Imagination to Reality
2016 Annual Report
10th Anniversary

It all started with a belief and a desire to give students a dedicated computer science education. Ten years later, the School of Computer Science (SCS) has made remarkable contributions to the profession and touched the lives of thousands of students.

Since its inception, SCS has engaged more than 5,000 students and quietly built a U.S. News and World Report-ranked institution, forging a Top 10 CS program with highly sought-after specialties like information security, computing systems, and theory.

Along the way, SCS has encouraged the maturing minds of our students, producing entrepreneurs, leading academics, premier researchers, and White House appointees. With more than 1,700 degrees awarded in the past decade, SCS has quickly evolved into a go-to institution for a computer science-focused education.
MESSAGE FROM THE CHAIR

The Georgia Tech School of Computer Science powers the future of computing. As we celebrate our 10th year as a school, our faculty have worked at the forefront of many of the advancements made in computer science, from cybersecurity to expanding computing beyond Moore’s Law, to creating new algorithmic techniques, to ensuring that computing thrives in the cloud. The School of Computer Science aims to empower computing and take it to a new horizon—making computers better, faster, smarter, secure, connected, reliable, and mobile.

No longer can computer scientists work in silos; we must all work together to create the best computing environments. From the Institute for Information Security and Privacy (IISP) to the new Institute for Data Engineering and Science (IDEaS), our faculty breaks barriers to unite multiple disciplines and mold the computing world of tomorrow. With expertise across the spectrum from algorithms to architecture, security to systems, networks, software, and databases, we help create the environment that will drive computing to meet society’s needs in automation, big data, and mobile and cloud computing.

The computing landscape is an ever-changing terrain. Computer science does its best not when it confronts individual problems, but when it designs platforms that drive the information revolution. We look to expand our capabilities by finding the faculty and students able to traverse these new research areas and by working with our government and industry partners to meet the challenges of society.

Our goal is to excel in producing research and students that create environments that allow what we imagine to become reality. We hope this report shows you how the Georgia Tech School of Computer Science is striving to make computing better for us all.

Lance J. Fortnow
Professor and Chair, Georgia Tech School of Computer Science
Since Georgia Tech announced its online Master of Science Computer Science (OMS CS) program in 2013, the program has drawn the attention—and the applications—of students worldwide. With this program, Georgia Tech has embarked on an initiative that is making CS education both more affordable and accessible through technology, offering the same MS CS degree for a fraction of the typical cost (See stats below).

The successes of OMS CS go far beyond numbers. Already the program is having a lasting impact on its students’ lives. Consider Max Rosett, the student who stumbled upon Google’s “secret interview” Easter egg while searching for terms from one of his OMS CS courses. Rosett went down the rabbit hole, answered the questions that sprung up on his browser, and today is a Google software engineer!

Or consider the dozens of students who took advantage of partial Georgia Tech scholarships to attend the 2016 Grace Hopper Celebration of Women in Computing or the Richard Tapia Celebration of Diversity in Computing. One of OMS CS’ greatest strengths is the sense of community it fosters, even among students who’ve never met in person and are often separated by entire oceans and continents. The students who attended Grace Hopper and Tapia got a chance to meet their colleagues for the first time, while helping to support broader efforts to raise diversity across computer science.

OMS CS is changing the world of higher education, and the School of Computer Science has played a big part in its success.

“Rather than going to Georgia Tech to get a master of computer science degree for $41,000, [the online] program costs about $6,700. The same accreditation, the exact same degree, at a fraction of the cost. That’s big.”

—Randall Stephenson
CEO, AT&T
July 12, 2016; ChiefExecutive.net

SCS Distinguished Lecture Series
The School of Computer Science’s Distinguished Lecture Series is a compelling selection of discussions and presentations around emerging concepts in computer science. Each talk provides an opportunity to engage a premier computer scientist who is tackling complex industry problems. Past lecturers include:

Rafail Ostrovsky
professor of Computer Science and Mathematics, University of California - Los Angeles.

Jennifer Rexford
Gordon Y.S. Wu Professor of Engineering and chair of Computer Science, Princeton University (Mary Jean Harrold Memorial Distinguished Lecturer)

Michael Kearns
professor in the Computer and Information Science Department, University of Pennsylvania

Deborah Estrin
professor of Computer Science, Cornell Tech - New York City (Mary Jean Harrold Memorial Distinguished Lecturer)

Jennifer Tour Chayes
distinguished scientist and managing director, Microsoft Research - New England
In 1965, Intel co-founder Gordon Moore predicted that computer performance would double approximately every two years. For more than a half-century Moore's prediction has held and been the guiding light of the computer industry. However, continuing technological advancements are now threatening the long-term viability of Moore's Law.

To meet the challenges presented by the law's impending end, the School of Computer Science has launched the Center for Research into Novel Computing Hierarchies (CRNCH). This new interdisciplinary research center will help to fend off the threat of diminishing computer performance by rethinking computer design.

Professor Tom Conte, director of CRNCH and an Institute of Electrical and Electronics Engineers (IEEE) Fellow, leads a cohort of researchers and faculty from three Georgia Tech colleges, creating critical interdisciplinary research opportunities while positioning Georgia Tech at the vanguard of high-performance computing (HPC).

CRNCH spans all computing disciplines to find innovative and new computing hierarchies by breaking down the barriers between devices, circuits, architecture, software, and algorithms.

CRNCH allows Georgia Tech to be a thought leader in high-performance computing and strengthen our authority in HPC," said Conte. "No longer can computer scientists work divided. A group effort is required to handle these new computing problems and create a meaningful partnership between software and hardware."

Technology is advancing faster than the chips that power devices, creating a looming crisis for the industry. As the viability of Moore's Law wanes, the importance of building relationships, connecting resources, and creating alternative solutions is widely recognized.

"Moore's Law is less a rule of technology than a mantra to always make computation faster," said Lance Fortnow, chair of the School of Computer Science. "The establishment of this new center is an important step in pushing computing forward."

As co-chair of the IEEE Rebooting Computing Initiative, a National Science Foundation-sponsored effort to revamp computing education, Conte is intimately connected to improving computer performance. Together with his colleagues, he is exploring a range of approaches to the impending end of our current computing paradigms.

Chief among these approaches is quantum computing, which uses properties of quantum mechanics to solve problems in optimization and whole number theory. Quantum computing is not a universal computing solution, but the problems it solves are critical to science, engineering, and national security.

A less radical change is neuromorphic computing, which leverages knowledge about how the human brain operates to create new computing technologies. Approximate and stochastic computing, computer microarchitectures, and extending Moore's Law in its last few generations are among other approaches being explored, and just a small sample of what may be possible.

The historic doubling of computer performance brought vast improvements to many aspects of human life, from medicine to the development of devices like the iPhone. Through CRNCH, Georgia Tech is positioning itself as an authority in high-performance computing, leveraging its many disciplines and long-standing industry affiliations to empower computing for future generations.
The Georgia Institute of Technology is tackling the challenges of big data head on with the new Institute for Data Engineering and Science (IDEaS). The new interdisciplinary research institute (IRI) will unite researchers across Georgia Tech, foster important partnerships with industry, and play a key role in building the community of the recently announced Coda building in Technology Square.

IDEaS is jointly led by co-executive directors Dana Randall (professor in the School of Computer Science) and Srinivas Aluru (professor in the School of Computational Science and Engineering) and includes researchers and faculty that span all six Georgia Tech colleges, positioning the Institute at the forefront of big data solutions.

“Data is a critical part of research and applications everywhere,” said Randall. “Despite impressive advances, many in research and industry remain ill-equipped to derive the most benefits from data. IDEaS exists to change that.”

Data-driven research is becoming commonplace in many fields of science and engineering, with devices, sensors, and scientific instruments collecting enormous amounts of data that must be analyzed with both discipline-specific knowledge and data science skills. The need to forge partnerships and unify resources in this area is widely recognized, as demonstrated by the National Science Foundation’s recent establishment of four Regional Innovation Hubs. Aluru co-leads one of these, the South Big Data Hub, which unites partners across 16 Southern states and Washington, D.C.

“As Georgia Tech becomes more visible as a thought leader in data science and engineering, the big idea for IDEaS is to provide the coordination and expertise necessary to link researchers across the Institute, strengthening our position in big data,” said Steve Cross, Georgia Tech executive vice president for research. “Doing so better equips them to take on important and complex problems. It creates meaningful partnerships and accessible resources, and educates future data science leaders. It also addresses long-standing challenges in the world of big data, creating critical push points through the innovation stage, enabling and accelerating the adoption process.”

As the anchor tenant of the Coda building in Midtown’s Technology Square, the new IRI goes hand in hand with the building project. IDEaS will facilitate new ventures and industrial collaboration among the building’s research neighborhoods, providing a unique opportunity for academia to rub shoulders with industry, and be an asset to education, research, and public-serving institutions in Georgia. It will also collaborate with several Georgia stakeholders, including the Technology Association of Georgia and the Georgia Manufacturing Extension Partnership, and serve as an incubator for economic development opportunities.

“The IRI will link research centers and efforts horizontally in foundational areas such as machine learning, high-performance computing, and algorithms,” said Aluru. “It will also drive research within disciplines such as precision medicine, materials science, energy, and smart cities, giving researchers what they need to innovate and pursue challenges on a much bigger scale.”
Secure TECH

According to CBS News, there are 1.5 million cyber attacks a year. That averages to more than 170 attacks every hour on people, businesses, and government agencies. To confront the scale of these threats, Georgia Tech launched the Institute for Information Security & Privacy (IISP) in fall 2015. Building upon the foundation formed by the Georgia Tech Information Security Center, the IISP leverages intellectual capital from seven units across Georgia Tech and focuses on creating cybersecurity solutions in three ways: via education, research, and commercialization.

The IISP began its inaugural year by dissecting and defining Georgia Tech’s cybersecurity capacity, then creating new experiences for students, faculty, and industry to coalesce around solutions. With research spanning six critical areas, nine labs, and more than 460 researchers, the IISP provides an immersive education on cybersecurity and its implications for connected disciplines like public policy, business, defense, and ubiquitous computing.

“We believe few other universities are tackling cybersecurity research with the breadth and depth of Georgia Tech.” — Prof. Wenke Lee

and more than 460 researchers, the IISP provides an immersive education on cybersecurity and its implication for connected disciplines like public policy, business, defense, and ubiquitous computing.

“We believe few other universities are tackling cybersecurity research with the breadth and depth of Georgia Tech,” said Wenke Lee, co-director of the IISP and the John P. Imlay Chair in Software for the School of Computer Science.

With almost $35 million in cyber research under way, the IISP helps protect public and private interests by defending critical economic and technological pillars. Current academic and applied research projects involve multiple government and industry partners—including global businesses such as British Petroleum, Intel, and IBM—and include studies in cyber policy, consumer-facing privacy, attribution, risk, trust, and cyber-physical systems.

Additionally, the IISP looks to move academic to applied research to market in the form of commercial startups. One of the most exciting aspects of the IISP’s first year was the success of graduate Musheer Ahmed (Ph.D. CS ’16). Ahmed’s graduate research, under the advisement of Professor Mustaque Ahamad, led him to win the IISP’s inaugural Demo Day Finale.

Ahmed and Ahamad have filed a provisional patent for “FraudScope” to help insurers mine health care data and calculate risk among a provider pool. In addition to keen interest from businesses and entrepreneurs across Atlanta, FraudScope has received $400,000 in funding from the prestigious Wallace H. Coulter Foundation and Georgia Research Alliance. Ahmed and Ahamad represent just one of the many commercial initiatives the IISP is nurturing.

“This work is an example of how Georgia Tech will and should expand its cybersecurity leadership,” said Bo Rotoloni, co-director of the IISP and director of the Georgia Tech Research Institute’s Information & Cyber Science Directorate. “Industry is hungry for solutions, and Georgia Tech has them.”

Looking ahead, the IISP already has a busy second year on tap. It organized a two-day cybersecurity symposium in Atlanta with the French Embassy; prepared to speak at a premier defense intelligence conference (DoDIIS ’16) and at the Federal Reserve; prepped students to participate in the first-ever DARPA Cyber Grand Challenge at Black Hat and other academic conferences; and again hosted the popular Georgia Tech Cyber Security Summit.

“And that’s just the first quarter of 2016-17,” Lee said. “We are truly becoming a gateway for national and international cybersecurity collaboration for faculty, students, scientists, government, and industry. It’s very exciting!”

THE SUCCESS OF GTISC SPAWNS NEW, THREE-PRONGED APPROACH TO CYBERSECURITY

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SCS By the Numbers 2015–16

7 Endowed Chairs

Zvi Galil
John P. Imlay Jr. Dean of Computing

Richard Lipton
Frederick G. Storey Chair in Computing

Calton Pu
John P. Imlay Jr. Chair in Software

Rich DeMillo
Charlotte B. and Roger C. Warren Chair in Software

Wenke Lee
John P. Imlay Jr. Chair II in Computing

Santosh Vempala
Frederick G. Storey Chair II in Computing

Ellen Zegura
Stephen Fleming Chair II in Telecom

9 ACM Fellows

7 IEEE Fellows

11 NSF CAREER Awards

79 Staff and Faculty

22 Professors
7 Associate Professors
4 Assistant Professors
6 Research Faculty
2 Joint Appointments

35 Full Time Faculty
19 Adjunct Appointments
11 Staff
8 Post-doctoral Researchers
5 Research Scientists
1 Research Associate

$33.8 MILLION IN ACTIVE RESEARCH FUNDING*

$11,689,608 MILLION IN TOTAL FUNDING AWARDED TO SCS IN FY ’16:

20,813,814 (47%)
National Science Foundation

6,595,846 (15%)
US Air Force

1,265,283 (3%)
Office of Naval Research

1,150,000 (3%)
US Dept. of Energy

2,947,788 (7%)
Other
Graduate Students Enrolled: 222

124 Ph.D. in Computer Science
33 M.S. in Information Security
15 Ph.D. in Algorithms, Combinatorics, & Optimization
46 M.S. in Computer Science, Computing Systems

Ph.D. in Computer Science Specializations:
1. Computing Systems
2. Computer Architecture
3. Information Security
4. Security/Cryptography
5. Networking and Communications
6. Programming Languages and Compilers
7. Database Systems
8. Software Engineering
9. Theory

M.S. in Information Security Specializations:
1. Systems
2. Policy
3. User and Usability

Ph.D. in Computer Science Enrollment by Specialization*:

<table>
<thead>
<tr>
<th>Specialization</th>
<th>Number</th>
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<tbody>
<tr>
<td>Systems</td>
<td>31</td>
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<tr>
<td>Architecture</td>
<td>19</td>
</tr>
<tr>
<td>Security/Cryptography</td>
<td>16</td>
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<tr>
<td>Information Security</td>
<td>15</td>
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<tr>
<td>Theory/ACO</td>
<td>15</td>
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<tr>
<td>Programming Languages and Compilers</td>
<td>13</td>
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<tr>
<td>Networking and Communications</td>
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<tr>
<td>Database Systems</td>
<td>13</td>
</tr>
<tr>
<td>Software Methodology and Engineering</td>
<td>8</td>
</tr>
<tr>
<td>Software Methodology and Engineering</td>
<td>5</td>
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<tr>
<td>Undeclared</td>
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*As of August 2016
With a graduate program recognized by *U.S. News and World Report* as one of the best in the world, the Georgia Tech School of Computer Science aims to produce well-balanced computer scientists. For us, education is a two-fold process. Our students not only learn about the theory of computer science – but they practice it as well. Through an assortment of research, lab work, and fellowship opportunities, the School exposes students to a plethora of experiences to mold them into the CS professionals of tomorrow.

**Divya Mahajan**  
*Ph.D. in Computer Science, Computer Architecture*

A Ph.D. student in Assistant Professor Hadi Esmaeilzadeh’s Alternative Computing Technologies Lab, Mahajan recently presented her paper, titled “Towards Statistical Guarantees in Controlling Quality Tradeoffs for Approximate Acceleration,” at the International Symposium on Computer Architecture in Seoul, South Korea. Her research involves devising alternative ways to accelerate code and designing new techniques for approximate acceleration using micro-architectural tools. In addition to her work in approximate computing, she is rigorously working toward designing template-based architectures for accelerating machine learning algorithms on field programmable gate arrays.

**Byoungyoung Lee** and **Chengyu Song**  
*Ph.D. in Computer Science, System and Network Security*

Recent computer science Ph.D. graduates Byoungyoung Lee and Chengyu Song’s won the annual Facebook and USENIX Internet Defense Prize, taking home $100,000 grand prizes. Along with two Georgia Tech professors, the two students developed a new cybersecurity analysis process that discovered 11 previously unknown Internet browser security flaws. Lee and Song are now serving as tenure-track assistant professors at Purdue University and the University of California – Riverside, respectively.

**Sarah Cannon**  
*Ph.D. in Algorithms, Combinatorics, and Optimization*

An advisee of IDEaS Co-Director and SCS Professor Dana Randall, Sarah Cannon is a Ph.D. student in the algorithms, combinatorics, and optimization (ACO) program. She has been awarded numerous fellowships from organizations like the Simons Foundation, the National Science Foundation, the Henry Luce Foundation, and the U.S. Department of Defense. Most recently, she presented a research paper, “A Markov Chain Algorithm for Compression in Self-Organizing Particle Systems,” at the 2016 ACM Symposium on Principles of Distributed Computing. In addition, Cannon sits on the organizing board of the Grad Women@CC, the organization for female graduate students in the Georgia Tech College of Computing.
Humberto Nieves is a captain in the U.S. Army working on his M.S. in Information Security. Nieves helped create “Hermes,” a wellness app that placed second in the 2016 Convergence Innovation Competition. The app uses health sensors in Android smartwatches to monitor a wearer’s physical condition and notifies a loved one in emergencies.

Nieves has worked for Research Scientist Russ Clark on two additional projects. The first one deals with resource public key infrastructure that allows routers to validate border gateway protocol announcgments, ensuring Internet destinations are valid; for the second project, he is devising computing architectures that assist emerging smart cities to securely aggregate data from different data-points.

Burak Sahin is a graduate research assistant pursuing his master’s degree in computer science with a focus on information security. In January, he and his advisor, Assistant Professor Bill Harris, will present his first accepted paper at the 2017 ACM SIGPLAN Symposium on Principles of Programming Languages.

Sahin’s research investigates software and web security. He seeks to find critical paths, threat models, and tools that can automatically detect vulnerabilities and increase privacy.

Currently, Sahin is developing an analysis tool to monitor resource exhaustion in Android smartphones. This tool could help alleviate denial-of-service (DoS) attacks that can render a device inoperable while stealing private information.
The SCS Advantage

Our alumni represent some of the brightest and most intriguing minds in the field of computer science. They are leaders in topics from cybersecurity and artificial intelligence to automation and big data analytics. Many of our alumni use their ideas and graduate research to support Fortune 500 companies, lead government agencies, or start their own business. All these achievements are a testament to the competitive edge, imaginative thinking, and quality education these leaders received at the Georgia Tech School of Computer Science.

Phyllis Schn

eck is a renowned authority on cybersecurity and information security policy. Since 2013, she has been serving as the Department of Homeland Security (DHS) deputy undersecretary for cybersecurity and communications for the National Protection and Programs Directorate (NPPD). Schneck is a regular in President Barack Obama’s situation room and often advises the president and other agency leaders on matters dealing with cyber and information security.

Named one of Information Security Magazine’s “Top 25 Women Leaders in Information Security,” Schneck has spoken widely on information security best practices. She has worked with numerous foreign governments on information sharing and infrastructure protection, and moderated a White House town hall meeting on the National Strategy to Secure Cyberspace.

“Today’s world is connected and operated by electronic logic that gives us profound new capabilities and profound new areas of risk. Wrongful access to information or control of physical infrastructure can cause extreme damage to our way of life,” said Schneck. “I was fortunate to attend Georgia Tech, an institution that invested in understanding cyber threats and their potential impact on connected global infrastructure 20 years ago, from both a technology and policy perspective.”

In addition to her government work, Schneck has distinguished herself on the corporate side of the security and infrastructure protection community. In 2012, she was named the David D. Lattanze Center “Executive of the Year” by Loyola University, Maryland. She has held positions at several companies including Secure Computing, which was acquired by McAfee, eCommSecurity, SecureWorks, Inc., and IBM, just to name a few.

Most notably, Schneck was the chief technology officer for McAfee’s Global Public Sector. In this role she was responsible for the technical vision for products and services for the public sector. She also was responsible for global threat intelligence, industrial control system security, and telecom strategy.

Schneck received her Ph.D. in computer science in 1999, advised by the late Professor Karsten Schwan. She was the first computer science Ph.D. student to study cybersecurity, introducing the field to Georgia Tech via her research in high-performance computing.

In 1998, her efforts helped lead to the founding of the Georgia Tech Information Security Center—now the Institute for Information Security and Privacy.

Schneck has remained active at Georgia Tech, serving a term on the Georgia Tech Advisory Board and aiding the steering committee for the Sam Nunn Information Security Forum. ■

Phyllis Schn

eck

Ph.D. in Computer Science, ’99

“I was fortunate to attend Georgia Tech, an institution that invested in understanding cyber threats and their potential impact on connected global infrastructure twenty years ago, from both a technology and policy perspective.”

Photo by Brooks Kraft for the Georgia Tech Alumni Magazine.
Georgia Tech alumnus Matt Might is uniting the worlds of medicine and computer science in profound new ways as a Strategist for President Barack Obama’s Precision Medicine Initiative. Launched in January 2015, the initiative is combining advances in genomic medicine and computer science to match patients with unique treatments specific to their condition. As a strategist for the program, Might leverages his expertise in computer science to lay the scientific foundation for solving medical problems with a genetic basis.

A three-time CS graduate of Georgia Tech (B.S. 2001, M.S. 2005, Ph.D. 2007), Might is a respected computer scientist. He is an associate professor at the University of Utah with an active social media presence and popular blog, and he is also a visiting associate professor at the Harvard Medical School, where he focuses on clinical precision medicine. He has published more than 50 scientific papers, appeared in media interviews, and presented almost 100 talks on topics such as cybersecurity, disease discovery, drug development, precision medicine, theoretical computer science, and static analysis.

Married and the father of three children, Might’s foray into the intersection of computer science and medicine began when his eldest child became the first person diagnosed with NGLY1 deficiency, a previously undiscovered genetic disorder. The diagnosis was made possible through a groundbreaking research experiment using exome sequencing—a then-novel technique to reveal the code in the human genome that creates proteins. Prior to the diagnosis, Might and his wife spent years bouncing from specialist to specialist in search of answers. His son was 4 years old when he was finally diagnosed in 2012. Since then, Might has been on a crusade to find a cure for his son, with early success in bringing significant improvements to the quality of life for his son and a handful of other newly discovered patients.

“Computer science is a fascinating scientific discipline in its own right, and it has now also become the enabling instrument of many other fields of study. Medicine is just one example of a field that can be rapidly accelerated and re-thought in light of computation,” said Might. “I have no medical training, but the skills I learned in a computer science degree at Georgia Tech allowed me to cross disciplinary boundaries, to help my son and ultimately, I hope, to help many more.”

The Might family’s odyssey was featured in The New Yorker in 2014, which ultimately led to a meeting with President Obama and began Might’s involvement with the White House’s initiative. Since March 2016, Might has been involved in an official capacity, working in the Executive Office of the President at the White House half-time so he can stay committed to finding a cure for his son.

For additional information on NGLY1, go to NGLY1.org.
SCS in the News

**SCS Awarded $2.9M DARPA Grant**

Guided by Lead Principle Investigator (PI) and Assistant Professor Taesoo Kim, a team of researchers received a $2.9 million contract from the U.S. Defense Advanced Research Projects Agency (DARPA) to develop a cybersecurity method that will identify and defend against low-volume distributed denial of service (DDoS) attacks.

**New Big Data and Security Courses Created to Train Next Wave of Computer Scientists**

Georgia Tech is introducing new courses and labs into the computer science curriculum that teaches a data-driven approach to malware analysis. Led by School of Computer Science assistant professors Hadi Esmaeilzadeh and Taesoo Kim, the new classes will support a separate NSF project to train students in security and big data analytics.

**SCS Professors Earn $1.2M for Big Data Cloud Protection Project**

Professors Ling Liu (Lead PI) and Calton Pu have received a $1.19 million grant from the NSF to devise privacy protection protocols for big data cloud processing. Known as PrivacyGuard, the project is a first step toward establishing a practical way of ensuring end-to-end privacy for big data cloud computations.

**SCS Contributes to College’s Top 5 Ranking**

Computer science is a growing industry in constant need of smart and inventive computer scientists. As a unit of the College of Computing, the School of Computer Science has contributed to crafting a computer science program that has achieved a No. 5 global ranking on the Times Higher Education World University Rankings by Subject for 2016-17. This ranking is a testament to the School’s contributions to the College of Computing’s growing global reputation for excellence in CS education.

**Eric Vigoda Named Director of ARC**

A 12-year veteran of Georgia Tech, Professor Eric Vigoda was named the fifth director of the Georgia Tech Algorithms and Randomness Center (ARC). The former associate chair for the School of Computer Science has been a longtime associate of the center and is an adept theoretical computer scientist. In addition to this new appointment, Vigoda teaches courses in the algorithms, combinatorics and optimization Ph.D. program.
Academic Faculty

Mustaque Ahamad
Professor
Ph.D., the State University of New York-Stony Brook, 1985

Mostafa Ammar
Regents’ Professor
Ph.D., University of Waterloo, 1985
ACM Fellow, IEEE Fellow

Alexandra “Sasha” Boldyreva
Associate Professor
Ph.D., Georgia Institute of Technology, 2004
IEEE Fellow, NSF CAREER Award

Thomas “Tom” Conte
Professor
Ph.D., University of Illinois, Urbana-Champaign, 1992
IEEE Fellow, NSF CAREER Award

Richard DeMillo
Professor and Charlotte B. and Roger C. Warren Chair in Computing
Ph.D., Georgia Institute of Technology, 1972
ACM Fellow

Constantine Dovrolis
Professor
Ph.D., University of Wisconsin, Madison, 2000
NSF CAREER Award

Hadi Esmaeilzadeh
Assistant Professor
Ph.D., University of Washington, 2013

Lance Fortnow
Professor and Chair, School of Computer Science
Ph.D., Massachusetts Institute of Technology, 1989
ACM Fellow

Merrick Furst
Distinguished Professor
Ph.D., Cornell, 1980

Zvi Galil (Dean)
Professor and The John P. Imlay Jr. Dean of Computing
Ph.D., Cornell University, 1975
ACM Fellow

Ada Gavrilovska
Associate Professor
Ph.D., Georgia Institute of Technology, 2004

Hyeseon Kim
Associate Professor
Ph.D., University of Texas, Austin, 2007
NSF CAREER Award

Taesoo Kim
Assistant Professor
Ph.D., Massachusetts Institute of Technology, 2014

Muhath Lee
Professor and John P. Imlay Jr. Chair in Software
Ph.D., Columbia University, 1999
NSF CAREER Award

Richard “Dick” Lipton
Associate Dean of Research, Professor, and the Frederick G. Storey Chair in Computing
Ph.D., Carnegie Mellon University, 1973
ACM Fellow

LING LIU
Professor
Ph.D., Tilburg University, The Netherlands, 1993
IEEE Fellow

Leo Mark
Associate Professor and Associate Dean for Academic Programs and Student Affairs
Ph.D., Aarhus University, Denmark, 1985

Milena Mihail
Associate Professor
Ph.D., Harvard University, 1989

Shamkant Navathe
Professor
Ph.D., University of Michigan, 1976
ACM Fellow

Alex Orso
Professor and Associate Chair, School of Computer Science
Ph.D., Polytechnic University of Milan, 1999

Santosh Pande
Associate Professor
Ph.D., North Carolina State University, 1993

Richard Peng
Assistant Professor
Ph.D., Carnegie Mellon University, 2013

Milos Prvulovic
Associate Professor
Ph.D., University of Illinois, Urbana-Champaign, 2003
NSF CAREER Award

Calton Pu
Professor and John P. Imlay, Jr. Chair in Software
Ph.D., University of Washington, 1986
IEEE Fellow

Richard "Dick" Lipton
Associate Dean of Research, Professor, and the Frederick G. Storey Chair in Computing
Ph.D., Carnegie Mellon University, 1973
ACM Fellow

Kishore Ramachandran
Professor
Ph.D., University of Wisconsin, Madison, 1986
IEEE Fellow

Dana Randall
ADVANCE Professor
Ph.D., University of California, Berkeley, 1994
AMS Fellow, NSF CAREER Award

Vijay Vazirani
Professor
Ph.D., University of California, Berkeley, 1983
ACM Fellow

Santosh Vempala
Professor and Frederick G. Storey Chair II in Computing
Ph.D., Carnegie Mellon University, 1997
ACM Fellow, NSF CAREER Award

H. Venkateswaran
Associate Professor and Associate Chair, School of Computer Science
Ph.D., University of Washington, 1986

Eric Vigoda
Professor and Director of the Georgia Tech Algorithms and Randomness Center
Ph.D., University of California, Berkeley, 1999
NSF CAREER Award

Jun "Jim" Xu
Professor
Ph.D., The Ohio State University, 2000
NSF CAREER Award

Ellen Zegura
Professor and Stephen Fleming Chair II in Telecom
D.Sc., Washington University, St. Louis, 1993
ACM Fellow, IEEE Fellow, NSF CAREER Award