.

See the full job listing [here](#).

## Princeton University

### Lecturer of Computer Science

The Department of Computer Science at Princeton University seeks applications

from outstanding individuals who share our strong commitment to undergraduate education to join our teaching faculty for full and part-time Lecturer positions.

Computer Science is enjoying record popularity at Princeton, and opportunities abound to engage with our outstanding students at many levels. Our large undergraduate courses are the shared responsibility of a team of faculty and graduate assistants. A successful candidate for this position will participate in such a team at the outset. Job responsibilities can also include teaching upper-level courses, advising undergraduate research, curriculum development, state-of-the-art software technology development, data analytics, outreach to under-represented groups, and online content development.

Research and scholarship in CS education or in any area of CS is also encouraged. An advanced degree in computer science, or related field, is required.

Applications must include a cover letter, curriculum vitae, teaching statement, material relevant to evaluating the applicant's teaching abilities and research accomplishments, and contact information for at least three references.

This position is subject to the University's background check policy. Further information about the Computer Science Department at Princeton can be found at: <http://cs.princeton.edu/>

## Rensselaer Polytechnic Institute

*Postdoctoral research associate*

Rensselaer Polytechnic Institute (RPI) has a one-year postdoc position in the theoretical foundation of high-dimensional data analytics and machine learning. The position be extended to two years based on performance and further renewed based on funding availability. The candidates are expected to have strong mathematical skills and good communication skills in written and oral English, as well as research experience on one or several of the following areas

- (a) high-dimensional data analytics using low-dimensionality models such as sparsity, low-rankness, etc.
- (b) theoretical analyses of machine learning and neural networks
- (c) convex and nonconvex optimization

If interested, please send your CV and two representative publications to Prof. Meng Wang ([wangm7@rpi.edu](mailto:wangm7@rpi.edu)).

## Senticence Institute

*Postdoctoral researcher in  
AI ethics (remote)*

Job opening at Senticence Institute to research moral circle expansion:  
<https://www.senticenceinstitute.org/researcher-opening>



## Postdoctoral Scholar, Software Systems Security Lab

Applications are invited for multiple postdoctoral scholar positions in the Software Systems Security Lab at the Pennsylvania State University. The lab conducts cutting-edge research in the area of cybersecurity, machine learning, and software systems. We are seeking highly qualified researchers to work on

- automatic software analysis, transformation, verification, and security hardening;
- security of machine learning systems; and
- machine learning for cybersecurity problems.

Candidates must have a Ph.D. in computer and information science or a related field, with strong motivation, ability to conduct research with a proven track record, excellent project management skills and experience, excellent written and oral communication skills, ability to effectively interact with and mentor graduate students. Strong programming skill is required. Experience in cybersecurity, machine learning, software security, program analysis, verification, compiler and programming languages is a plus.

The initial appointment will be one-year, but renewable for multiple years. The review of applications will begin immediately and will continue until the positions are filled. Contact Prof. Dinghao Wu for any questions (<https://faculty.ist.psu.edu/wu/>, email: [dwu@ist.psu.edu](mailto:dwu@ist.psu.edu)). To apply, send via email a cover letter, CV, research statement, 1-3 sample publications, and 2-5 reference letters. Senior Researchers are welcome to apply to research assistant or associate professor positions.

The Pennsylvania State University is committed to and accountable for advancing diversity, equity, and inclusion in all of its forms. We embrace individual uniqueness, foster a culture of inclusion that supports both broad and specific diversity initiatives, leverage the educational and institutional benefits of diversity, and engage all individuals to help them thrive. We value inclusion as a core strength and an essential element of our public service mission.

Apply online at <https://apptrkr.com/1956497>

**CAMPUS SECURITY CRIME STATISTICS:** For more about safety at Penn State, and to review the Annual Security Report which contains information about crime statistics and other safety and security matters, please go to <http://www.police.psu.edu/clery/>, which will also provide you with detail on how to request a hard copy of the Annual Security Report.

Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability or protected veteran status.

## University of California, San Francisco

### *Postdoc - Deep Learning and Pathology*

We're looking for highly motivated postdoctoral candidates with a background in machine learning, pathology, biomedical image analysis, or related fields. The candidate would define or join a deep learning research project compatible with lab directions in neuropathology, dermatopathology, ophthalmic pathology, or by building on ongoing clinical collaborations. These may include molecular pathology, when feasible in the collaboration. Broad themes across these application domains include model interpretability and representation

### **Qualifications**

Python data science expertise required. Desired skills include experience with PyTorch, pandas, OpenCV, and sklearn, or the demonstrated ability to acquire this expertise in a timely manner. Expertise with containers (e.g., NGC, singularity), AI-ops (e.g., CI/CD for ML), rapid caching, performant data formats (e.g., zarr), and/or distributed dataset/model analysis is a plus.

A productive track record with at least one first-author publication is required. We seek a driven individual who will lead her/his research independently and communicate frequently and clearly to the field.

Interested candidates should submit a CV and 3 letters of reference to [apply@keiserlab.org](mailto:apply@keiserlab.org). Reference "postdoc-dnn-pathology-CRA"

## The University of Chicago

### *Masters Program in Computer Science: Full-time Teaching Positions in Databases*

The Masters Program in Computer Science (MPCS) in the Department of Computer Science at the University of Chicago invites applications for all ranks of the Clinical appointment (Assistant Clinical Professor of Computer Science, Associate Clinical Professor of Computer Science, and Clinical Professor of Computer Science) in the field of Databases. These positions will teach Databases classes in the Masters Program in Computer Science (MPCS) and in its joint program with the Harris School of Public Policy, the Master of Science in Computational Analysis & Public Policy (CAPP).

These full-time, benefit-eligible appointments are for an initial three-year term, with the possibility of renewal. These are teaching positions with no research responsibilities, and a teaching load of six courses across three academic quarters of the year (Autumn, Winter, Spring).

The person holding these positions will teach at least two different courses: MPCS 53001 Databases and CAPP 30235 Databases for Public Policy. Syllabuses for the latest offerings of these classes can be found at <https://mpcs-courses.cs.uchicago.edu/2019-20/spring/courses/53001> and <https://www.classes.cs.uchicago.edu/archive/2019/spring/30235-1/syllabus.html>. Depending on the applicant's background and interests, the person

holding this position may also be asked to teach classes covering advanced topics in Databases.

For each clinical position/rank, a PhD in Computer Science or a related field at the time of appointment, or 10 years of relevant industry experience is required. Work experience in a computing-related industry is preferred. In addition, each rank requires the following requirements:

For the Assistant Clinical Professor of Computer Science position we require teaching experience in Computer Science or a related field at the undergraduate or graduate level, as either an instructor of record or a teaching assistant.

For the Associate Clinical Professor of Computer Science position, candidates must have been the instructor of record in at least 1800 units of undergraduate and/or graduate course offerings in Computer Science or a related field over the span of at least six calendar years. 1800 units is typically equivalent to 18 quarter-long course offerings, or 12 semester-long course offerings. See <https://registrar.uchicago.edu/records/transcripts/transcript-key/credit-conversion-chart-equivalencies/> for equivalencies between teaching units and semester/quarter hours.

For the Clinical Professor of Computer Science position, candidates must have been the instructor of record in at least 3000 units of undergraduate and/or graduate course offerings in Computer Science or a related field over the span of at least 10 calendar years; 3000 units is typically equivalent to 30 quarter-long

course offerings, or 20 semester-long course offerings. See <https://registrar.uchicago.edu/records/transcripts/transcript-key/credit-conversion-chart-equivalencies/> for equivalencies between teaching units and semester/quarter hours.

Applications must be submitted online through the University of Chicago's Interfolio website:

Assistant Clinical Professor:  
<https://apply.interfolio.com/77082>

Associate Clinical Professor:  
<https://apply.interfolio.com/77083>

Clinical Professor:  
<https://apply.interfolio.com/77086>

Review of applications will begin August 20, 2020.

We seek a diverse pool of applicants who wish to join an academic community that places the highest value on rigorous inquiry and encourages diverse perspectives, experiences, groups of individuals, and ideas to inform and stimulate intellectual challenge, engagement, and exchange.

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](#).

Job seekers in need of a reasonable accommodation to complete the application process should call 773-702-1032 or email [equalopportunity@uchicago.edu](mailto:equalopportunity@uchicago.edu) with their request.

## The University of Chicago

### *Masters Program in Computer Science: Full-time Teaching Positions in Systems*

The Masters Program in Computer Science (MPCS) in the Department of Computer Science at the University of Chicago invites applications for all ranks of the Clinical appointment (Assistant Clinical Professor of Computer Science, Associate Clinical Professor of Computer Science, and Clinical Professor of Computer Science) in the field of Computer Systems.

These full-time, benefit-eligible appointments are for an initial three-year term, with the possibility of renewal. These are teaching positions with no research responsibilities, and a teaching load of six courses across three academic quarters of the year (Autumn, Winter, Spring).

The person holding this position must be able to teach at least two of the following courses: Introduction to Computer Systems, Advanced Computer Systems, Networks, Operating Systems, Distributed Systems, Parallel Programming, Compilers, Computer Architecture, Introduction to Computer Security, or Functional Programming. Syllabi for past offerings of these classes can be found

at <https://mpcs-courses.cs.uchicago.edu/> Depending on the applicant's background and interests, the person holding this position may also be asked to teach other classes in the MPCS.

For each clinical position/rank, a PhD in Computer Science or a related field at the time of appointment, or 10 years of relevant industry experience is required. Work experience in a computing-related industry is preferred. In addition, each rank requires the following requirements:

For the Assistant Clinical Professor of Computer Science position we require teaching experience in Computer Science or a related field at the undergraduate or graduate level, as either an instructor of record or a teaching assistant.

For the Associate Clinical Professor of Computer Science position, candidates must have been the instructor of record in at least 1800 units of undergraduate and/or graduate course offerings in Computer Science or a related field over the span of at least six calendar years. 1800 units is typically equivalent to 18 quarter-long course offerings, or 12 semester-long course offerings. See <https://registrar.uchicago.edu/records/transcripts/transcript-key/credit-conversion-chart-equivalencies/> for equivalencies between teaching units and semester/quarter hours.

For the Clinical Professor of Computer Science position, candidates must have been the instructor of record in at least 3000 units of undergraduate and/or graduate course offerings in Computer Science or a related field over the span

of at least 10 calendar years; 3000 units is typically equivalent to 30 quarter-long course offerings, or 20 semester-long course offerings. See <https://registrar.uchicago.edu/records/transcripts/transcript-key/credit-conversion-chart-equivalencies/> for equivalencies between teaching units and semester/quarter hours.

Applications must be submitted online through the University of Chicago's Interfolio website:

Assistant Clinical Professor:  
[apply.interfolio.com/77091](https://apply.interfolio.com/77091)

Associate Clinical Professor:  
[apply.interfolio.com/77092](https://apply.interfolio.com/77092)

Clinical Professor:  
[apply.interfolio.com/77093](https://apply.interfolio.com/77093)

Review of applications will begin on August 20, 2020.

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classes under the law. For additional information please see the University's [\*Notice of Nondiscrimination\*](#).

Job seekers in need of a reasonable accommodation to complete the application process should call 773-702-1032 or email [equalopportunity@uchicago.edu](mailto:equalopportunity@uchicago.edu) with their request

## University of Chicago

### Description

The Division of Social Sciences at the University of Chicago invites applications for a position as Instructional Professor (IP) in the MA program in Computational Social Science (MACSS, [macss.uchicago.edu](https://macss.uchicago.edu)) who are capable of teaching courses in computer science with applications in social scientific research. This is a full-time, career-track teaching position; the start date is flexible between autumn 2020 through autumn 2021. The initial two-year appointment is renewable with an opportunity for promotion. Appointments at the Assistant, Associate, and Full Instructional Professor rank will be considered.

The IP will annually teach five courses, including some combination of machine learning, modeling, simulation, data visualization, high-performance computing, cloud computing, application development, or introductions to important programming languages (including R or Python). Other courses may cover applied research across some fields or research problems in the social sciences.

In addition, the IP will advise MA students; advise a limited number of MA theses as the primary supervisor; hire and manage teaching assistants; help lead the MACSS Computation Workshop; contribute to program admissions, staff hiring, and student recruitment; help train our doctoral student preceptors and contribute to the intellectual life and administrative needs of the program. The position includes support for professional development. The IP will join a dynamic community of social science researchers.

### Qualifications

Applicants must have a Ph.D. in computer science, data science, sociology, economics, political science, psychology, or a related discipline. Industry experience is valued, but not required. The IP must have the Ph.D. must be in hand prior to the start date. Teaching experience is required, and preference will be given to candidates who have demonstrated experience guiding students on thesis research and writing. Applicants must have demonstrated experience advising students with a broad range of interests and a track record of interdisciplinary scholarship. Preference will be given to candidates with a demonstrated record of working on a team to design and deliver a curriculum.

### Application Instructions

Applicants must apply online at the University of Chicago's Interfolio website at <http://apply.interfolio.com/76367>. The following materials must be submitted: 1) a cover letter,

outlining the applicant's prior computational training, prior teaching or mentoring experience, and suggested course offerings in our MA program; 2) a curriculum vitae; 3) an article-length writing sample applying a computational research design; 4) at least one-course syllabus from prior teaching or with an eye to future offerings; 5) course evaluations or other evidence of past excellence in teaching or mentoring, and 6) three letters of reference.

Review of applications will begin on July 15 and will continue until the position is filled or the search is closed. This position will be part of the Service Employees International Union.

## **Instructional Professor in Computational Social Science**

### **Equal Employment Opportunity Statement**

We seek a diverse pool of applicants who wish to join an academic community that places the highest value on rigorous inquiry and encourages diverse perspectives, experiences, groups of individuals, and ideas to inform and stimulate intellectual challenge, engagement, and exchange.

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. Job seekers in need of a reasonable accommodation to complete the application process should call 773-702-1032 or email [equalopportunity@uchicago.edu](mailto:equalopportunity@uchicago.edu) with their request.

## **University of Georgia**

### *Limited Term Lecturer*

The Department of Computer Science at the University of Georgia invites applications for one full-time, Limited-Term Lecturer position with a start date no later than January 1, 2021. This position is non-tenure track and can be renewed annually, but is anticipated to be two years in duration, with the possibility for renewal for a third year.

For more details and application information, please see [https://cs.uga.edu/sites/default/files/inline-files/LT%20Lecturer\\_Long%20Ad.pdf](https://cs.uga.edu/sites/default/files/inline-files/LT%20Lecturer_Long%20Ad.pdf)

To apply, please go to <http://www.ugajobsearch.com/postings/157611>

Review of candidates will begin on August 15, 2020 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 Notre Dame**

### *Postdoctoral Research Associate*

The University of Notre Dame has an open postdoctoral position in social media analysis and image processing in support of a large multinational effort to study the effect of deceptive images on social media. The anticipated start date for this position is September 1, 2020 (negotiable). This is an annual renewable appointment for up to two years subject to performance and funding.

The postdoc will join a dynamic and interdisciplinary team that includes social media analysis, computer vision, data science, and international studies. The postdoc will work with Dr. Tim Weninger and Dr. Walter Scheirer as well as other postdocs and several PhD students in the Department of Computer Science and Engineering and the Pulte Institute for Global Development. Areas of focus will include empirical and experimental analysis of social media systems, computer image processing, and models for the spread of information.

Applicants must submit a CV, and contact information to [tweninger@nd.edu](mailto:tweninger@nd.edu). To guarantee full consideration, applications must be received by July 1, 2020, however, review of applications will continue until the positions have been filled.

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

## University of South Florida

### Visiting Assistant Professor

The University of South Florida invites applications for Visiting Assistant Professor **Computer Science and Engineering**

Computer Science and Engineering is seeking to hire a Visiting Assistant Professor who can teach a broad range of core and elective courses at the undergraduate and graduate levels in computer science, computer engineering, information technology, and cybersecurity. Candidates must have completed a PhD in computer science or a related engineering area from an accredited institution. Preference will be given to candidates with teaching experience in an ABET accredited program. Special emphasis is on candidates who have an interest in Broadening Participation in Computing (BPC). This recruitment is for non-tenure earning full-time visiting position, renewable for up to three years. The expected teaching load is three courses per semester. Successful candidates can start as early as Fall 2020.

Computer Science and Engineering (<http://www.usf.edu/engineering/cse/>) has 28 tenure-track/tenured faculty members, 11 instructors, 1 visiting instructor, 6 staff members/advisors, and offers BS, MS, and PhD degrees, serving nearly 2000 undergraduates, 120 masters, and 100 PhD students. USF CSE has a strong working relationship with the Florida Center for Cybersecurity. Department ranks include twelve NSF CAREER awardees,

one National Academy of Inventors (NAI) Fellow, six IEEE Fellows, three IAPR Fellows, four AAAS Fellows, and three AIMBE Fellows. The Computer Engineering graduate program was ranked 50th among US public universities by US News and World Report (2019). USF CSE is in the top sixth (rank 29) of Computer Science departments at U.S. public universities, according to the most recent Academic Analytics data based on Scholarly Research Index. USF CSE faculty members have 40 issued patents, own 12 copyrights, and have executed eight license/option agreements between FY12-FY16.

The College of Engineering at the University of South Florida comprises seven departments, serving nearly 7,000 students and offers ABET-accredited undergraduate degrees in seven programs, as well as 12 master's and eight doctoral degrees. The College is ranked #54 among public universities in the USNWR 2020 Best Engineering Graduate Program Rankings. The College has 12 major research centers and institutes, and is actively engaged in local and global research activities with foci on sustainability, biomedical engineering, computing technology and transportation. For the fiscal year 2018-2019, the College had \$36 million in research expenditures.

The University of South Florida is a high-impact global research university dedicated to student success. Over the past 10 years, no other public university in the country has risen faster in U.S. News and World Report's national university

rankings than USF. Serving more than 50,000 students on campuses in Tampa, St. Petersburg and Sarasota-Manatee, USF is designated as a Preeminent State Research University by the Florida Board of Governors, placing it in the most elite category among the state's 12 public universities. USF has earned widespread national recognition for its success graduating under-represented minority and limited-income students at rates equal to or higher than white and higher income students. USF is a member of the American Athletic Conference. Learn more at [www.usf.edu](http://www.usf.edu).

An application package should include a cover letter, curriculum vitae, statements describing teaching and research experience and goals, and the names and contact information of at least three references (one of which must be the current immediate supervisor of the applicant). Applicants must electronically submit the application packet as one PDF file to the following website: <https://www.usf.edu/work-at-usf/careers/index.aspx>, search for Job Opening ID #25224. Applications will be considered starting immediately.

The University of South Florida is an Equal Opportunity/Equal Access/Affirmative Action Institution. Women and minorities are strongly encouraged to apply. Dual career couples with questions about opportunities are encouraged to contact the Department chair. To request disability accommodations in the application and interview process, please notify Khoa Dinh, the EOL Coordinator at (813) 974-9272 at least five working days in advance.

## University of Tennessee Knoxville

### *Research Position in Performance Analysis*

This full-time position is in the area of performance measurement and modeling, including the Exa-PAPI project (<http://icl.utk.edu/exa-papi/>).

We are looking for a Research Scientist who can work on the design and development of high-quality software (C++) that builds on our current projects and extends them with performance monitoring capabilities for new and advanced hardware and software technologies. Experience with C++, high-performance computing performance tools, large-scale systems, compiler technology, and large software systems are all desired skills. However, candidates with a solid computer science foundation and excellent systems and programming skills are encouraged to apply.

These projects are leading the technology in performance analysis of scientific applications running on state-of-the-art hardware and in the modernization of code. This role will offer opportunities for publication, for travel that will involve interacting with research partners and participating in the research community, and for special training in new and emerging technologies that are relevant to the work.

The prospective hire will have the distinction of working at the Innovative Computing Laboratory (<http://www.icl.utk.edu/>), a world-class research lab at

the University of Tennessee, Knoxville. He or she will also have close and frequent collaboration with industry partners, including Intel, NVIDIA, AMD, and IBM.

### **Education**

A PhD in computer science or a related field with a demonstrable background in computer science, particularly in computer architectures and parallel processing; or an MS in computer science or a related field plus 3-5 years of relevant research or work experience.

### **Experience**

Technical experience in system software, parallel computing, scientific applications, low-level libraries; prior experience and expertise with systems programming, benchmarking, performance analysis toolkits, C, C++, and Fortran. Significant experience developing large software systems is a significant plus.

### **Job Skills**

The following skills are required: extensive knowledge of programming techniques, strong low-level system programming abilities, high proficiency in C/C++, a basic understanding of the Fortran language, technical writing and presentation skills, excellent communication skills, and a strong publication record.

### **How to Apply**

For consideration, send CV and contact information for three references to:

Dr. Heike Jagode at [jagode@icl.utk.edu](mailto:jagode@icl.utk.edu)

Dr. Anthony Danalis at [adanalis@icl.utk.edu](mailto:adanalis@icl.utk.edu)

## University of Texas Arlington

### *Teaching Faculty*

The University of Texas at Arlington (UTA) invites applications for 3 full-time teaching faculty positions in its Computer Science and Engineering (CSE) Department (<http://www.cse.uta.edu>). Teaching positions are full-time, Non-Tenure Track positions, and can be at the levels of lecturer/senior lecturer, or assistant/associate/full professor of instruction. These openings are for positions that start in the Fall 2020 semester. The successful candidates are expected to have strong teaching and communication skills, and should have the technical capabilities and knowledge to teach undergraduate and/or graduate courses in one or more specialization areas of computer science, computer engineering, or software engineering. Salary is competitive and commensurate with experience. Candidates in all areas will be considered, but we are particularly interested in candidates who can teach computer engineering courses such as circuits, electronics, embedded systems, and signal processing, as well as those who can teach fundamental computer science classes such as discrete structures, theory of computation and algorithms. We will accept applications until all positions are filled, but priority will be given to candidates who apply before June 30, 2020.

### **Qualifications**

For assistant/associate/full professor of instruction, candidates must have earned

(by the start date) a Ph.D. degree in Computer Science, Computer Engineering, or a related area. For lecturer/senior lecturer positions, a Ph.D. degree is preferred, but MS degree in computer-related area and work experience will also be considered. All candidates must show a strong commitment to teaching excellence and should share the university's core values of fostering an open and inclusive environment that promotes diversity and participation of groups that are currently underrepresented in the computing and engineering fields.

## The University, College, and Department

CSE is part of the College of Engineering (CoE) at UTA, one of the largest engineering colleges in Texas (<https://www.uta.edu/engineering>). Active research areas include databases/big data, data mining/machine learning, cloud computing, networks, mobile and pervasive computing, IoT, computer vision, security and privacy, bioinformatics and biomedical computing, robotics, and artificial intelligence applications. CSE faculty members actively pursue collaborations and funding opportunities. The department has interdisciplinary projects with UT Southwestern Medical Center at Dallas, University of North Texas Health Science Center in Ft. Worth, UT Arlington's Research Institute (UTARI), the School of Nursing, and the College of Science, among others.

The CSE department has been growing rapidly in the last 5 years. Our Spring 2020 enrollment reached a record number of

students, including approximately 1500 BS, 860 MS, and 140 Ph.D. students. CSE has strong support from the College of Engineering and UTA administration. Its friendly environment and excellent support staff help incoming faculty and students feel at home and thrive.

## Application Instructions

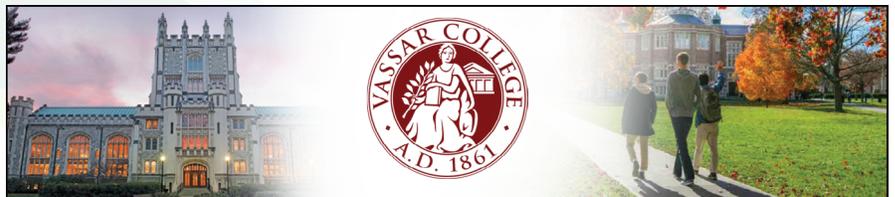
To apply, please go to: <http://uta.peopleadmin.com/> and submit a cover letter, CV/Resume, and contact information for three references. Screening will begin immediately upon receipt of a completed application. Applications will be accepted until the positions are filled. A criminal background check will be conducted on finalists.

As an equal employment opportunity and affirmative action employer, it is the policy

of The University of Texas at Arlington to promote and ensure equal employment opportunity for all individuals without regard to race, color, religion, sex, national origin, age, sexual orientation, gender identity, disability, or veteran status.

## University of Waterloo

The Department of Electrical & Computer Engineering at the University of Waterloo urgently invites applications for a tenure track position with an anticipated start date of January 01, 2021. We are seeking a promising researcher working in the broad area of cyberphysical systems and its application to automotive vehicles. Areas of interest include embedded systems, computer systems, robotics, dependability and security. We are particularly interested in candidates that have demonstrated



## 1-Year Visiting Assistant Professor of Computer Science

The Department of Computer Science at Vassar College invites applications for a one-year position at the rank of Visiting Assistant Professor to begin in the Fall semester of 2020. A Ph.D., ABD, or equivalent experience in Computer Science is required by the start of the fall semester.

Review of applications begins immediately. Further details and how to apply can be found by following this link: <https://apptrkr.com/1958950>.

systems work, such as open source software projects, or experimental work with hardware platforms, e.g., connected or autonomous vehicles. It is anticipated that the position will be at the rank of Assistant Professor. In exceptional cases, an appointment at the rank of Associate Professor will be considered.

Interested candidates should submit: a cover letter, a current curriculum vitae, a research statement, a statement of teaching philosophy and goals, selected publications (maximum four), and the names of at least three references to <https://ecefes.uwaterloo.ca/OFAS/index.php>.

## Wake Forest University

### *Teacher-Scholar Postdoctoral Fellow The Program for Leadership and Character*

The Program for Leadership and Character and the Department of Computer Science at Wake Forest University seek to fill a Teacher-Scholar Postdoctoral Fellowship for 2020-2021 focused on ethics and character in computer science, technology, and data. The fellow will develop teaching resources and syllabi, teach 2 to 3 courses, and contribute to research on leadership and character within the university context.

The position could start as early as June 1st.

Application details are available at: [https://wfu.wdl.myworkdayjobs.com/en-US/Staff\\_Career\\_Website\\_live/job/Winston-Salem-NC/Teacher-Scholar-Postdoctoral-Fellow-The-Program-for-Leadership-and-Character-and-The-Department-of-Computer-Science\\_R0002512](https://wfu.wdl.myworkdayjobs.com/en-US/Staff_Career_Website_live/job/Winston-Salem-NC/Teacher-Scholar-Postdoctoral-Fellow-The-Program-for-Leadership-and-Character-and-The-Department-of-Computer-Science_R0002512)