

SIGNIFICANT BITS

Winter 2017 / Newsletter of the College of Information and Computer Sciences

UMassAmherst
College of Information
and Computer Sciences



MASSMUTUAL FOUNDATION GRANTS \$15 MILLION FOR DATA SCIENCE AND CYBERSECURITY | PG.3

From left: Brian Levine, director of the Cybersecurity Institute, Kumble Subbaswamy, UMass Amherst chancellor, and Andrew McCallum, director of the Center for Data Science, joined government, business, and university leaders at the presentation of the award.

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LETTER FROM THE DEAN

SIGNIFICANTBITS

Winter 2017

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Email your news, suggestions, comments, and contributions to
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Bruce Croft
Distinguished Professor and Dean

*"We thank you
for your support
and invite you to
be a part of our
continued success."*

new college-level staff. We have also started conversations with departments across campus, including English and Linguistics, to develop inter-disciplinary undergraduate programs and have developed a strategy for expanding our Informatics program — you'll hear more about these initiatives in the near future.

The progress we made in 2016 is a result of the hard work of our faculty, staff, and students, but it is also due in large part to the contributions of our alumni, industrial affiliate program members, and the CICS community. Our work to build a strong foundation for our young college will continue in 2017. We thank you for your support and invite you to be a part of our continued success.

Sincerely,

Bruce Croft, *Distinguished Professor and Dean*

2016 was a momentous year for the College of Information and Computer Sciences (CICS) as we celebrated our first full year of college-hood, held our very first Senior Celebration for the Class of 2016, honored our Outstanding Achievement and Advocacy awardees, and, in the fall, welcomed 6 inspiring new faculty members, among other standout moments and milestones.

CICS received a \$15 million gift, one of the largest gifts in UMass Amherst history, from the MassMutual Foundation to support our data science and cybersecurity programs. We cannot overstate the long-term impact this gift will have not only on research and education in these areas, but also on innovation and workforce development in the Pioneer Valley and the Commonwealth at large. The MassMutual gift, combined with the Massachusetts Technology Collaborative \$5 million matching capital gift, have put CICS in a position to be a leader in the state's next economic boom.

The following pages also highlight many other exciting accomplishments of our faculty, students, and alumni – including our new research partnership with Hokkaido University, doctoral candidate Shiri Dori-Hacohen's Innovation Challenge win, Arjun Guha's systems configuration research, the new David Mix Barrington undergraduate scholarship, and more.

What we haven't documented here are the behind-the-scenes activities we have been working on to move CICS and UMass Amherst forward. Among these not-always-newsworthy pursuits, we have been working on building a sustainable budget for our college and hiring



Government, business, and university leaders gathered at the UMass Center at Springfield for MassMutual's presentation of the \$15 million grant.

MASSMUTUAL GRANTS \$15 MILLION FOR DATA SCIENCE AND CYBERSECURITY

Commonwealth supports private/public partnership with \$5 million in matching funds.

With a 10-year, \$15 million grant from the MassMutual Foundation, Inc., the College of Information and Computer Sciences and UMass Amherst are ready to lead Massachusetts' next economic boom: the growth of the data science and cybersecurity industries. New educational programs that will prepare workers skilled in these fields will fuel economic development in the commonwealth.

The gift is the largest ever made by the foundation, established by Springfield-based MassMutual, a Fortune 500 mutual life insurance company. It is also one of the largest gifts received by the campus during its UMass Rising Campaign.

The grant provides substantial new resources to two of the college's outstanding areas of academic and research excellence:

\$12 million will go to support the Center for Data Science, enhancing UMass Amherst's standing as a leading destination for data science and related research. Funds will be invested to hire additional faculty and develop new educational programs, including a master's concentration and a certificate in statistical and computational data science (see pg. 6). Led by Professor Andrew McCallum, the center also focuses on creating new technology to manage and gain insight from big data while educating tomorrow's data scientists.

\$3 million will go to support new research and education activities at the Cybersecurity Institute, led by Professor Brian Levine. The

gift helped establish the institute's new Trust, Assurance, and Cybersecurity undergraduate- and graduate-level certificates (umass.edu/tacc) offered at the MassMutual Foundation/UMass Springfield Center for Training in Cybersecurity. The program will provide a significant economic development benefit to downtown Springfield, drawing professionals from the Springfield, Mass.-Hartford, Conn. area.

In announcing the initiative, UMass Amherst Chancellor Kumble Subbaswamy said, "We are deeply grateful for this extraordinary investment by the MassMutual Foundation. The gift represents a private-public collaboration that will uniquely benefit the commonwealth. With this support, our researchers will expand our knowledge of data science and its uses and develop new cybersecurity systems to protect information networks. Our internationally recognized faculty also will help prepare the next generation of leading computer scientists, creating new knowledge and educating a growing workforce to create a range of new economic opportunities."

The June 2016 announcement of the MassMutual grant was followed in August by the announcement of a \$5 million grant from the Massachusetts Technology Collaborative. This four-year grant is earmarked for capital expenditures to accelerate data science innovation in Western Massachusetts and will help drive the commercialization of new products and ideas, train a leading data science workforce, and support collaborative regional economic development activities.

The Massachusetts Technology Collaborative awarded the grant on behalf of the commonwealth through its Collaborative Research and Development Matching Grant Program; a program supporting large-scale, long-term research projects that have high potential to spur innovation, cluster development, and job growth in Massachusetts.

(Source: UMass Amherst University Relations, Office of News & Media Relations)

CICS, HOKKAIDO UNIVERSITY LAUNCH RESEARCH PARTNERSHIP

Japan's Hokkaido University (HU) and CICS have embarked on a new initiative, part of the Global Institution for Collaborative Research and Education (GI-CoRE), to foster collaborative research and education activities in the areas of big data and cybersecurity. The initiative builds on the longstanding relationship between the two institutions that goes back to the founding of Hokkaido University in 1876 by William Smith Clark, the third president of the Massachusetts Agricultural College — which later became UMass Amherst.

Hokkaido University created GI-CoRE as a vehicle to derive collaborations with a network of world-leading universities. GI-CoRE consists of six focal areas, called Global Stations, including Big Data and Cybersecurity (GSB) which was established in April 2016.

Bruce Croft, distinguished professor and CICS dean, James Allan, professor and chair of the faculty, and Shlomo Zilberstein, professor and associate dean for research and engagement, visited HU in May and participated in several events to mark the opening of GSB. UMass Amherst Mathematics and Statistics Professors John Staudenmayer and Erin Conlon are also engaged in the GI-CoRE GSB partnership.

"We have a valued relationship with HU and look forward to expanding our partnerships with its world-class faculty," said Croft. "UMass Amherst will bring its unique expertise and leadership in cybersecurity and data science to engage with HU on problems of common, global interest."



From left: Hiroki Arimura and Masaharu Yoshioka, professors in the Graduate School of Information Science and Technology at Hokkaido University, and Bruce Croft and James Allan of CICS discuss research projects.



SNACK OVERFLOW CAFÉ OPENS IN CS BUILDING

Over the summer, a portion of the Computer Science Building's David Stemple Common Room was transformed into a café, serving coffee and light meals. Dubbed "Snack Overflow" by popular student vote, the café is open from 8 am to 4 pm on weekdays.

SIX NEW FACULTY JOIN CICS IN FALL 2016

Six new faculty members joined CICS in fall 2016, including four assistant professors and two teaching faculty.

"These new hires further strengthen our educational mission and expand our world-class machine learning, cyber security, and digital health research areas," said James Allan, chair of the faculty. "Our college's rapid growth — CICS has added 12 new faculty members since 2012 — reflects the university's strong commitment to an expanded footprint for information and computer sciences at UMass Amherst."



Justin Domke, Assistant Professor

Justin Domke's research interests are in the areas of machine learning, probabilistic graphical models, convex optimization and structured learning. He comes to CICS from Australia's National Information and Communications Technology Research

Centre of Excellence (NICTA), where he was a senior researcher in the Machine Learning Group. Prior to his role at NICTA, Domke was an assistant professor of computer science at the Rochester Institute of Technology from 2009 to 2012. He earned a Ph.D. in computer science in 2009 from the University of Maryland, College Park.



Phillipa Gill, Assistant Professor

Phillipa Gill conducts research in computer networking and security, network measurement, network interference, and reliability with a focus on designing tools and techniques to detect and mitigate network interference on the Internet. Gill joins

CICS from Stony Brook University, SUNY where she spent three years as an assistant professor of computer science. Among other awards and recognitions, Gill is the recipient of an NSF CAREER Award and a Google Research Award. She completed her Ph.D. in computer science at the University of Toronto in 2012.



Akshay Krishnamurthy, Assistant Professor

Akshay Krishnamurthy specializes in statistical machine learning, interactive learning, and reinforcement learning with a focus on the design and analysis of algorithms that judiciously acquire data in a feedback-driven manner. As

a graduate student, he was awarded an NSF Graduate Research Fellowship and the Best Student Paper Award at the Asilomar Conference on Signals, Systems and Computers. He comes to CICS from Microsoft Research where he was a postdoctoral research fellow. He received his Ph.D. in computer science from Carnegie Mellon University in 2015.



Sunghoon Ivan Lee, Assistant Professor

Sunghoon Ivan Lee's research interest is wearable computing and mobile health with a focus on human movements and associated health conditions. He joins CICS from Harvard Medical School where he completed a postdoctoral

research fellowship. As a graduate student, he was awarded the Northrup-Grumman Outstanding Research Student Award. Lee is also affiliated with UMass Amherst's Institute for Applied Life Sciences (IALS). He completed his Ph.D. in computer science in 2014 at the University of California, Los Angeles.



Marc Liberatore, Teaching Faculty

Marc Liberatore's research focuses on improving network forensic tools and techniques. As a research scientist in CICS, he has been teaching computer science courses for the past several years and played a key role in launching the NSF CyberCorps® Scholarship

for Service program at UMass Amherst. Prior to joining CICS, Liberatore was a Mellon Postdoctoral Fellow at Wesleyan University from 2007 to 2009. He earned his Ph.D. in computer science from the University of Massachusetts Amherst in 2008.



Neena Thota, Teaching Faculty

Neena Thota conducts research in computing education, educational technologies, learning and assessment taxonomies, methodological frameworks for research, and pedagogic theories. She has over 20

years of experience teaching at high school, undergraduate, and postgraduate levels. Thota joins CICS from the University of Saint Joseph, Macau where she was an assistant professor in the creative industries program. She received her Ph.D. in information systems from the University of Saint Joseph, Macau and Catholic University of Portugal in 2011.

NEW DATA SCIENCE PROGRAMS MEET GROWING DEMAND FOR COMPUTATIONAL SKILLS

The start of the 2016-17 academic year marked the introduction of two new graduate programs in data science: a Computer Science Master's with a Concentration in Data Science and a Certificate in Statistical and Computational Data Science. These programs will help to meet the rapidly growing demand from students and industry for enhanced training in data science.

The Computer Science Master's with a Concentration in Data Science supplements the current computer science master's core courses with new core courses specifically focused on data science. New courses include Systems for Data Science, Algorithms for Data Science, and Data Visualization and Exploration. The concentration also includes focused and general electives in both computer science and statistics. Students will gain breadth in computer science and depth in data science; including experience developing and applying methods to collect, curate, and analyze large-scale data.

The Certificate in Statistical and Computational Data Science consists of five courses focused on developing statistical and computational skills. Jointly developed by the Department of

Mathematics and Statistics and the College of Information and Computer Sciences, the program provides training in data science fundamentals; including statistical methodology, theory, machine learning, and systems for large-scale data analysis and visualization.

Data scientists combine skills in mathematics, statistics, and computer science to analyze complex data, derive new insights, and support strategic decision-making. Due to these abilities, data scientists are highly-sought-after professionals in many fields including biotechnology, energy, finance, government, healthcare, and insurance - where the availability of large-scale data is now commonplace.

The demand for skilled data science practitioners significantly exceeds both the current and projected supply. In fact, the McKinsey Global Institute projects there may be as many as 190,000 unfilled data science positions by 2017. By 2018 it is anticipated there will be a shortfall of 1.5 million managers adequately trained in data science.

The computer science components of both the concentration and certificate programs were developed within CICS' recently established Center for Data Science, and will be sustained through new faculty hiring, made possible in part by a recently announced \$15 million corporate grant from MassMutual.

CONTROVERSY DETECTION TECHNOLOGY WINS TOP INNOVATION CHALLENGE PRIZE



Shiri Dori-Hacohen

Founded by CICS doctoral student Shiri Dori-Hacohen, Automated Controversy Detection, a service that uses sophisticated machine learning algorithms to automatically identify controversial topics in political, health care, and other domains, captured first place and \$35,000 in start-up funding in this year's UMass Innovation Challenge business plan competition.

Dori-Hacohen developed this system over the past five years at the UMass Amherst Center for Intelligent Information Retrieval, believing it could positively influence the world by helping eliminate misinformation from the Internet and presenting multiple sides of controversial topics. The controversy detection technology identifies potentially provocative topics, regardless of whether they are already trending online.

The service, she noted, will allow consumers, companies, and other organizations — including news organizations — to detect false information that will help them to figure out whether they are seeing only one side of a story — furthering both accuracy and an organization's management of its reputation.

UNTANGLING SYSTEM CONFIGURATIONS

Assistant Professor Arjun Guha looks to programming languages to manage complex computing infrastructures.

The primary role of a system administrator is to maintain their organization's computing infrastructure — they deploy new software, manage server load, and address security vulnerabilities, among other responsibilities. All of these tasks require the administrator to write and maintain system configurations.



Arjun Guha

Not too long ago, it was feasible to manage systems by directly running installers, editing configuration files, and so on. However, according to CICS assistant professor Arjun Guha, the scale of modern data centers and cloud computing environments has made these old approaches brittle and ineffective. In the past few years, several large-scale outages at Facebook, Skype, the New York Stock Exchange, and other organizations have been

attributed not to software bugs, but to misconfigured software.

Guha, who specializes in programming languages, said, "System configuration in these new, complex environments is a problem that naturally lends itself to domain-specific languages (DSLs)." In fact, he added, there are already several commercially-supported system configuration DSLs available, such as Puppet, Chef, CFengine, Ansible, and others. A common refrain among researchers and practitioners is that the system configuration languages should be "declarative" – they should specify what the state of a system should be and not how to get there. "Real-world languages are far from that ideal and suffer a variety of problems," he said.

In a paper presented at ACM SIGPLAN's Conference on Programming Language Design and Implementation 2016, "Rehearsal: A Configuration Verification Tool for Puppet," Arjun and his students, Rian Shambaugh and Aaron Weiss, investigated problems that arise in Puppet, one of the most widely-used system configuration languages. They discovered that writing Puppet configurations that are either non-deterministic, or flap between two states, or have other kinds of unexpected effects, is straightforward. The fundamental issue is that system configurations are necessarily complex and different parts of a configuration may interact in unexpected ways. In a large configuration spanning thousands of lines, it can be impossible for a system administrator to keep all interactions in mind.

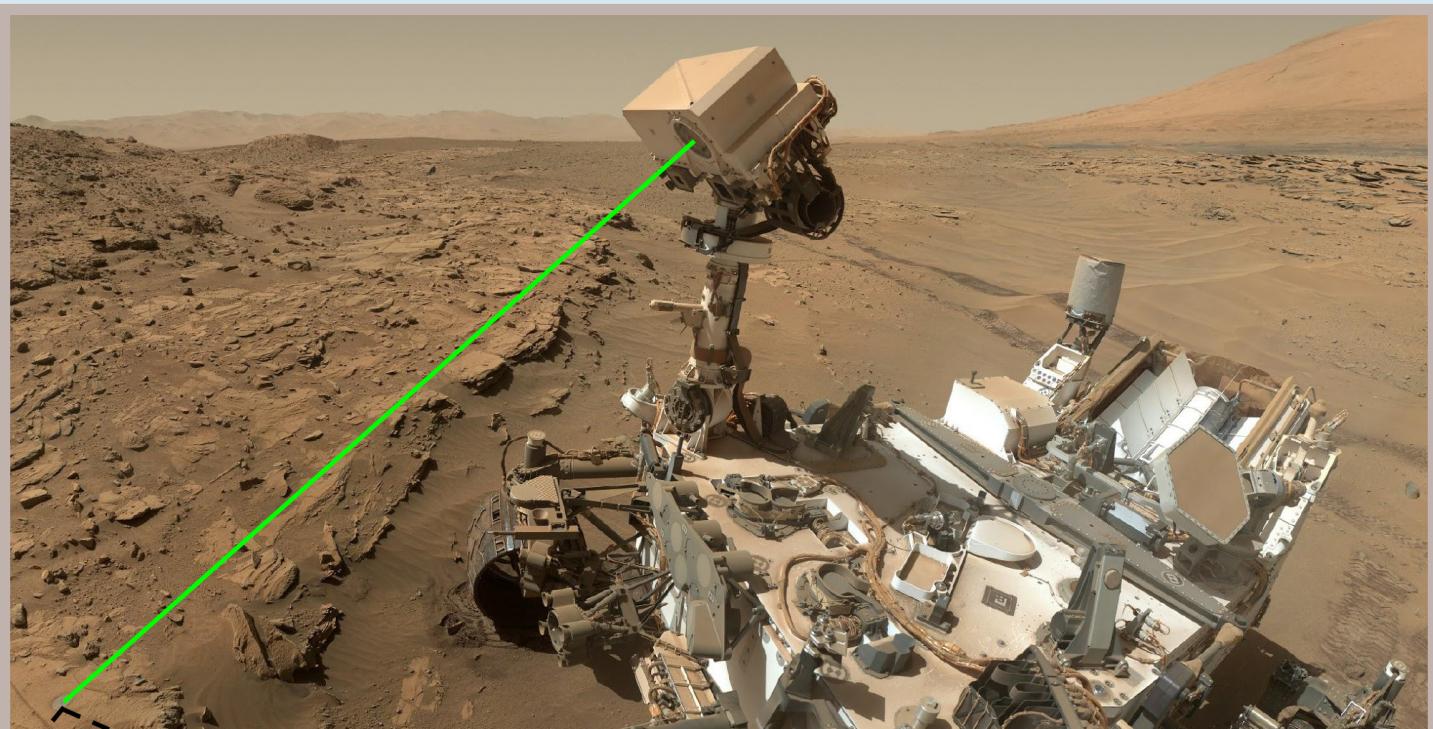
To address this issue, Shambaugh, Weiss, and Guha developed Rehearsal, a system configuration verification tool that quickly and automatically answers questions such as, "Is this configuration deterministic?" and "Does this configuration flap between states?" In addition, Rehearsal can automatically repair certain classes of system configuration bugs.

The researchers explained that the key idea behind Rehearsal is simple: take a complicated system configuration language and compile it to a simple language of file-system operations. These file-system manipulating programs can be modeled as logical formulas in a SAT solver and properties such as determinism and idempotence can be posed as queries to the SAT solver. The challenge is to do this and keep the model tractable. Rehearsal uses both classic techniques (partial-order reduction and program slicing) and new insights about the structure of system configurations to achieve dramatic speedups over naive modeling approaches. With all optimizations enabled, the tool runs in a few seconds on thousands of lines of configurations.

In addition to Rehearsal, Guha and his students are working on ways to make system configuration testing and the bug fixing process more efficient. System administrators typically test configuration changes in testing environments, such as virtual machines to find system configuration bugs. Once detected, these bugs are easy to fix using terminal commands; however, these actions only fix the test machine and not the configuration, resulting in a time-intensive testing and recompiling process. To address this problem, they are using program synthesis techniques to derive repairs to system configurations from terminal interactions. "The key challenge," said Weiss, "is to update the configuration without breaking the abstractions and structure set up by the system administrator. In other words, the tool needs to synthesize an edit that the sysadmin can understand and accept."

"System configuration in these new, complex environments is a problem that naturally lends itself to domain-specific languages (DSLs)."

Guha and his students are particularly interested in domain-specific languages and applying programming languages to problems in systems. In addition to the work on system configurations described above, the group also works on languages for software-defined networking and Web programming.



NASA's Curiosity rover, a car-sized robot, has been exploring a crater on Mars since August 2012 and sending back a steady stream of specialized camera images and data on the chemical composition of rocks and dust for analysis. Green line shows camera's area of focus.

MAHADEVAN LEADS TEAM USING DEEP LEARNING TO ANALYZE MARS ROVER DATA

Professor Sridhar Mahadevan is the lead investigator on a new, four-year, \$1.2 million National Science Foundation grant to apply recent advances in machine learning, specifically biologically inspired deep learning methods, to analyze large amounts of scientific data from Mars.

His co-investigators are Mario Parente, an expert in analysis of hyperspectral images at UMass Amherst's department of electronic and computer engineering, and Darby Dyar of Mount Holyoke College, a specialist in planetary chemistry and geology who serves on the scientific mission team for the Mars rover.

As Mahadevan explained, NASA's Curiosity rover, a car-sized robot, has been exploring a crater on Mars since August 2012 and sending back a steady stream of specialized camera images and data on the chemical composition of rocks and dust for analysis. The data range from one-dimensional spectra of rock samples to three-dimensional hyperspectral images of the Martian surface.

He advises doctoral students Thomas Boucher, CJ Carey, Steve Giguere, Ian Gemp, Francisco Garcia, and Ishan Durugkar in the Autonomous Learning Laboratory where they are exploring machine learning methods to show, for the first time, that new deep learning approaches provide a practical and useful new tool for handling large scientific data sets like the set gathered from the Curiosity rover.

"We always thought artificial intelligence was a dream, but it is happening. I see machine learning and cognitive computing as the future of big data science."

"We know that deep learning is now almost as good as humans at recognizing different objects. Our study will test the ability not at recognizing objects on Earth, but understanding planetary geochemistry from the Martian rock tests. Machine learning is not only faster than a human at solving certain problems, it can discern detail that humans cannot see," Mahadevan said. Deep learning software can be trained to recognize chemical patterns much more accurately than human-based methods, for example.

"We always thought artificial intelligence was a dream, but it is happening. I see machine learning and cognitive computing as the future of big data science. I've been waiting 30 years for this and now it's here," he noted.

CICS RESEARCH ADVANCES SELF-DRIVING CAR DESIGN

Professor Shlomo Zilberstein and doctoral students Kyle Wray and Luis Pineda, described a new approach to managing the challenge of transferring control between a human and an autonomous system in a paper they presented at the International Joint Conference on Artificial Intelligence (IJCAI-16).

Their research, tested in experiments in a driving simulator, should help to advance the development of safe semi-autonomous systems (SAS), such as self-driving cars. Such systems rely on human supervision and occasional transfer of control between the human and the automated systems, Zilberstein explained. With substantial support from the National Science Foundation and the auto industry, his lab is working on new approaches to SAS that are controlled collaboratively by a person and a machine while each capitalizes on their distinct abilities.

"Self-driving cars are coming," said Zilberstein, "but the world is fairly chaotic and not many autonomous systems can cope with that yet. My sense is that we're pretty far from having fully autonomous systems in cars."

This is because artificial intelligence sensing and decision-making techniques are still limited. For example, he suggested, "trains might be next as a candidate for autonomy, but even then, with a downed branch on the track during a storm, a person may be needed to judge how to proceed safely."

Zilberstein said the example highlights a significant challenge that SAS research must address—transferring control quickly, safely and smoothly between the system and the person supervising it. Most systems designed to date do not accomplish this. In their paper, the researchers establish precise requirements to assure that controlling entities can act reliably.

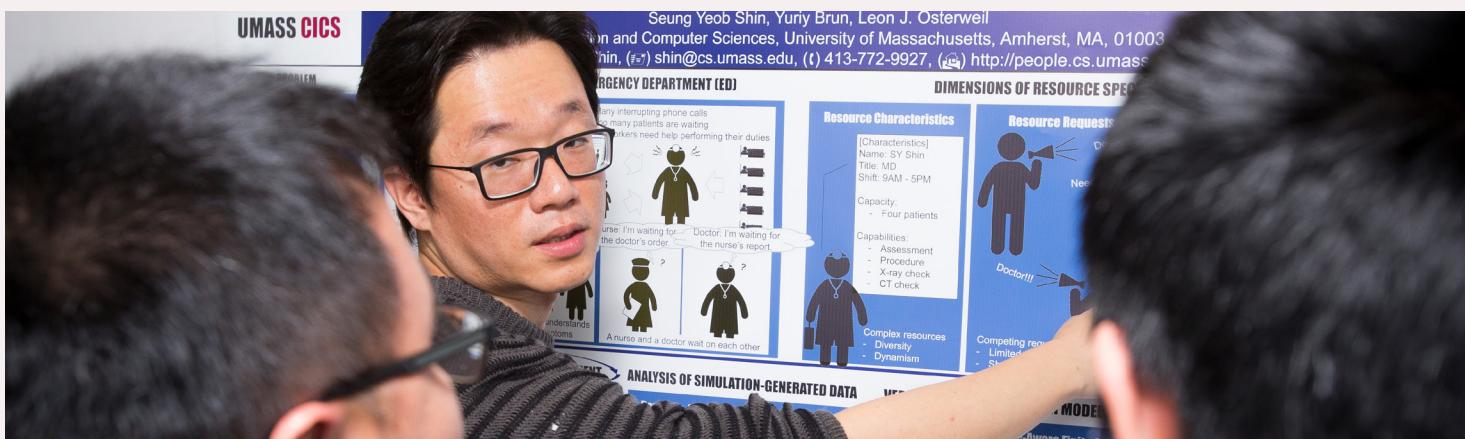
Their design can handle situations by stopping the vehicle, for example, when the driver does not respond to the request to take over control, Zilberstein explained. Their analysis of the integrated model shows that it provides important safety guarantees.

Zilberstein and colleagues plan to integrate their approach using a large-scale realistic driving simulator in collaboration with engineering professors Donald Fisher and Siby Samuel, as well as postdoctoral fellow Timothy Wright.

Developing reliable ways to transfer control back to the driver when an anomaly is detected is a crucial component of deploying self-driving cars. This work will allow the researchers to validate the new approach with human drivers controlling a self-driving car while performing a variety of tasks.



Shlomo Zilberstein



CENTER FOR DATA SCIENCE HOLDS FIRST ANNUAL RESEARCH SYMPOSIUM

On Friday, April 22, 2016, the Center for Data Science held its first annual Data Science Research Symposium. With over 75 attendees, the Symposium offered presentations on ten cutting-edge data science industry-university research collaborations, a student poster session with 37 posters, and six facilitated breakout sessions that highlighted some of the most urgent technical challenges to be tackled by data science research.

FACULTY RECOGNITION



Jim Kurose

KUROSE: ACM SIGCOMM LIFETIME CONTRIBUTION AWARD

Jim Kurose, distinguished professor, was recognized for his contributions to the field of data and computer communications with a prestigious ACM Special Interest Group on Data Communications (SIGCOMM) Award for Lifetime Contribution “for his sustained excellence in networking research, education, mentoring, and service to the SIGCOMM community.”

UMass Amherst joins the University of California, Berkley, and Stanford University as the only schools to have two SIGCOMM Award recipients on their faculty. CICS Distinguished Professor Donald Towsley received the SIGCOMM Award for Lifetime Contribution in 2008.



Bruce Croft

CROFT: 5 ACM SIGIR TEST OF TIME AWARDS

Bruce Croft, distinguished professor and dean, was awarded five 2016 ACM Special Interest Group in Information Retrieval (SIGIR) Test of Time Awards in recognition of his lasting contributions to the field of information retrieval (IR).

Croft's five papers, co-written by CICS Center for Intelligent Information Retrieval (CIIR) researchers, were published in 1990, 1995, 1996, 1998,

and 2001. A 1998 paper by James Allan, professor and chair of the CICS faculty, and CIIR co-authors was also chosen for a Test of Time Award. One of Croft's papers was also chosen for a recent SIGIR Test of Time Award Honorable Mention.



Emery Berger

BERGER: SIGPLAN PLDI MOST INFLUENTIAL PAPER

Professor Emery Berger received an ACM Programming Languages Design and Implementation (PLDI) Most Influential Paper Award for his 2006 paper, “DieHard: Probabilistic Memory Safety for Unsafe Languages,” co-written with Benjamin Zorn of Microsoft Research. The focus of the paper, DieHard, is an error-avoiding system that automatically prevents crashes, security vulnerabilities, and unpredictable behavior in

programs written in languages prone to memory errors like C and C++.



Prashant Shenoy

SHENOY: SIGMETRICS TEST OF TIME AWARD

Professor Prashant Shenoy was awarded the ACM SIGMETRICS 2016 Test of Time Award for his 2005 research paper “An Analytical Model for Multi-Tier Internet Services and Its Applications,” which he co-wrote with Bhuvan Urgaonkar ('02 M.S., '05 Ph.D., now an associate professor at Pennsylvania State University) and researchers at IBM.

MELIOU, TRIM RECOGNIZED BY INSTITUTE FOR TEACHING EXCELLENCE & FACULTY DEVELOPMENT

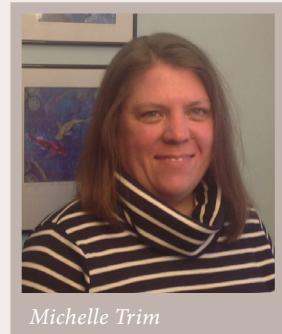
The UMass Amherst Institute for Teaching Excellence & Faculty Development (TEFD) has awarded Alexandra Meliou, assistant professor of computer science, a prestigious 2016-2017 Lilly Fellowship, and selected Michelle Trim, a member of the CICS teaching faculty, as a 2016-2017 Teaching for Inclusiveness, Diversity and Equity (TIDE) Ambassador.

Established in 1986, the Lilly Fellowship program enables promising junior faculty to cultivate teaching excellence in a special yearlong collaboration. Each year, eight to ten teaching fellows are selected to work closely with the TEFID on individual projects which typically involve developing or redesigning a course. Meliou's fellowship will allow her to redesign her course, “Practice and Applications of Data Management.”

In its inaugural year, the TIDE Ambassadors Fellowship is a competitive awards program that recognizes faculty who create an “inclusive and equitable college experience for all students.” As an ambassador, Trim will design a diversity-focused workshop to share her expertise with CICS colleagues with CICS and university colleagues. She will also participate in the program’s yearlong community of practice.



Alexandra Meliou



Michelle Trim

Dear Alumni and Friends,

Isn't it amazing what we can do when we come together? CICS funds received gifts from more alumni and friends than ever in our first year of collegehood, providing support for student organizations, advising programs, events, and scholarships.

Our community mobilized quickly to win the "Power Hour" in the UMass Gives online campaign, and unlocked a further \$2,000 in support. Current students, parents, and faculty and staff joined in providing support to help our college community thrive.

And, in a beautiful display of generosity and kindness, several members of our community stepped up to provide new scholarships to support students. As a result of this generosity, more than \$50,000 in scholarships was awarded to talented, hardworking students.



Julie Stubbs

interesting, productive careers. All of these efforts are important, and we thank you for your generous gifts of your time, expertise, and interest, as well as your philanthropy.

As you think back on your UMass Amherst experience, and the people you met here that sparked your interest in computer science and gave you the tools to build your career, I hope you will consider how you can give back.

Thank you for supporting CICS, investing in the promise of our students, and helping our college thrive.

Warm regards,

Julie Stubbs

Director of Development
stubbs@cics.umass.edu

(413) 545-1220

Thank you for your philanthropic support!

The following alumni and friends have made gifts to the College of Information and Computer Sciences from July 1, 2015–June 30, 2016. Philanthropy is vitally important to the college and helps maintain a world-class instructional and research program. Contributions from alumni and friends help to fund scholarships and important special activities that are not supported through the state budget.

Those interested in making a gift to the college should contact Julie Stubbs, director of development (stubbs@cics.umass.edu or 413-545-1220).

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Mr. Craig L. Fournier ('91)

Dr. Michael J. Franklin ('83)

Mr. Bruce R. Frederick ('75)

Mrs. Virginia C. Frongillo

in memory of

Mr. Michael J. Frongillo

Mr. Jiuhe Gan ('95)

Dr. Alan J. Garvey ('96)

Mr. Paul J. and

Mrs. Kathleen S. Gendreau

Mrs. Lisa ('85) and Mr. Jon Glass

Dr. Oscar J. Gonzalez ('01)

Mr. John Goshdigian ('73)

Mr. Robert F. Goulart ('84)

Prof. Roderic A. Grupen

Mr. Tianbo Gu ('16)

Ms. Marla J. Hanc ('73)

Mr. Stephen M. Harding ('73)

Ms. Elicia M. Harrell ('82)

Mr. Jonathan E. Hartl ('90)

Mr. Phat T. Hong ('85)

Mr. Wei Hong ('17)

Mr. Richard L. Housel ('80)

Mr. Haibin Huang ('14)

Prof. David D. and

Dr. Melba P. Jensen

Mr. Yufeng Jing ('94)

Ms. Jean C. Joyce

Mr. Sandeep Kalra ('19)

Ms. Teresa J. Kellogg

Mrs. Colleen B. Kettle ('84)

Mr. Gordon M. Koizumi ('72)

Mr. David P. Korpiewski ('00)

| | | |
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| Mr. Ha W. Kung ('94) | Mr. Tao Sun ('15) | Mr. Timothy J. and Jane A. Kindvall |
| Mr. Bruce B. Lacey ('85) | Mr. Tengyu Sun ('16) | Tracy Lam |
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| Mr. Jim L. Lemmon, Jr. ('83) | Mr. Cem A. Tanbay ('95) | Mr. Michael and Ms. Teresa Mahan |
| Mr. Anthony J. Leonardi ('05) | Ms. Emma M. Tosch ('15) | Annamarie and Robert J. McGrath |
| Mr. Mark A. and Ms. Jo-Marie C. Leone | Mr. Stefan M. Valentin ('13) | Mr. Carey J. and Ms. Aimee S. McMaster |
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| Mr. Jin Hao Li ('11) | Ms. Lakshmi Nair Vikraman* | Dr. Daniel E. Neiman ('92) |
| Mrs. Anne E. and Mr. Bernard L. Lorge | Ms. Sarah Waldman | Atul S. Sharmila Parasnis and A. Parasnis |
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| Mr. Daniel J. and Ms. Wendy R. Lussier | Prof. Rui Wang | Mr. Stuart B. Powers ('06) |
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| Dr. Victoria Manfredi ('05) | Mrs. Yunqing ('02) and Dr. Changting Wang ('01) | Rica V. Reyes and Richard D. Black |
| Mr. Saul R. Marcus ('77) | Mrs. Nancy W. Wasiuk ('79) | Ms. Erin Roy |
| Prof. Benjamin Marlin | Mr. Samuel M. Weinger ('04) | Ms. Gail M. and Mr. Scott D. Seifert |
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| Mr. Douglas R. McCallum ('75) and Ms. Diana L. Neff | Mr. Xiaojian Wu* | Mr. Michael J. Sullivan ('71) |
| Mr. Thomas J. and Ms. Mary C. McCarthy | Mr. Yan Xiao ('00) | Mr. William D. Torcaso ('80) |
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| Ms. Puja Mishra ('16) | Mrs. Qin Yao and Mr. Yao Ren ('00) | Lilin and Xianmin Wang |
| Mr. Nicholas Brady Garvan Monath* | Mr. Lite Ye* ('19) | Mrs. Maria C. ('76) and Mr. Richard A. Warren |
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| Mr. Annamalai Natarajan* | Dr. Zhongfei Zhang ('96) | Mr. Ismet Z. Yalniz ('14) |
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| Dr. Ron Papka ('99) | | |
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| Ms. Michele A. and Mr. J. Anthony Roberts | | |
| Prof. Arnold and Mrs. Susan P. Rosenberg | | |
| Ms. Jennifer R. and Mr. Kevin Rothschild-Shea | | |
| Ms. Karren M. Sacco | | |
| Prof. Barna Saha | | |
| Mr. Selvakumar Sarangan ('96) | | |
| Mr. Edwin R. Schmeckpeper and Ms. Wendelyn S. Bolles | | |
| Mr. Scott A. ('91) and Ms. Mary R. Seifel | | |
| Ms. Sneha Shankar Narayan ('15) | | |
| Ms. Kerry P. Shaw | | |
| Mr. Evan G. Shelhamer ('12) | | |
| Ms. Tina T. Shen ('00) | | |
| Prof. Prashant Shenoy | | |
| Ms. Cynthia K. Shipman | | |
| Prof. Hava T. Siegelmann | | |
| Prof. Ramesh K. Sitaraman | | |
| Mr. Kevin Spiteri ('15) | | |
| Dr. Robert F. Sproull | | |
| Prof. Darko J. Stefanovic ('99) | | |
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| | CICS Industrial Fund | CICS Scholarships & Fellowships |
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| | Mrs. Nancy R. and Mr. Michael E. Antonietti | Dr. Benjamin Ransford ('10) |
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| | Dr. Yuan-Chieh R. Chow ('77) | |
| | Mrs. Carla Cavallero ('85) and Mr. Todd A. Comeau | |
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| | Dr. Peter J. Desnoyers ('08) | |
| | Rajesh K. Devakumar and Anu Majety | |
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| | Ms. Josephine S. Ferrigno | |
| | Mr. David A. Franklin ('87) | |
| | Mr. Carl R. Gocht ('15) | |
| | Mr. Charles B. Greely ('85) | |
| | Mr. John S. Greene ('93) | |
| | Mr. Kenneth E. Groder, III ('80) | |
| | Mr. Glenn and Ms. Marilyn Gurney | |
| | Dr. Donald H. House ('84) | |
| | Mr. Jack P. Huang ('03) | |
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| | | Conrad Wogrin Undergraduate Scholarship |
| | | Mr. Vijayaraghavan Apparsundaram ('13) |
| | | Dr. Michael and Mrs. Prue Arbib <i>in honor of</i> |
| | | Prof. Conrad and Mrs. Barbara Wogrin |
| | | Mr. Gregory P. and Mrs. Wendy Jones Boisseau |
| | | Mrs. Nancy Wogrin Confrey and Anthony Confrey |
| | | Mr. Stephen J. Cook ('92) |
| | | Dean W. Bruce B. Croft |
| | | Mr. John M. Dempsey |
| | | Mrs. Dorothy D. Gavin |
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| | | Dr. Thomas R. Gruber ('84) |
| | | Ms. Jean C. Joyce |
| | | Prof. Robert A. and Mrs. Jeanne Potash |
| | | Dr. Anita Raja ('98) and Dr. Cephas P. Swamidoss |
| | | Ms. Julie Stubbs and Mr. Petr Jirovsky |
| | | Mrs. Sandra and Mr. Robert Warren |
| | | Ms. Susan Weston |
| | | Prof. Conrad and Mrs. Barbara Wogrin |

David Mix Barrington Scholarship
Mr. Quentin J. Clark ('94)

Edward Riseman and Allen Hanson Scholarship
Mr. Joseph R. Daverin ('00)
Prof. Allen R. and Mrs. Joan Hanson
Mr. Andrew J. Maquire, Jr. ('02)
Dr. Xiaoguang Wang ('01)

Jim Gray Scholarship
Mr. Hanumantha R. Kodavalla ('88)

Jim Kurose Scholarship
Mr. Armen P. Babikyan ('02)
Dr. Boulat A. Bash ('08)
Mr. Hanumantha R. Kodavalla ('88)
Dr. Benyuan Liu ('03)
Dr. Henning G. Schulzrinne ('93)
Dr. Stephen T. Vinter ('85)

John E. and Alice M. Flynn Scholarship
Anonymous

Krithi Ramamirtham Scholarship
Dr. Panayiotis K. Chrysanthis ('91)
Dr. Lory D. Molesky ('96)

Lori A. Clarke Scholarship
Profs. Lori Clarke and Leon J. Osterweil
Dr. Robert F. Sproull
Mr. Hanumantha R. Kodavalla ('88)
Dr. Megan Olsen ('09) and Dr. Timothy Wood ('09)

Paul Utgoff Memorial Scholarship
Anonymous
Atty. Marina and Mr. Phillip Braswell
Mr. Kristoffer W. Lange ('99)
Mrs. Alexandra Utgoff Taylor ('74)
in honor of
Dr. Victor A. Utgoff
Mrs. Karen Utgoff
Dr. Victor A. Utgoff

Professor Victor Lesser Scholarship
Dr. Bo An ('09)
Dr. Anita Raja ('98)
Dr. Ping Xuan ('02)
Dr. Xiaoqin Zhang ('02)

Robert Moll Scholarship
Ms. Rachel Lavery
Ms. Leeanne M. Leclerc
Prof. Subhransu Maji
Dr. Anita Raja ('98) and
Dr. Cephas P. Swamidoss
Mr. Paul A. Sihvonen-Binder
Dr. Sharad K. ('04) and Mrs. Pratiksha Singhai
Mr. Samuel M. Weinger ('04)

Robin Popplestone Fellowship
Prof. Kristin Morrison

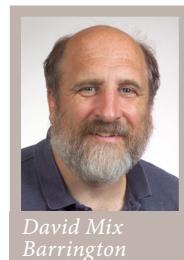
Silicon Valley Alumni Scholarship
Anonymous Donor
Mr. Byrisetty Rajeev ('96)

Corporate, Foundation, and Matching Gifts
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DAVID MIX BARRINGTON SCHOLARSHIP

The David Mix Barrington Scholarship in Computer Science has been established in the College of Information and Computer Sciences. This endowed scholarship will provide annual support to a rising senior who is pursuing a second major in addition to a computer science major. Recipients will be excellent students, with a GPA of >3.0, and have demonstrated financial need.



David Mix Barrington

Donor Quentin Clark is an undergraduate alumnus of UMass Amherst (B.S. '94), originally from Sherborn, MA. He completed most of the computer science undergraduate curriculum in addition to his physics major, and benefited from his academic work in both fields. Having served in senior product and leadership roles at SAP and Microsoft Corporation, Clark seeks to support talented students who will bring the perspectives and tools of multiple disciplines to their work.

As an undergraduate, Clark took a class with Professor David Mix Barrington, which he says was influential: "His class was instrumental in my learning and development in the field, and his inspiration was a key part of my journey. The challenge, the drive to find better ways, the discipline around correctness – all a core part of how I approached so many interesting software challenges over my career."

Barrington, whom this scholarship honors, has been on the UMass Amherst Computer Science faculty since 1986. His research is in complexity theory, examining the resources needed by various abstract computing devices, both sequential and parallel, to solve various mathematical problems. In particular, Barrington has discovered new relationships between combinatorial complexity (circuits and branching programs), the theory of finite automata, and definability by first-order logic.

The David Mix Barrington Scholarship in Computer Science is the college's fourth endowed scholarship specifically supporting undergraduate students.

*Current Student

CICS SCHOLARSHIPS ASSIST TALENTED STUDENTS

Fifteen CICS students were awarded scholarships and fellowships, created by generous donors this fall, and a new undergraduate scholarship will be awarded before the end of the semester.

“My dream now feels more attainable, and I have you to thank.”

— Lisa Iudiciani, *Scholarship recipient*

These prestigious awards recognize outstanding promise, assist with some of the costs associated with higher education, and provide encouragement as students pursue rigorous degree programs.

Thank you to the many alumni and friends who support our talented students! Go to cics.umass.edu/support for more information on each scholarship.

2016 Scholarship Recipients

Mary Moser and Issac Vawter

*Dr. Stephen M. Constantine
Memorial Scholarship*

Sarah Brockman

John E. and Alice M. Flynn Scholarship

Anna Fariha

Jim Gray Scholarship in Computer Science

Joseph Geneva

Robert Moll Scholarship in Computer Science

David Balaban and Spencer Lane

Robin Popplestone Fellowship in Robotics & Artificial Intelligence

Sainyam Galhotra

Krithi Ramamritham Computer Science Scholarship

Yang Zhou

Edward Riseman and Allen Hanson Scholarship in Computer Science

Bobby Powers

David W. Stemple Scholarship in Computing

Lisa Iudiciani

Sidney Topol Scholarship in Computer Science

Katie Keith

Paul Utgoff Memorial Graduate Scholarship in Machine Learning

First recipient will be selected in 2017

Conrad Wogrin Undergraduate Scholarship in Computer Science

Samuel Baxter

Sudha and Rajesh Jha Scholarship

Hia Ghosh

James Kurose Scholarship in Computer Science

Justin Svegliato

Victor Lesser Graduate Scholarship in Artificial Intelligence

major. In both colleges, I had great professors and mentors — ones that helped me on my journey of realizing what I was passionate about and could be great at, inspiring my interests and fueling my determination. Physics Professor Po-zen Wong and Computer Science Professor David Mix Barrington were crucial to my education and development.

I have been able to have a fun, challenging, and rewarding career in the software industry, and it simply would not have happened without the encouragement, education, and occasional pushes from talented professors that care.

In order for me to benefit from these professors, I had to be there — at UMass. We lose talent when students cannot muster the financial means to attend college. I give so that others can benefit from a UMass Amherst computer science education.”



Quentin Clark (B.S. '94)

WHY I GIVE

Every single gift to CICS is greatly appreciated and put to good use. Here is why Quentin Clark (B.S. '94) chose to give...

“My experience at UMass Amherst taught me that one gets out of education what one puts into it. For this equation to work, the school must be ready to accept, direct, and maximize that effort. Ultimately

that is why I give — to help the university’s efforts in maximizing the potential of students.

I started at UMass Amherst as a physics major, but spent the extra time to take most of the courses required for a computer science

MASSACHUSETTS TEACHERS PREPARE TO HELP STUDENTS BUILD MOBILE APPS

Students in twelve high schools across Massachusetts will learn computer science by designing and building mobile apps to solve social problems this year, thanks to a teacher-training program organized by the Commonwealth Alliance for IT Education (CAITE). Twelve teachers spent four weeks learning to teach the year-long Mobile Computer Science Principles (CSP) course, with guidance from Beryl Hoffman, associate professor of computer information technology at Elms College, and Kelly Ogden, assistant principal at Greater Lawrence Technical High School, who taught the course last year.

Renee Fall, CAITE project manager, said a partnership with Trinity College, a developer of the curriculum, and National Science Foundation funding supported the training. Fall also received a Google CS4HS grant to provide a professional learning community for an extended group of teachers across Massachusetts throughout the year.



Twelve Massachusetts teachers (shown above with their instructors) spent four weeks learning to teach the year-long Mobile CSP course.

STUDENTS TACKLE ETHICAL ISSUES IN CICS WRITING COURSE

COMPSCI 305: Social Issues in Computing is a writing course where students grapple with some of the social impacts of computing on contemporary society. By focusing on current social issues, the course is constantly changing as it adjusts to new developments in policy, innovations in hardware, and new ethical challenges in the world. Although the course centers itself in local culture, covered topics often take students to a variety of global contexts.

The recent addition of topics related to the environment is an example of the course's dynamic structure. Students in COMPSCI 305 read about topics such as coltan mining and its complex geopolitical effects, which led to discussions of e-waste and the

ethics of planned obsolescence. From there, students new to these topics were inspired to research the environmental impact of massive data centers, identifying novel technology to reduce energy use in the process.

Other topics encountered relate to identity and the need for broader participation in computer science. One of the course's greatest strengths is its responsiveness to student needs. A key part of that is the safe classroom environment that both students and instructors intentionally work to cultivate. As a result, the class addresses questions like, "why do we need more diversity in tech?" and even "an algorithm can't be racist ... right?" Students remark every semester how much they appreciate having the opportunity to discuss these issues with their peers.

"Helping students problematize different social topics is in part about introducing them to new content, but it is also about modeling the kind of analytical work required of them in their papers," said Michelle Trim, a member of the CICS teaching faculty who has taught the course since 2013. Students in COMPSCI 305 work hard to develop an awareness of audience, one of the greatest challenges in writing, to enable them to write for decision makers, non-technical readers, and interested publics.

"Students frequently say that this is the first writing class that they truly enjoyed because they were invited to write about things that matter to them," said Trim. "This is a wonderful class to teach," she added. "Its constantly changing set of issues and its evolving approach to teaching writing is never dull. Getting the opportunity to mentor computer science students as they grapple with key ethical issues of the day makes it even more worthwhile."

"Students frequently say that this is the first writing class that they truly enjoyed because they were invited to write about things that matter to them."

EIGHTH ANNUAL OUTSTANDING ACHIEVEMENT AND ADVOCACY AWARDS

CICS celebrated the accomplishments of the 2016 Outstanding Achievement and Advocacy (OAA) Award recipients and graduate student award-winners during a banquet held at the UMass Amherst Marriott Center on Friday, April 29, 2016. Prior to the cocktail reception and banquet, the OAA award recipients discussed their varying technical career paths at a panel attended by the CICS community.

During the banquet, Kumble Subbaswamy, chancellor of UMass Amherst, and Bruce Croft, dean of the College of Information and Computer Sciences, provided welcome remarks. Professor Emeritus Leon Osterweil later gave a brief history of the awards. James Allan, chair of the faculty, presented the following 2016 OAA awards:



Outstanding Achievement in Management: **Elaine C. Haney** (B.S. '84), chief operating officer, Legacy.com



Outstanding Achievement in Technology Development: **Tom Wagner** (Ph.D. '00), entrepreneur and former CTO, iRobot



Outstanding Achievement by a Young Alum: **Shaun Kane** (B.S. '03, M.S. '05), assistant professor, Department of Computer Science, and director of the Superhuman Computing Lab, University of Colorado Boulder



Outstanding Achievement in Entrepreneurship: **Alden DoRosario** (M.S. '04), co-founder, Chitika More details on the OAA award recipients, along with

photos of the event, are posted at cics.umass.edu/oaa2016.



Outstanding Achievement in Education: **Steven Levitan** (M.S. '79, Ph.D. '84), John A. Jurenko Professor of Computer Engineering, Department of Electrical and Computer Engineering, University of Pittsburgh (award given posthumously)



Outstanding Achievement in Research: **Badri Nath** (Ph.D. '89), professor, Department of Computer Science, Rutgers University

Also during the awards celebration, Professor J. Eliot Moss, graduate program director, presented the Outstanding Graduate Student Awards to Nick Hobbs and Li Yang Ku (synthesis project), Kristina Fedorenko and Theodore Sudol (teaching assistant), and to 2015 Ph.D. grads Boulat Bash and Abhigyan Sharma (doctoral dissertation). The graduate awards were sponsored by Yahoo!, a member of the college's Industrial Affiliates Program.



(back) Bruce Croft, Badri Nath, Kumble Subbaswamy, James Allan; (front) Elaine Haney, Shaun Kane, Tom Wagner, Alden DoRosario



(from left) Li Yang Ku, Kumble Subbaswamy, Kristina Fedorenko, James Allan, Abhigyan Sharma, Bruce Croft, Boulat Bash, J. Eliot Moss; (not shown) Nick Hobbs, Theodore Sudol

SAVE THE DATE: OAA 2017

Recipients of the 9th Annual Outstanding Achievement and Advocacy (OAA) Awards will be honored on Friday, April 28th, 2017. The awards recognize the outstanding accomplishments of graduates of the college's degree programs and acknowledge the support of important friends of the college. For details, go to: cics.umass.edu/oaa2017.

ALUMNI NOTES

Congratulations to the following Ph.D. graduates who have received tenure-track assistant professor appointments: **Sean Barker** (Ph.D. '14), Department of Computer Science, Bowdoin College; **Robert Walls** (Ph.D. '14), Department of Computer Science, Worcester Polytechnic Institute; **Tian Guo** (Ph.D., '14) Department of Computer Science, Worcester Polytechnic Institute.

Carla Brodley (Ph.D. '94), dean of the College of Computer and Information Science at Northeastern University, is the recipient of the 2016 Harrold and Notkin Research and Graduate Mentoring Award.

Marco Carmosino (M.S. '13), now a doctoral student at University of California San Diego, received a Best Paper Award at the 31st

Conference on Computational Complexity for his paper, "Learning Algorithms from Natural Proofs," with co-authors Russell Impagliazzo, Valentine Kabanets, and Antonina Kolokolova.

Adobe has appointed **Anandan Padmanabhan** (Ph.D. '87) as vice president, Adobe Research, heading up its Big Data Experience Lab in Bengaluru, India. Padmanabhan was previously the managing director of research outreach at Microsoft India.

Dawn Lawrie (Ph.D. '03), professor and chair of the Computer Science Department at Loyola University Maryland, and **Henry Feild** (M.S. '10, Ph.D. '13), assistant professor of computer science at Endicott College, received the Most Influential Paper Award at ICPC 2016 for their 2006 paper, "What's in a Name? A Study of Identifiers."

RECENT COMPUTER SCIENCE PH.D. GRADUATES

(February and May 2016)

Charles Curtsinger; *Effective Performance Analysis and Debugging*; Emery Berger, Advisor; May 2016; Assistant Professor, Department of Computer Science, Grinnell College

Weize Kong; *Extending Faceted Search to the Open-Domain Web*; James Allan, Advisor; May 2016; Software Engineer, Google

Kriste Krstovski; *Efficient Inference, Search and Evaluation for Latent Variable Models of Text with Applications to Information Retrieval and Machine Translation*; David A. Smith, Advisor; May 2016; Postdoctoral Research Scientist, Columbia University & University of Chicago

Bo Liu; *Algorithms for First-Order Sparse Reinforcement Learning*; Sridhar Mahadevan, Advisor; Feb. 2016; Researcher, Philips Research

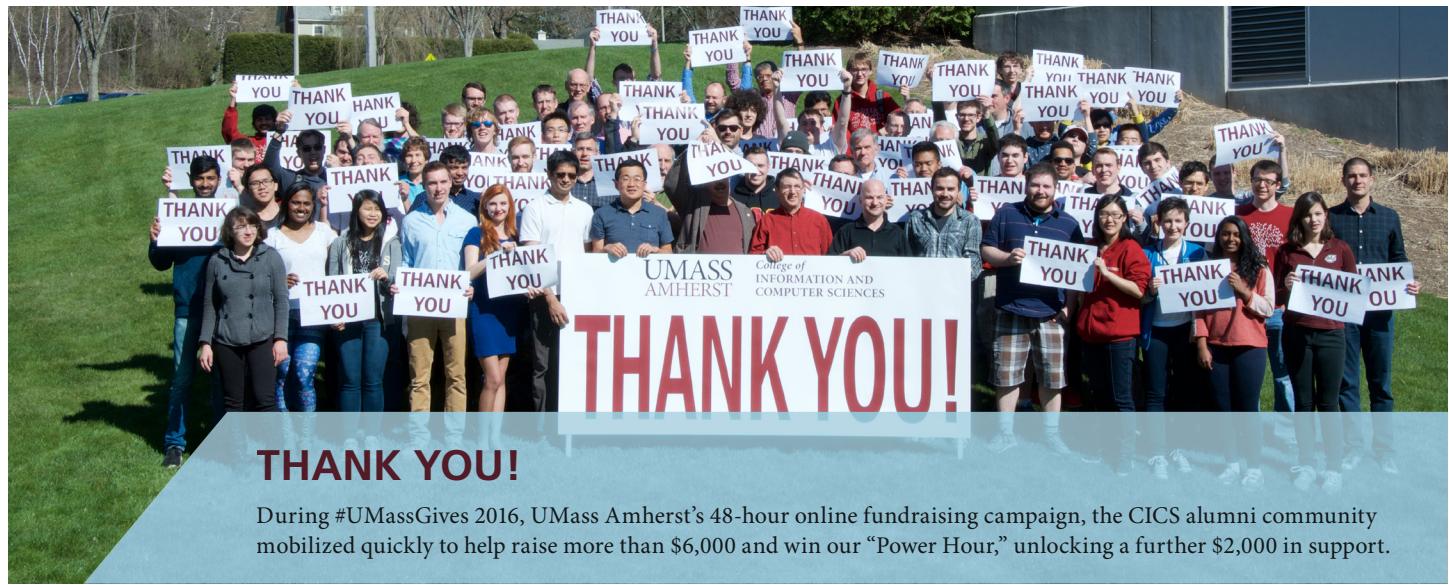
Huong Phan; *An Incremental Approach To Identifying Causes Of System Failures Using Fault Tree Analysis*; Lori Clarke and George Avrunin, Advisors; May 2016; Software Engineer, Google

Christopher Vigorito; *Intrinsically Motivated Exploration in Hierarchical Reinforcement Learning*; Andrew Barto, Advisor; Feb. 2016; Research Engineer, Osaro, Inc.

Pengyu Zhang; *Leveraging Backscatter for Ultra-low Power Wireless Sensing Systems*; Deepak Ganesan, Advisor; May 2016; Postdoctoral Researcher, Department of Computer Science, Stanford University

Yahan Zhou; *Shape Design and Optimization for 3D Printing*; Rui Wang, Advisor; Feb. 2016; Software Engineer, Google

For more details on the graduates' research, see:
cics.umass.edu/phdgrads_febmay16



FACULTY NOTES



Professor **Hava Siegelmann** is on leave from CICS to take an appointment as a program manager in DARPA's Microsystems Technology Office.



Professors **J. Eliot Moss** and **Benjamin Marlin** and doctoral students Meng-Chieh Chiu and Nicholas Jacek won a Distinguished Paper Award at PLDI 2016

for their paper, "Assessing the Limits of Program-Specific Garbage College Performance."



Effective in September, **Deepak Ganesan** has been promoted to full professor.



Professor **Arjun Guha** and doctoral students Rian Shambaugh and Aaron Weiss won a Distinguished Artifact Award at PLDI 2016 for their system, "Rehearsal: A Configuration Verification Tool for Puppet."



Phillipa Gill, assistant professor, appeared on N2 Women's inaugural list of influential women in networking.



Associate Professor **Jerome Miklau** co-organized a workshop on responsible use of data at the Schloss Dagstuhl – Leibniz Center for Informatics, July 17 – 22, 2016.



"DeBugging Distributed Systems," an article co-authored by Assistant Professor **Yuriy Brun**, was featured on the cover of ACM Queue magazine.



Adjunct Associate Professor **Hanna Wallach**, now at Microsoft Research, received a 2016 CRA-W Borg Early Career Award.



Distinguished Professor **Donald Towsley** and alum Bo Jiang ('15 Ph.D., now a post-doctoral researcher in CICS), Daniel Figueiredo (Ph.D. '05, now a professor at Universidade Federal do Rio de Janeiro), and Bruno Ribeiro (Ph.D. '10, now a professor at Purdue University) received the Best Paper Award for their submission, "On the Duration and Intensity of

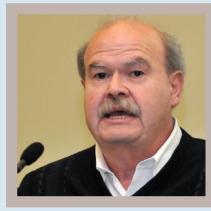
Competitions in Nonlinear Polya Urn Processes with Fitness," at SIGMETRICS 2016.



Associate Professor **Andrew McGregor** organized a two-week workshop during the Henri Poincare Institute's Nexus of Information and Computation Theories Spring Thematic Program in Paris, March 7-18, 2016.



Professor **Brian Levine** was recognized as a UMass Amherst Spotlight Scholar.



Georges Grinstein joined CICS as a researcher and part-time lecturer.



Assistant Professor **Arya Mazumdar** is the principal investigator on a new NSF-BSF grant for work to advance the theory and practice of data coding with local recovery. Collaborators include researchers at the University of Maryland and Tel Aviv University, Israel.

STUDENT NOTES

Recipients of the EMC Participation Award attended the CRA-W (Computing Research Association's Committee on the Status of Women in Computing Research) Graduate Student Cohort Workshop in April 2016 thanks to the funding assistance provided by Dell EMC. The 2016 award recipients were: **Liudmila Elagina, Shamya Karumbaiah, Fatemeh Rezaei, Gayane Vardoyan, Sofya Vorotnikova, and Chenyun Wu.**

Nine undergraduate seniors were awarded Yahoo! Outstanding Undergraduate Achievement in Computer Science Awards during the CICS 2016 Senior Celebration on May 7, 2016: **Cassian Janay Corey, Anna Deng, Kevin Patrick Gurney, Samantha Rose Kolvson, Molly K. McMahon, Ryan William Stanley, Austin Suszek, Isaac Agesilas Vawter, and Niharika Venkatathri.**

Doctoral student **Kriste Krstovski** was part of a four-student team named a finalist in Harvard University's President's Challenge competition. The team, called Aegis, proposed building a platform

that would allow users to report crime incidents and observe the crime landscape.

Two CICS students were recognized as Jack Welch Scholars for their leadership and executive ability during the 2016 commencement ceremony:

Bianca Tamaskar of Westford, an operations and information

management and computer science major, and **Timothy Contois** of Danvers, a dual degree recipient in computer science and mathematics.



Bianca Tamaskar and Timonty Contois

STAFF NOTES

Terrie Kellogg, customer service manager in the CICS Computer Science Computing Facility, was part of a team of UMass Amherst staff awarded a 2016 Chancellor's Citation Award for its work coordinating the Girls Inc. Eureka! summer program.

Deanna Roux joined the Expanding Computing Education Pathways Alliance (ECEP) and Commonwealth Alliance for IT Education (CAITE) and the programs' new communications coordinator.

Melisa Bok and **Michael Spector** joined the Information Extraction and Synthesis Laboratory as software engineers.

The Center for Data Science welcomed **Lynn Yovina**, administrative assistant.

Tommie Joyner joined CICS as the new associate director of career services.

Patience Hartley is the new administrative assistant for the IT Minor program.

The Trust, Assurance and Cybersecurity Certificate (TACC) program welcomed **Nancy Fontes** as the program's administrative assistant.

Renee Fall, ECEP co-PI and CAITE project manager, organized and moderated a panel of high school teachers from six states, entitled "Teachers' Voices in State-Level Computer Science Education Reform," at the Computer Science Teachers Association (CSTA) Conference in San Diego, Calif., July 12, 2016.

CHEIKES JOINS THE CENTER FOR DATA SCIENCE AS EXECUTIVE DIRECTOR

Brant Cheikes joined the Center for Data Science (CDS) on August 1, 2016 as the Center's first executive director. Cheikes will be working with Professor Andrew McCallum, director of the Center, on the full range of CDS activities, including the coordination of research and educational programs, outreach to industry and faculty across campus, directing operations and developing events, and interacting with Center visitors.

Cheikes comes to UMass Amherst after a 23-year career at The MITRE Corporation in Bedford, Massachusetts. At MITRE, a non-profit operator of federally-funded research and development centers, he held a variety of technical leadership and management roles. Most recently, he supported the chief technology officer (CTO) of the Department of Homeland Security's



Brant Cheikes

Office of Cybersecurity and Communications, advising the CTO on a variety of initiatives to enhance automation and interoperability of cyberdefense products and services deployed on United States government information systems.

Cheikes received a B.S. in Computer Engineering from Boston University, and a M.S. and Ph.D. in Computer and Information Science from the University of Pennsylvania, where his research was focused on computational linguistics, in particular cooperative question-answering systems. He is thrilled to have joined CICS and CDS, and welcomes visitors. Outside of work, Cheikes is an avid cyclist and is always looking for tips on great road bike rides in the Amherst area.

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HELLO, WORLD!

On May 7, 2016,
the College of
Information and
Computer Sciences
held its first Senior
Celebration in
honor of 180 new
computer scientists,
the college's
largest-ever
undergraduate class.

