

Computer Science

Computer Science Department
225 Stanger St.
114 McBryde Hall (MC 0106)
Virginia Tech
Blacksburg, VA 24061
Telephone: 540/231-6931
Fax: 540/231-6075



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From the Department Head



Hi. I am proud to report to you the results of our successful faculty searches during AY 2011-2012 as well as several honorifics received this year by our CS@VT faculty.

We are very excited to be welcoming two new faculty to our department (more details follow). Dr. Sanmay Das, an expert in machine learning, will be joining us after 5 years as an Assistant Professor at Rensselaer Polytechnic Institute (RPI). Dr. Das was a recipient of an NSF CAREER Award (2010), bringing our departmental faculty total of CAREER award winners to 12. Our second hire is B. Aditya Prakash, an expert in large, real-world problems involving terabyte scale data. Currently, he is a Ph.D. student at CMU, scheduled to join us as an Assistant Professor as of January 2013.

Prakash does work on real-world data analytics problems posed over large information and social networks, with challenges of scalability, real-world (noisy) data and the ability to support decision making.

Three CS@VT faculty members were awarded significant honors by the College of Engineering in spring 2012, after solicitation of candidates college-wide.

Dr. Naren Ramakrishnan, Director of the *Discovery Analytics Center* and Professor of Computer Science, was named the *Thomas L. Phillips Professor of Engineering* for his extraordinary contributions to data mining research. Dr. Ramakrishnan is also an NSF CAREER Award winner, an ACM Distinguished Scientist, and the recipient of the Virginia Tech *Alumni Award for Excellence in Research* (2010). Dr. Ramakrishnan served as the department's Associate Head for Graduate Studies from 2008-2012. He currently is the PI on a large contract from IARPA (more details follow).

Dr. Wu Feng, Associate Professor of Computer Science, was awarded one of the only 2 Turner Fellowships given across the College. Dr. Feng is an outstanding researcher in efficient, high performance computing (HPC) and networking, with emphasis on energy-efficiency and accelerator-based computation, especially as applied to problems in bioinformatics. He is an ACM Distinguished Scientist and has received several IBM Faculty Awards, an NVIDIA Professorship Partnership Award, and an AMD Faculty Fellowship. In 2010, Dr. Feng assembled a strong team for a successful \$2M NSF *Major Research Instrumentation (MRI)* grant that funded *HokieSpeed*, a new ~200 node GPU/CPU supercomputer for Virginia Tech.

Dr. Stephen Edwards, Associate Professor of Computer Science, was named the *W.S. "Pete" White Chair for Innovation in Engineering Education*. This appointment attests to his innovative pedagogy for beginning programmers, supporting the use of good testing techniques with his web-based open-source grading tool, *Web-CAT*. Dr. Edwards also received the *2006 XCaliber Award* at Virginia Tech.

Please give careful and serious consideration to our appeal for financial support for the department, through a new alumni program described at the end of this newsletter. We need your help to start on an endowment which will allow us to become the department that we know we can be.

Spring Commencement Ceremonies

On Saturday, May 12, the Virginia Tech College of Engineering conferred degrees on the class of 2012, including approximately 90 Computer Science undergraduate students. Graduate degrees were conferred at the Graduate Commencement Ceremony on Friday, May 11. On Saturday morning, Computer Science graduates, their guests and families, enjoyed a reception in the Owens Banquet Hall. Several students were recognized for outstanding achievements and contributions, including Kyle Akers, John Kurlak, and Marco Leung for undergraduate

academic achievement, TC Jones for service to the department, Alexander Obenauer as the outstanding undergraduate teaching assistant, and Marco Leung as the Outstanding CS Senior. Three graduate students were also recognized: Kevin Bufardi for outstanding teaching, Gabriel Martinez as the outstanding Master's student and Yinan Li as the outstanding doctoral student. Both Caroline Galecki and Paul Robertson were awarded the George Gorsline Memorial Scholarship Award, given each year to a

rising senior who has made the most significant rebound from freshman year.

Congratulations to all the graduates!



David Heilman Award for Excellence in Undergraduate Research created



During the spring commencement reception, a posthumous degree was awarded to the family of David Heilman. David Heilman was a freshman CS major in Fall 2007. He immediately established a record of academic excellence by earning a 3.8 GPA in that first year. But David had more than the usual challenges facing college students. He was battling leukemia. David was out of school the next year to receive treatment.

He was able to return in Fall 2009 ready again to tackle a full schedule for his CS major and Biology minor, he did ask for one accommodation. He needed a Biology lab moved from late Friday afternoon because he needed to return to northern Virginia once per month for treatment. That semester David earned a 3.94.

David's outstanding scholarship and interest in combining CS and Biology lead him to earn a research position with the Bioengineering and Bioinformatics Summer Institute during Summer 2010.

David was always upbeat and positive. According to his Dad, "David loved Virginia Tech and he was a Hokie first and always." But David's cancer returned and he was not able to return to VT in Fall 2010. In May of 2011, David lost his battle with cancer.

In David's memory and in honor of his excellence in scholarship and research, the Department of Computer Science established the David Heilman Award for Excellence in Undergraduate Research. The first recipient is Craig Estep.

Craig is graduating this semester with a 3.88 overall GPA, summa cum laude and as a Commonwealth Scholar. He will be staying for the next academic year to complete an MS degree at Virginia Tech. While a student here, Craig has interned with Salesforce.com and was a member of CS Squared, a CS community service organization. He has been the recipient of the Griffith Strader Christian Scholarship and a Computer Science Resources Consortium Scholarship.



Craig's research has been in two very different areas; one in the area of computer science education and another in computer systems. Craig's first undergraduate research experience was with Dr. Steve Edwards, working on adding clustering support to the Web-CAT project. More recently he has been working with Dr. Ali Butt on a project involving virtualization and cloud computing.

Five CS students inducted into Phi Beta Kappa

On Thursday, May 10, Virginia Tech's Mu Chapter of Phi Beta Kappa held its Spring 2012 initiation ceremony in McBryde 100. According to their official web site, PBK was founded at the College of William and Mary in 1776 and is the nation's oldest and most widely known academic honor society. Among the Spring 2012 initiates were five Computer Science majors: Daniel Breakiron, William Gomez, Robert Kania, John McElmurray and Robert Lyerly. William Gomez and John McElmurray were unable to attend the initiation ceremony.



Pictured left to right: Rob Lyerly, Robert Kania, Daniel Breakiron and Dr. Barbara Ryder

CS Undergrads place first and second in IDT Programming Competition



Left to right, Thom Garrett (IDT), Ian Davies (VT), and Bernie Gauf (IDT)

Two pairs of computer science students took first and second place in the Innovative Defense Technologies' (IDT) Collegiate Programming Contest. From the IDT press release:

"On May 19, 2012, Innovative Defense Technologies (IDT), a Software Development company based in Arlington, VA, specializing in Automated Software Testing applications, held its annual Collegiate Programming Contest. Several teams representing various universities participated in the event. The event finals were held at the Virginia Tech Research Center, in Arlington, VA. Here the top three teams presented their solution to the contest problem. First place honors went to a team from Virginia Tech (Ian Davies and Eeshan Shah), the 2nd place team was also from Virginia Tech (Karthik Kumar and Mark Nachazel), and 3rd place was awarded to the team from William & Mary (James Rountree and Gregory Smith)."

The purpose of this type of event is "To promote interest in automated software testing in the areas of computer science, engineering, mathematics, problem solving, teamwork, and innovative technology at the college level." – Thom Garrett, IDT Contest Chair

CS students among winners of the Charles W. Steger Design Competition

Working as a team on a project for their senior capstone course, four computer science undergraduate students were among the winners at the inaugural Charles W. Steger Design Competition. According to the press release about the event, "[t]he Charles W. Steger Design Competition was inspired by the June 2011 grand opening of the research center which

represents a significant investment in Virginia Tech's research mission. The center's design and infrastructure support the computational research that is being conducted by Virginia Tech institutes and centers housed in the building."

The four students were a project team in Professor

Steve Harrison's Design of Information class during the fall 2011 semester. The team consisted of December 2011 graduate James McIntyre, May 2012 graduates Joseph Liversedge and Scott Fernandez, and future graduate Luke Marrs.



Pictured, left to right, Scott Fernandez, Joseph Liversedge, Luke Marrs, and James McIntyre

AWC and MAD groups awarded NCWIT Student Group Seed Grant

Ariel Cohen, with the Association for Women in Computing, and Avneet Singh, with the Mobile Application Development group, have been awarded a [Seed Grant](#) from [NCWIT](#) and [Symantec](#) to start a mentoring program for underclassmen. According to the organizers, "The mentoring program is designed to give CS majors of all ages and classes both

out of class programming/ research experience and an environment where they can ask questions comfortably. We are going to team up either an upperclassman and a grad student or two upperclassmen with a group of two or three mentees, and together as a group they will work on a programming or research project throughout the academic year. Mentoring groups will

be free to meet up on their own time, and all of the groups will meet together once a month to present how far they have gotten in their projects and to socialize. We are hoping that this program will boost the resumes of everyone involved and provide the student mentoring that will help underclassmen become more comfortable in the major."

Sophomore Seminar students present "Cool Topics"

On April 17, 2012, students in the sophomore seminar class presented "cool topics" to CS student ambassadors, advisors, faculty, and each other. As part of the new sophomore seminar, students are assigned to a group which will decide on a "cool topic" to present towards the latter part of the semester. Many [interesting topics](#) were presented during the evening event. According to the instructor of the class Dr. Cal Ribbens, "The goal of the Cool Topics Fair is to give students in the Sophomore Seminar an opportunity to explore an emerging topic in computer science, and to present that topic to their peers. Students also get experience working together on a group project, something that will be common as they proceed through their undergraduate curriculum."



CSRC and CS Department sponsor Grace Hopper Conference

For the fifth straight year, the CS Department and the CSRC will be academic underwriters of the annual Grace Hopper Celebration of Women in Computing.

CS@VT was well represented by sending almost a dozen students to Grace Hopper in 2011, which was held in Portland, Oregon. With the 2012 GHC event being held in Baltimore, Maryland, the department hopes to send a large contingent of students and faculty to the celebration.

This year, the gold sponsorship status provides a 20% discount to all students attending the conference from CS@VT. The department will be encouraging new students, either at the graduate or undergraduate level, to attend the conference.

We are pleased to be able to continue supporting an activity that provides networking and career opportunities to the young women of the CS Department.

Virginia/DC Affiliate honors high school women



Pictured (left to right): winning teachers, Lynn Norris and Rebecca Dovi, student runners-up, Michelle Wang, Jordan Newton, Wei Low, Crystalin Harris, Shelby Evans, and Pooja Chandrashekar; and student winners, Connie Scoggins, Kristina Pham, Taylor O'Brein, Rhey Igou, Allison Grasmeder, and Allison Collier

The Virginia/DC Affiliate of the [National Center for Women in IT](http://www.ncwit.org) (NCWIT) held its first awards and recognition ceremony on March 31, 2012. The Virginia/DC affiliate is made up of representatives from Virginia Tech, George Mason University, and the University of Virginia. The NCWIT Award for Aspirations in Computing recognizes female high school students for their achievements and interest in computing technology. The award is given at the national and regional levels.

Please also see the College of Engineering article at <http://bit.ly/IP2iYw>.

How your company can get involved with the 2013 VA/DC Regional Aspirations Award for Computing

For this year, we are still seeking financial support for this program. *Many thanks to Google (\$2000) and Northrop Grumman (\$5000) for providing funding for the 2012 event.*

- We are seeking prizes for the award winners, especially company purchased prizes.
- Your funding can help fund the program itself, student awards, or even student/parent travel grants to the awards program (if needed).
- Your company can underwrite one of the \$1000 renewable scholarships by providing \$3000 for one scholarship.

In addition to funding support and providing prizes, you can help next year's program in several ways:

- Help us recruit girls to apply to this program. We are trying to reach as many high school girls in the state of Virginia and the District of Columbia as possible. Applications are accepted from September 15 through October 31.
- Judging submitted applications. This will happen between early November and early December. *Special thanks to Steve Choquette from IBM for helping to review the 2012 applications.*

If your company is interested in supporting this program, please get in touch with Libby Bradford as soon as possible.

Karim Elish—First place winner at the VT GSA Research Symposium



Doctoral student Karim Elish was a first place finisher in the poster category of the [Virginia Tech Graduate Student Association's Research Symposium](#). Elish's poster was titled "DataGuard: A Mobile System for Securing Ultra-Sensitive Information."

Elish worked with his advisor Dr. Danfeng Yao, and Dr. Dennis Kafura on this project. Elish says that his project "presented a novel and powerful device-assisted solution for managing cryptographic secret keys, and demonstrated several prototypes of the solution."

The GSA Research Symposium is an annual event. Each award comes with a certificate and a cash prize.

Young-Woo Kwon winner of a Bronze Prize at Samsung Human-Tech Thesis Prize Competition

Computer Science doctoral student Young-Woo Kwon won the Bronze Prize at the Samsung Human-Tech Thesis Prize Competition for his research entry entitled: "Power-Efficient and Fault-Tolerant Distributed Mobile Execution."

Kwon is advised by Dr. Eli Tilevich, associate professor of computer science. Dr. Tilevich describes the competition: "Aimed at broadening

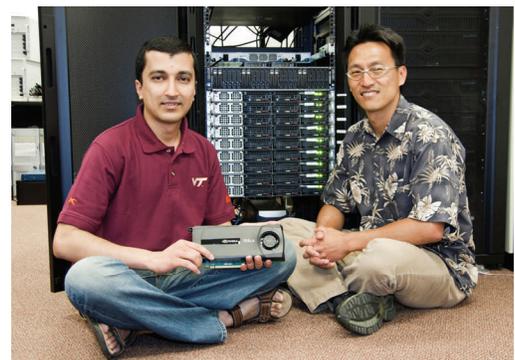
and enriching basic and applied research in Korea, the competition attracts both domestic and foreign participants at the high school, college, and graduate school levels. The first round of the competition typically starts with approximately 1,500 entries that span across 10 major areas of sciences and engineering. In each area, 8 entries are selected to compete in the final round. This prize-winning research has also been

accepted for presentation at the 32nd International Conference on Distributed Computing Systems (ICDCS), a premium conference in distributed computing."

Congratulations to Young-Woo. Read more about the Human-Tech Thesis Prize at the [Samsung website](#)."

Graduate Student Ashwin Aji selected for NVIDIA Fellowship

Ashwin Aji, PhD candidate in computer science, was recently awarded an NVIDIA Fellowship. The NVIDIA Fellowships are highly competitive, with only 12 awarded this year. You can read more about the competition at the [NVIDIA website](#): "This is the eleventh year that NVIDIA has invited Ph.D. students to submit their research projects for consideration, and again we received a record number of applications. Recipients are selected based on their academic achievements, professor nomination, and area of research. We have found this program to be a great way to support academia in its pursuit of cutting edge innovation, as well as an ideal avenue to introduce NVIDIA to the future leaders of our industry."



Ashwin Aji and Dr. Wu Feng

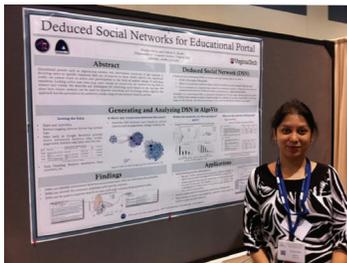
3D Interaction Group wins 1st place award for third year in a row



Members of the 3D Interaction Group, including several graduate students and faculty advisor Dr. Doug Bowman, professor of computer science, took first place for a third consecutive year at the [2012 IEEE 3DUI Symposium](#) in Costa Mesa, California. The team also won the "People's Choice" award, which was voted on by conference attendees.

Members of the team include Eric Ragan, Filipe Bacem, Siroberto Scerbo, and Cheryl Stinson, all current doctoral students in the computer science department.

CS@VT graduate students place second and third in Student Research Competition at SIGCSE 2012



CS@VT graduate students Monika Akbar and Kevin Buffardi placed second and third, respectively, in the Student Research Competition at SIGCSE 2012. The computer science department was well represented at the conference, held in early March, in Raleigh, NC.

Monika Akbar, working with her advisor Dr. Cliff Shaffer, submitted a project entitled "Deduced Social Networks for Educational Portal."

Her abstract: "Educational portals such as [Algoviz.org](#) seek to direct users to specific resources of interest to them. While AlgoViz has significant traffic, we lack active user data such as ratings and reviews. We instead use log data to deduce connections between different objects in the site (users and resources). Deduced networks have the potential to improve services such as searching and browsing for a wide range of educational resource portals."

Kevin Buffardi, working with his advisor Dr. Steve Edwards, submitted his project "Student Adherence to Test-First Programming in the Classroom."

Kevin describes his project: "[t]hanks to Web-CAT (an automated grading system we use primarily in introductory courses), I had the advantage of examining students' progress on project development over time to observe how closely they followed Test-Driven Development (TDD) methods. I found positive correlations between their adherence to TDD principles and the quality of both their solutions and testing. I also identified opportunities for influencing student behavior to improve their work as well as gain practice in methods popular in industry."



Min Li recipient of an IBM Fellowship Award

CS PhD student Min Li recently received an [IBM Fellowship Award](#). The award is a highly competitive support program for graduate students and provides recognition of outstanding research achievement. The award also attests to the interest of IBM in her research. Dr. Ali Butt advises Li and had this to say about her award: "This award is highly competitive and recognizes the student as well as the quality of the institution."



Min Li and Dr. Ali Butt

Recent graduate Alexander Obenauer creates apps and a startup

Alexander Obenauer, a May 2012 graduate of the computer science department, was mentioned in a recent New York Times article entitled "Apps for Navigating Campus Life." His "Hungry Hokie" app was mentioned with other apps created by students at Harvard, Carnegie Mellon, and Yale.

Since graduating, Obenauer has been working full-time on his startup "Mail Pilot." He and recent biological science graduate Josh Milas are hoping to reinvent e-mail. Their new startup, Mail Pilot, was recently featured in the Collegiate Times. Mail Pilot will help users treat their e-mail like a "to do" list. Since the Collegiate Times article was published, Obenauer and

Milas have reached their fundraising goal through KickStarter.

Read more about their project at www.kickstarter.com/projects/1380180715/mail-pilot-email-reimagined.



2010 PhD Graduate Dr. Hussein Ahmed wins two local Hackathons

Dr. Hussein Ahmed, a 2010 graduate of the computer science PhD program, won the Hokie Health Code-A-Thon. The event, managed by Health 2.0 and sponsored by the Roanoke-Blacksburg Technology Council and many local businesses, was held April 13-14, 2012. Dr. Ahmed won the \$2500 first place prize for his app called "HeyRecall" (signup.heyrecall.org).

He followed that win with another in May, winning the Lujure Hackathon held on May 11th and 12th. Dr. Ahmed won the \$5000 first place prize and was featured in an article in the Roanoke Times entitled "*Hackers Welcome.*"

Read more at <http://www.roanoke.com/business/wb/309266>.



2007 PhD Graduate Dr. Pardha Pyla part of winning user experience team



Dr. Pardha Pyla, a 2007 graduate of the PhD program was part of the Grand Prize winning team at the User Experience Awards. The Grand Prize, for "Best User Experience," was awarded to Bloomberg and Mobients for their "Bloomberg Anywhere" submission. Dr. Pyla is the User Experience Lead at Bloomberg. According to the award

website, "The aim of the awards is to significantly raise the stature, understanding and awareness of User Experience. User Experience is a critical part of the Internet and software development process and an essential element for success for any technology product or service in an ever-more-sophisticated consumer marketplace. How does a technology offering stand out from the

crowd of iPhone apps or competitor websites and services in 2011 and beyond? How does one digital product or service generate significantly higher user engagement and customer satisfaction than another? It all comes down to great UX."

Dr. Pyla, in conjunction with faculty emeritus Dr. Rex Hartson, has recently released a [new UX Textbook](#).

Dr. Ed Fox starts new project with VTX, part of GlobalWeb Corp in Brazil



Dr. Ed Fox, director of the Digital Library Research Lab (DLRL), will be working with Dr. Naren Ramakrishnan, the Thomas L. Phillips Professor of Engineering and the director of the Discovery Analytics Center, and Dr. Rex Hartson, professor emeritus in computer science, on human computer interaction and machine learning activities as part of the pro-

ject entitled "Organizing Crawled Web Data for Brazilian Customers."

According to Dr. Fox, "Several members of the VTX staff will work in DLRL this spring, so we can teach about relevant technologies and demonstrate a series of prototypes, running in the

Amazon cloud, of portions of the infrastructure they are developing. VTX plans to support mobile device based price comparison of online products found on Brazil's WWW." The six month project will support approximately nine graduate students.

Kirk Cameron's MiserWare offers free product to measure carbon footprint



Dr. Kirk Cameron, professor of computer science and Chief Executive Officer of MiserWare, was recently recognized in

the media for creating Granola Enterprise 5 that will help individuals and industry measure their

carbon footprint. From the College of Engineering article, "MiserWare's Granola Enterprise helps organizations identify and eliminate energy waste in their computers. MiserWare also built the world's most popular free energy management software:

Granola Personal. MiserWare's Granola products have been listed on [TIME Magazine's Top 20 Ways to Go Green](#) and PC Magazines Best Free Software and received a CNET Editor's Rating of 4.5 stars (out of 5)."

Dr. Naren Ramakrishnan named Thomas L. Phillips Professor of Engineering

The Virginia Tech Board of Visitors recently named Dr. Naren Ramakrishnan the Thomas L. Phillips Professor of Engineering. Ramakrishnan directs the [Discovery Analytics Center](#). Dr. Barbara Ryder, department head and J. Byron Maupin Professor of Engineering, describes Ramakrishnan as "a rare faculty member. He is an

excellent researcher, a strong mentor, a respected leader, especially of our graduate program, and a consensus-building individual."

To read more about this award, please see <http://bit.ly/ME9xaw>.



Dr. Steve Edwards named W.S. "Pete" White Chair for Innovation in Engineering Ed.



Dr. Steve Edwards, associate professor of computer science, was recently appointed as the W.S. "Pete" White Chair for Innovation in Engineering Education. According to the call for nominations, the chair was created by American Electric Power to honor Pete White, in order to "celebrate and illustrate innovative approaches to teaching using technology. The White Award carries with it a cash award, a plaque, and the engraving of the awardee's name on a commemorative plaque displayed permanently in the Dean's Office."

To read more about his award, please see <http://bit.ly/LS8KS3>.

Dr. Wu Feng receives Turner Fellowship



Dr. Wu Feng, associate professor of computer science, was recently awarded a Turner Fellowship. The award was approved at the recent Board of Visitors' meeting. Feng is the primary architect for HokieSpeed, which is the newest supercomputer at Virginia Tech and ranks eleventh on the [Green500 list](#). The Green500 list, created by Feng and Dr. Kirk Cameron, associate professor in computer science, ranks the world's most energy efficient supercomputers. Dr. Barbara Ryder, J. Byron Maupin Professor of Engineering, says Dr. Feng "is an extraordinary researcher in high-performance computing systems, whose work has had great impact on his field. His research contributions sit at the synergistic intersection of computer architecture, systems software, middleware, and applications software."

To read more about his award, please see <http://bit.ly/OvIcUb>.

CS Faculty receive Dean's Awards for Excellence



Drs. Doug Bowman, Danfeng Yao, and TM Murali

Three CS faculty each received a Dean's Award for Excellence at the recent College of Engineering faculty reception.

Dr. Doug Bowman, associate professor of computer science and Director of the HCI Center, received a Dean's Award for Research Excellence.

Dr. Danfeng Yao, assistant professor of computer science, received one of five Outstanding New Assistant Professor Awards.

Dr. TM Murali, associate professor of computer science, was awarded a College of Engineering Faculty Fellow Award, which gives him \$5000 for each of the following three years to support his research.

Dr. Francis Quek receives 2012 XCaliber Award

Dr. Francis Quek, professor of computer science, was awarded a 2012 XCaliber Award for excellence as an individual involved in teaching with technology.

To read more about this award, please see <http://bit.ly/N023dP>.



Dr. Scott McCrickard receives NCWIT REU Faculty Recognition Award

Dr. Scott McCrickard, associate professor of computer science, was recently awarded an REU (Research Experience for Undergraduates) Faculty Recognition Award from the National Center for Women in IT (NCWIT). The award was presented at the annual NCWIT Summit, held this year in Chicago, Illinois, from May 19 through May 21. Dr. McCrickard was one of four faculty members recognized

for their contributions to increasing diversity through an REU program.

The award was presented to him by Dr. Margaret "Peggy" Burnett, from Oregon State University (pictured with Dr. McCrickard).



Researchers study new ways to forecast critical societal events



University and industry scientists are determining how to forecast significant societal events, ranging from violent protests to nationwide credit-rate crashes, by analyzing the billions of pieces of information in the ocean of public communications, such as tweets, web queries, oil prices, and daily stock market activity.

"We are automating the generation of alerts, so that intelligence analysts can focus on interpreting the discoveries rather than on the mechanics of integrating information," said Naren Ramakrishnan, the Thomas L. Phillips Professor of Engineering in the computer science department at Virginia Tech. He is leading the team of computer scientists and subject-matter experts from Virginia

Tech, the University of Maryland, Cornell University, Children's Hospital of Boston, San Diego State University, University of California at San Diego, and Indiana University, and from the companies, CACI International Inc., and Basis Technology.

The project is supported by a potential \$13.36 million three-year contract from the Open Source Indicators (OSI) Program of the Intelligence Advanced Research Projects Activity (IARPA), a research arm of the Office of the Director of National Intelligence. Three teams were awarded contracts, with continuation after the first year contingent upon satisfactory progress.

"Research shows that many significant societal events are preceded by population-level changes in communication, consumption, and movement. Some of these changes may be indirectly observable from diverse, publicly available data, but few methods have been developed for anticipating or detecting unexpected events by fusing such data," said Jason Matheny, OSI Program Manager at IARPA. "OSI's methods, if proven successful, could provide early warnings of emerging events around the world."

The Virginia Tech-led team calls its project EMBERS, for early model-based event recognition using surrogates. A key theme in the EMBERS project is the use of models to capture population-level behavioral changes. Tracking or identifying individuals is strictly excluded from the research. "The models must be expressive enough to capture many important behaviors. For instance, how many people and what other factors result in a protest becoming violent? When do a few reported cases of dengue fever become an epidemic? But we do not want a model that is so complex that it becomes intractable. So finding the right balance is important," said Madhav Marathe, professor of computer science and deputy director of the Network Dynamics and Simulation Science Laboratory at the Virginia Bioinformatics Institute, and EMBERS co-investigator.

Other EMBERS co-investigators at Virginia Tech include Achla Marathe, Anil Vullikanti, Stephen Eubank, Chris Barrett, Bryan Lewis, and Jiangzhuo Chen, of the Network Dynamics and Simulation Science Laboratory at Virginia Bioinformatics Institute; Chang-Tien Lu, of computer science; Scotland Leman, of statistics; and Michael Roan, of mechanical engineering.

EMBERS co-investigators at other institutions are Dipak Gupta, of San Diego State University; David Mares, of the University of California, San Diego; John Brownstein, of the Children's Hospital of Boston; Johan Bollen and Luis Rocha of Indiana University; Aravind Srinivasan, Lise Getoor, and Jennifer Golbeck, of the University of Maryland, College Park; Tanzeem Choudhury, of Cornell University; Kristen Summers, of CACI International, Inc.; and Jeff Godbold of Basis Technology.

To read more about this project, please see <http://www.cs.vt.edu/node/6565>.

Paper named one of the best 20 Papers in the history of ACM HPDC



Dr. Wu Feng, associate professor of computer science, Heshan Lin, research scientist, and Mark Gardner of information technology authored “[MOON: MapReduce on Opportunistic Environments](#),” which was named

one of the top 20 papers in the 20 year history of the [ACM International Symposium on High-Performance Parallel and Distributed Computing](#). From the College of Engineering article, “To mark the first 20 years of the symposium, members of this high performance computing community

were invited to nominate papers for this honor. A committee then selected the top group of 20 papers.”

To read more about this paper, please see the College of Engineering article at <http://bit.ly/MEpBcv> and the WIRED article at <http://bit.ly/O5oUKs>.

Sanmay Das joins CS faculty in August 2012



Sanmay earned his PhD degree in Computer Science at MIT in 2006, having graduated from Harvard in 2001. He was a postdoc in the Dept of Computer Science and Engineering at UCSD during 2006-2007. From 2007-2012, Sanmay was an assistant professor in the Dept of Computer Science at Rensselaer Polytechnic Institute in Troy, NY, where he also held a courtesy appointment in the Lally School of Management and Technology. Sanmay currently has funding from NSF, IARPA and the US-Israel Binational Science Foundation, including an NSF CAREER award (2010) for a project entitled “The Dynamics of Collective Intelligence.” He currently advises three PhD students. Sanmay's research interests include: collective intelligence, reinforcement learning, the theory of search and matching, multi-agent systems, and supervised learning. He served as program co-chair of the First Conference on Auctions, Market Mechanisms and Their Applications (AMMA 2009) and as general co-chair of AMMA 2011. He has served on the senior program committees of major conferences in Artificial Intelligence, including IJCAI (International Joint Conference on Artificial Intelligence), AAAI (the Annual Conference of the Association for the Advancement of Artificial Intelligence) and AAMAS (International Joint Conference on Autonomous Agents and Multi-Agent Systems), as well as on the technical program committees of many other conferences in machine learning, electronic commerce, and data mining. He is a member of the *Discovery Analytics Center*.

Aditya Prakash joins CS faculty in January 2013



B. Aditya Prakash will also be joining our faculty in January 2013 as an assistant professor. Currently, he is a Ph.D. student of Dr. Christos Faloutsos in the Department of Computer Science at CMU. He will defend his dissertation in early fall 2012. Prakash has a B. Tech. in Computer Science and Engineering (2007) from the Indian Institute of Technology, Bombay, and an M.S. degree in Computer Science (2011) CMU. Prakash's speciality is dealing with problems that involve large datasets (e.g., terabytes of data) arising from natural, social and technological systems. He will be a member of the *Discovery Analytics Center*.

How you can help CS@VT!

The generosity of alumni, parents and friends of CS@VT allows us to fund many special activities in the department. The budget cuts over the past 5 years have resulted in the department not having sufficient funds to flourish and grow to world-class stature, a goal we aim to achieve.

In the past, we have concentrated on building a departmental scholarship fund, the Investment in Excellence Scholarship fund first endowed in 2007. Today, through the tireless stewardship of Ms. Libby Bradford, Director of External Relations for CS@VT, this fund generates about \$7,000 annually for scholarships. We also have special named scholarships, including the George Gorsline Scholarship, the Anne & George Gorsline Scholarship, the Griffith-Strader Christian Scholarship and the CGI Scholarship (see www.cs.vt.edu/undergraduate/scholarships for more details). We would welcome your contributions in support for any of these fine scholarship funds. Please see our [scholarship donation page](#) for more information.

However, in order to achieve our goal of ranking among the top 10% of CS departments in the US, we need additional funds to attract outstanding graduate students (e.g., fellowships), to retain outstanding faculty members active in cutting edge research, to maintain state-of-the-art research facilities and to encourage exploration of high risk, high payoff research ideas. We need to start an endowment for CS@VT that will support these goals, and eventually grow into support for endowed faculty fellowships and named chairs.

With your help, together we will accomplish these goals. We are embarking on a fundraising campaign to establish an endowment for our department. Of course, we welcome your financial support at any level. Nevertheless, we urge you to consider a 5-year pledge of a gift at the \$300, \$600, or \$1200 level annually. Such gifts will be acknowledged publicly on our *CS@VT Benefactors* wall in McBryde 106.

How to make a pledge

To make a pledge, please go to www.cs.vt.edu/donations and look for "How to Give to Computer Science" at the bottom of the page. To ensure the department receives your gift, please follow these instructions:

We ask you to specify the Department of Computer Science as the recipient of your gift. To ensure this happens when you use the online gift form, in the section entitled "Gift Information" please select "Other Designation" and type "Departmental Programs - 875766."

You can securely make a pledge, make a payment on an existing pledge, make a gift using your credit card, or request information on donating securities, making a planned gift or using electronic funds transfer from your checking account, via the [online pledge form](#).

Many employers will match donations from employees. To see if your employer will match your donation, please see the [Matching Gifts](#) page.

When you make a donation, please send e-mail to donations@cs.vt.edu to notify us of your gift. We would like to promptly acknowledge your gift!

To make sure the CS Department has your current information, please click [here](#). If you know of other CS@VT alumni who are not getting our newsletter, please share the link with them.