

# pointers

GEORGIA STATE UNIVERSITY  
DEPARTMENT OF COMPUTER SCIENCE

SPRING 2013

## Prasad Wins \$1.1 Million NSF Grant for Curriculum Center



Dr. Sushil Prasad

The National Science Foundation has awarded a \$1.1 million grant to professor Sushil Prasad. The grant, which runs for three years, provides continued funding for his efforts to create a parallel and distributed computing (PDC) curriculum for undergraduate computer science and computer engineering students.

Dr. Prasad will use money from the grant to establish a new center at Georgia State, to be named the Center for Parallel and Distributed Computing Curriculum Development and Educational Resources (CDER). Formal approval for the center is expected this year. Roughly three-quarters of the faculty in the Department of Computer Science will belong to CDER. The center, which will employ both

undergraduate and graduate students as assistants, is currently trying to hire a postdoctoral fellow.

CDER will have four goals:

- Develop PDC core curricula for a variety of programs and institutions.
- Develop and collect instructional materials for teaching PDC topics.
- Facilitate access to state-of-the-art hardware and software for PDC instruction.
- Organize competitions for early adopters of PDC curricula, as well as curriculum-related workshops, special sessions, and tutorials.

While serving as chair of the IEEE Computer Society Technical Committee on Parallel Processing (TCPP), Dr. Prasad created a working group known as the NSF/IEEE-TCPP Curriculum Initiative on Parallel and Distributed Computing, which is developing a core PDC curriculum. A preliminary version of the curriculum appeared in December

2010; Version 1 was released in December 2012. Two of the group's key activities are Early Adopter competitions and the NSF/TCPP Workshop on Parallel and Distributed Computing Education (EduPar).

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## Department Moving to Former SunTrust Building

The Department of Computer Science has begun moving to the former SunTrust Bank building at 25 Park Place. This building is just across Woodruff Park from the department's current offices at 34 Peachtree Street, where it has been located for the past ten years.

Last December, the department's Ph.D. students were relocated to the sixth floor of 25 Park Place, which Computer Science shares with the Department of Physics and Astronomy. Over 60 computer science Ph.D. students currently have cubicles on the sixth floor. The department's space also includes six small discussion rooms, a kitchen, and a conference room that is shared with Physics and Astronomy.

In the second phase of the move, which will happen sometime between December 2013 and April 2014, faculty and staff offices will move to the seventh floor of 25 Park Place. This floor, which measures approximately 14,500 square feet, will be completely occupied by Computer Science.

The Georgia State University Foundation purchased the 26-story SunTrust Bank building in 2006, along with several adjoining buildings and a parking deck. However, SunTrust was given a multi-year lease to continue occupying 25 Park Place, so it was not until 2012 that Georgia State was able to begin moving in. The building is being renovated floor by floor as money becomes available. Six departments in the College of Arts and Sciences are expected to move to the building by next year.

## Chair's Message

I'm pleased to announce in this issue of *Pointers* that professor Sushil Prasad has won a \$1.1 million NSF grant. This is a very significant grant that will allow Dr. Prasad to establish a new center at Georgia State for parallel and distributed computing curriculum development.

I'm also pleased to welcome a new assistant professor, Zhipeng Cai. Dr. Cai has been affiliated with our department since 2011 as an adjunct faculty member. With his expertise in cognitive radio networks, Dr. Cai adds breadth to our networking research group, which is already very strong.

After ten years in the 34 Peachtree Street building, our department is in the process of moving to the former SunTrust Bank building at 25 Park Place. Our Ph.D. students have already moved, with faculty and staff to follow at the end of this year or early next year. The move will allow the entire department to be located in contiguous office space.

Since 2004, when our department first began granting Ph.D. degrees, we have produced over 70 Ph.D. graduates. One of these graduates, Wei Zhong, was recently awarded tenure at the University of South Carolina Upstate and promoted to associate professor, becoming the sixth Ph.D. graduate from our department to win tenure at an academic institution. Another Ph.D. graduate, Zejin (Jason) Ding, performed a Twitter study last year for Barracuda Labs that generated huge media interest. You'll find stories about both graduates in this issue of *Pointers*.

Finally, I would like to draw your attention to some events that our department is helping to organize. The 2013 IEEE/WIC/ACM International Conferences on Web Intelligence (WI 13) and Intelligent Agent Technology (IAT 13) will be held at the Westin Peachtree Plaza in November. In December, we will host the International Workshop on Optical Networking at GSU's Rialto Center for the Arts. Associate professor Xiaojun Cao is chairing the workshop, which will be held at the same time as IEEE GLOBECOM 2013. This new workshop will help introduce some of GLOBECOM's 2,000 attendees to the optical networking research being done in our department.



Dr. Yi Pan



*Pointers* is published twice a year for graduates, students, faculty, staff, and friends of the Department of Computer Science.

Send news and announcements to [webmaster@cs.gsu.edu](mailto:webmaster@cs.gsu.edu).

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## We Need Your Help

These are exciting times in the Department of Computer Science. Our program is rapidly expanding. We are hiring nationally-recognized scholars who conduct state-of-the-art research, and we are attracting the best students from around the world. Your generous donation will help us continue to improve in the years ahead. For information about giving to the department, please visit [www.cs.gsu.edu/?q=alumni](http://www.cs.gsu.edu/?q=alumni). Your gifts are tax-deductible to the fullest extent allowed by law. To ensure that your donation reaches us, please designate that it go to "Computer Science."

## PRASAD WINS \$1.1 MILLION NSF GRANT FOR CURRICULUM CENTER

(continued from page 1)

In Early Adopter competitions, colleges submit proposals to incorporate the IEEE-TCPP curriculum guidelines into one or more courses. These competitions have been held twice a year in both 2011 and 2012, with winners receiving an average grant of \$1,500.

EduPar workshops allow early adopters, the public, and the working group to discuss the proposed PDC curriculum and share experiences. These workshops were held in 2011 and 2012 in conjunction with the IEEE International Parallel and Distributed Processing Symposium (IPDPS). The third EduPar was held on May 20 in Boston, with Dr. Prasad serving as the workshop chair.

Dr. Prasad's award is part of a \$1.345 million NSF Collaborative Research grant. The remaining money will be split among three other principal investigators: Dr. Arnold Rosenberg (Northeastern University), Dr. Alan Sussman (University of Maryland), and Dr. Charles Weems (University of Massachusetts). Dr. Anshul Gupta of the IBM Thomas J. Watson Research Center will also play a key role in Dr. Prasad's project.

Dr. Prasad's grant was awarded by NSF's Computing Research Infrastructure program, which supports the creation of world-class computing research infrastructure. His award was in the Community Infrastructure category, which provides funding for research and education facilities that are used by a broad community, not just the institution receiving the grant.

Although Dr. Prasad's grant is administered by NSF's Division of Computer and Network Systems, funding was provided by several NSF organizations, including the Directorate for Computer & Information Science & Engineering, the Office of Cyberinfrastructure, and the Division of Undergraduate Education in the Directorate for Education & Human Resources.

In addition to NSF funding, the NSF/IEEE-TCPP Curriculum Initiative has received support from Intel, NVIDIA, and IBM. Intel is the initiative's primary corporate sponsor. NVIDIA has donated graphics cards for early adopters, while IBM has provided funding for keynote talks at EduPar workshops.

## WI-IAT Coming to Atlanta in November

The 2013 IEEE/WIC/ACM International Conference on Web Intelligence (WI 2013) and the 2013 IEEE/WIC/ACM International Conference on Intelligent Agent Technology (IAT 2013) will be held at the Westin Peachtree Plaza on November 17–20.



Westin Peachtree Plaza

The two conferences, known collectively as WI-IAT 2013, share the same organizing committee and location but have different programs and program committees. WI 2013 focuses on scientific research and applications that combine artificial intelligence and advanced information technology to create the next generation of Web-based products, systems, services, and activities. IAT 2013 explores advanced intelligent systems and their applications in computer science and engineering, big data mining, biomedical informatics, health informatics, social networks, education, robotics, and security.

WI-IAT 2013 will feature workshops, technical sessions, tutorials, panels, a poster session, and industry demos. A highlight will be keynote talks by four distinguished computer scientists: Dr. John Hopcroft (Cornell University), Dr. Ophir Frieder (Georgetown University), Dr. Victor Lesser (University of Massachusetts Amherst), and Dr. Scott Fahlman (Carnegie Mellon University). Dr. Hopcroft was a 1986 winner of the A. M. Turing Award, ACM's most prestigious technical award.

A number of faculty and staff members from Georgia State's Department of Computer Science, along with several of the department's Ph.D. students (both current and past), are helping organize WI-IAT 2013. Department chair Yi Pan is the general chair of the two conferences. Associate professors Saeid Belkasim and Anu Bourgeois are local organization co-chairs, along with Ph.D. graduate Jing (Selena) He of Kennesaw State University. Associate professor Yanqing Zhang is a program co-chair for WI 2013, while associate professor Xiaolin Hu is a program co-chair for IAT 2013. Ph.D. student Piyaphol Phoungphol is the webmaster for WI-IAT 2013. Staff member Tammie Dudley is handling registration. Ph.D. graduates Saurav Karmakar (Digital Reasoning Systems) and Yuchun Tang (Facebook) are industry and sponsorships co-chairs. Professor Raj Sunderraman is a workshops co-chair. Ph.D. graduate Zejin (Jason) Ding (Barracuda Networks) is a demo/posters co-chair.

WI-IAT 2013 is sponsored by the IEEE Computer Society Technical Committee on Intelligent Informatics, the Web Intelligence

Consortium, and the ACM Special Interest Group on Artificial Intelligence. Corporate sponsors include eBay, Facebook, the Interaction Design Foundation, and KDnuggets.

## Cai Becomes Assistant Professor



Dr. Zhipeng Cai

Dr. Zhipeng Cai was hired by the Department of Computer Science in August 2012 as an assistant professor. He joined the department in 2011 as an adjunct faculty member. Prior to his arrival at GSU, Dr. Cai held research positions at Georgia Tech, Mississippi State University, and the University of Alberta.

Dr. Cai received a B.S. degree in computer science from the Beijing Institute of Technology in 2001. He earned M.Sc. and Ph.D. degrees in computing science from the University of Alberta in 2004 and 2008, respectively.

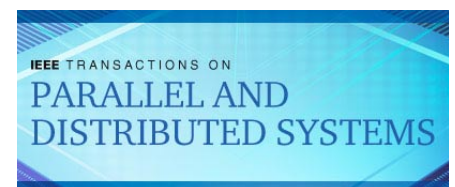
Dr. Cai's research interests include algorithm design and analysis, cognitive radio networks, social networks, and computational biology. He is currently designing routing protocols and algorithms for cognitive radio networks in addition to doing research in genomics and systems biology. In 2011, Dr. Cai received a \$200,000 National Science Foundation grant for research on scheduling in probabilistic wireless mesh networks.

Dr. Cai has published 33 journal articles and 25 conference papers, with another 13 submitted for publication. He is a member of the editorial board for the *International Journal of Sensor Networks* and has been a guest editor for three special issues of other journals. Dr. Cai has served on the program committee for 10 conferences. He is a member of the IEEE Computer Society.

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## Song Joins TPDS Editorial Board

Associate professor WenZhan Song has been named an associate editor of *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, a monthly journal published by the Institute of Electrical and Electronics Engineers. *TPDS*, which began publication in 1990, is considered to be one of the top journals in the field of parallel and distributed computing.



## Song Research Team Visits Ecuador



Dr. WenZhan Song

Last July, a team of researchers led by associate professor WenZhan Song visited Ecuador as part of his VolcanoSRI (Volcano Seismic Realtime Imaging) project. The goal of VolcanoSRI is to develop a new way to perform 4D (four-dimensional) tomographic imaging of an active volcano in real time. The four-year project is supported by a \$1.83 million grant from the National Science Foundation; Dr. Song is the grant's lead principal investigator.

During the trip, the VolcanoSRI team performed a field experiment at Ecuador's Tungurahua volcano, which is 87 miles south of the capital city of Quito. Tungurahua has been erupting intermittently since 1999, making it an ideal test site. The experiment involved installing prototype reporting stations in different parts of the volcano. Each station uses a smartphone to report data from a seismic measuring device.

In 2015, the VolcanoSRI team is planning to deploy a 500-node sensor array at an active volcano in Ecuador for up to three months. Ecuador was chosen because it has several active volcanoes that pose major threats to local communities.

The VolcanoSRI team includes Dr. Jonathan Lees, a seismologist from the University of North Carolina at Chapel Hill, and Dr. Guoliang Xing, a computer scientist from Michigan State University. Researchers from the Institute of Geophysics at Ecuador's National Polytechnic School are also participating in the project.

The team's visit was covered by several of Ecuador's TV stations and two national newspapers, including the daily *El Comercio*,

which published news articles on July 22 and July 29. A story about the visit was also posted at the National Polytechnic School's website.

## Agarwal Wins SC12 Travel Grants

Ph.D. student Dinesh Agarwal won two travel grants to attend SC12, the International Conference for High Performance Computing, Networking, Storage, and Analysis. At the conference, Mr. Agarwal presented the poster "Crayons: An Azure Cloud Based Parallel System for GIS Overlay Operations." He also demonstrated the Crayons system at the Microsoft booth in the conference's exhibit area.

One of Mr. Agarwal's grants came from the ACM Student Research Competition (SRC), which provides support for undergraduate and graduate students to present original research at major conferences sponsored or co-sponsored by ACM. Mr. Agarwal's poster was one of only 14 selected for the competition held at SC12. He received \$500 toward travel expenses from Microsoft Research, which has sponsored SRC since 2003.

Mr. Agarwal also received a \$1000 travel grant from Georgia State's Molecular Basis of Disease (MBD) program. Mr. Agarwal currently holds an MBD fellowship.

The SC conference (formerly known as Supercomputing) was established by ACM and the IEEE Computer Society in 1988 and has been held annually since then. Over 10,000 people participated in SC12, which was held in Salt Lake City on November 10–16.

Professor Sushil Prasad is Mr. Agarwal's Ph.D. advisor.



Dinesh Agarwal

## Pan Gives Keynote Talks at CSA 2012 and WCC 2012

Department chair Yi Pan gave keynote talks at two conferences in South Korea last November. He was the only invited speaker at the 4th FTRA International Conference on Computer Science and Its Applications (CSA 2012). At the 3rd FTRA World Convergence Conference (WCC 2012), he was one of two invited speakers. Both conferences were held in Jeju, South Korea on November 22–25, 2012.

Dr. Pan's talk was titled "Cloud Computing Programming Models – Challenges and Solutions." Dr. Pan is editor-in-chief of the *International Journal of Cloud Computing*, the first peer-reviewed journal in the rapidly growing field of cloud computing.

Dr. Pan was one of three general chairs for CSA 2012. He also served on the conference's international advisory board. Associate professor Xiaojun Cao was a program chair for CSA 2012, and associate professor WenZhan Song was a workshop chair.

Both CSA 2012 and WCC 2012 were sponsored by the Future Technology Research Association International and the Korea Information Technology Convergence Society. FTRA is a nonprofit scientific organization that organizes numerous conferences, symposia, and workshops.

## Department Welcomes Visitors

The Department of Computer Science is hosting 11 visiting scholars and Ph.D. students during the 2012–2013 academic year.

- **Jifeng Chen.** Dr. Chen is a professor in the College of Computer Science and Technology at Hunan International Economics University (HIEU) in China. His research areas include software engineering and user interface design. During his visit, which lasted from October 2012 to April 2013, he collaborated with Dr. Ying Zhu on user interface design for mobile devices. Dr. Chen was supported by HIEU.
- **Xiaojun Ding.** Mr. Ding is a Ph.D. student in the School of Computer Science and Information Engineering at Central South University in China. During his visit, which will last from October 2011 to October 2013, he is collaborating with Dr. Yi Pan on bioinformatics research. Mr. Ding is supported by the China Scholarship Council.
- **Haihua Gu.** Dr. Gu is an associate professor in the Computer and Software Institute at the Nanjing College of Information Technology in China, where she performs bioinformatics research. During her visit, which will last from March 2013 to September 2013, she is collaborating with Dr.

## Recent Ph.D. Graduates

**Song Guo.** *Dissertation:* Simulation Software as a Service and Service-Oriented Simulation Experiment. *Advisor:* Dr. Xiaolin Hu. *Current position:* Software engineer, Internap Network Services Corporation. (August 2012)

**Jing He.** *Dissertation:* Connected Dominating Set Based Topology Control in Wireless Sensor Networks. *Advisors:* Dr. Yi Pan and Dr. Yingshu Li. *Current position:* Assistant professor, Department of Computer Science, Kennesaw State University. (August 2012)

**Sergei Mangul.** *Dissertation:* Algorithms for Transcriptome Quantification and Reconstruction from RNA-Seq Data. *Advisor:* Dr. Alex Zelikovsky. *Current position:* Postdoctoral fellow, Collaboratory, Computational Bioscience Initiative, University of California, Los Angeles. (December 2012)

**Yang Wang.** *Dissertation:* Resource Management in Survivable Multi-Granular Optical Networks. *Advisor:* Dr. Xiaojun Cao. *Current position:* Senior software engineer, Internap Network Services Corporation. (August 2012)

Yi Pan. Dr. Gu is supported by the Jiangsu Scholarship Foundation.

- **Ming Liu.** Dr. Liu is a professor in the School of Computer Science at Central China Normal University. His research areas include wireless networks, mobile computing, and intelligent information processing. During his visit, which will last from August 2012 to August 2013, he is collaborating with Dr. Xiaojun Cao on research related to wireless sensor networks and mobile social networks. Dr. Liu is supported by the China Scholarship Council.
- **Ling Tian.** Dr. Tian is an assistant professor in the School of Computer Science and Engineering at the University of Electronic Science and Technology of China (UESTC). Her research areas include video coding, video communication, and rate control. During her visit, which will last from January 2013 to December 2013, she is collaborating with Dr. Xiaojun Cao on multimedia communication research. Dr. Tian is supported by UESTC.
- **Hua Wang.** Dr. Wang is a lecturer in the School of Computer Science and Engineering at the University of Electronic Science and Technology of China (UESTC). Her research areas include transfer protocols for low-cost RFID systems. During her visit, which will last from January 2013 to January 2014, she is collaborating with Dr. Yi Pan. Dr. Wang is supported by UESTC.
- **Xuefeng Yan.** Dr. Yan is an associate professor in the College of Information Science and Technology at the Nanjing University of Aeronautics and Astronautics in China. His research areas include modeling and simulation. During his visit, which will last from August 2012 to July 2013, he is collaborating with Dr. Xiaolin Hu on dynamic data-driven simulation research. Dr. Yan is supported by Dr. Hu's NSF CAREER grant.
- **Chuanhua Zeng.** Dr. Zeng is an associate professor in the School of Transportation and Automotive Engineering at Xihua University in China. His research areas include computer applications in transportation, intelligent transportation systems, and transport planning and management. During his visit, which will last from July 2012 to July 2013, he is collaborating with Dr. Ying Zhu on computer graphics and visualization research. Dr. Zeng is supported by Xihua University.
- **Junbo Zhang.** Mr. Zhang is a Ph.D. student in the School of Information Science and Technology at Southwest Jiaotong University in China. During his visit, which lasted from February 2012 to Feb-

ruary 2013, he collaborated with Dr. Yi Pan on cloud computing research. Mr. Zhang was supported by the China Scholarship Council.

- **Kui Zhao.** Dr. Zhao is an associate professor in the College of Computer Science at Sichuan University in China. His research areas include disaster recovery and cloud computing. During his visit, which will last from September 2012 to August 2013, he is collaborating with Dr. Yi Pan. Dr. Zhao is supported by the China Scholarship Council.
- **Yimin Zhou.** Dr. Zhou is an associate professor in the School of Computer Science and Engineering at the University of Electronic Science and Technology of China (UESTC). His research areas include video coding and multimedia. During his visit, which lasted from February 2013 to April 2013, he collaborated with Dr. Xiaojun Cao on video communication research. Dr. Zhou was supported by UESTC.

### Pan Wins IBM Faculty Award for Third Time

Department chair

Yi Pan has won a 2012 IBM Faculty Award valued at



\$20,000. The IBM Faculty Awards program is an international competition designed to encourage collaboration between IBM researchers and faculty members at leading universities. The program also promotes courseware development and curriculum innovation in areas of interest to IBM. To be eligible for an award, a senior faculty member must "have an outstanding reputation for contributions in their field," according to program rules.

Although 90 faculty members worldwide won an IBM Faculty Award in 2012, only 54 awards went to U.S. faculty members. The IBM Faculty Awards program is part of the IBM University Awards program, which includes IBM Ph.D. Fellowship Awards, IBM Innovation Awards, and IBM Shared University Research Awards.

Dr. Pan also won in 2011 and 2010, when he became the first GSU faculty member to receive an IBM Faculty Award.

### Zhong Earns Tenure and Wins Research Award

Wei Zhong, who received his Ph.D. from Georgia State's Department of Computer Science in 2006, has been granted tenure at the University of South Carolina Upstate and promoted to associate professor. Dr. Zhong is a faculty member in the Division of Mathematics and Computer Science.



Dr. Wei Zhong receives research award

In May, Dr. Zhong won USC Upstate's Annual Award for Scholarly and Creative Pursuits. The award, which comes with a \$500 cash stipend, is given to a faculty member who has achieved distinction in scholarly and/or creative activities during a three-year period.

Dr. Zhong is the sixth Ph.D. graduate from our department to win tenure at an academic institution. The others are:

- **Ajay Katangur.** Associate professor, Computer Science Program, Texas A&M University-Corpus Christi.
- **Hui Liu.** Associate professor, Department of Computer Science, Missouri State University.
- **Praveen Madiraju.** Associate professor, Department of Mathematics, Statistics and Computer Science, Marquette University.
- **Bryson Payne.** Associate professor, Department of Mathematics and Computer Science, North Georgia College & State University.
- **Bill Zhong.** Associate professor and department chair, Department of Computer Science, Troy University.

Dr. Katangur and Dr. Payne, who received their degrees in December 2004, were the first two graduates of GSU's computer science Ph.D. program. As of May 2013, the program has produced 71 graduates.

### Recent Departmental Colloquia

**October 18.** "Solving Combinatorial Search Problems Using DP, CP, IP, and SAT," *Dr. Neng-Fa Zhou*, CUNY Brooklyn College & Graduate Center

**December 14.** "Translational Informatics Research for Decision Support in Biomedicine," *Dr. Alfredo Tirado-Ramos*, Emory University School of Medicine

**December 20.** "Agent-Based Cooperative Analysis and Decision Support System for Regional Agricultural Economic Information," *Dr. Yeping Zhu*, Chinese Academy of Agricultural Sciences

## Twitter Study Attracts Media Attention

Dr. Zejin (Jason) Ding, a recent Ph.D. graduate, has been in the media spotlight for a Twitter study that he performed for Barracuda Labs. Dr. Ding's study, "The Underground Economy of Buying Twitter Followers," exposed the practice of buying Twitter followers from websites or hackers at very low prices.

As an experiment, his team at Barracuda Labs purchased about 80,000 followers and then performed an extensive analysis on the followers' information. They identified several key features of these fake followers, such as short account lives, few tweets, and following a large number of other Twitter users but having few followers themselves. His team also discovered thousands of abusers who purchased fake followers to look popular or promote their business.

Dr. Ding's findings, posted on Barracuda's Internet Security Blog on August 3, 2012, attracted worldwide media attention, in part because he discovered a sudden increase in the number of people following presidential candidate Mitt Romney's Twitter account. On July 21, the number of Romney followers jumped from 673,000 to 789,000, a gain of 17% in a single day. His research suggests that these new followers were most likely fake.



Dr. Ding's study was widely quoted in U.S. and international media, including Business Insider, Business News Daily, NBC News, *Forbes*, CNET, *Network World*, *Security Week*, *InfoSecurity*, Threatpost, Slashdot, *PC World*, *SC Magazine*, *CIO*, The Next Web, *The Guardian*, IT Pro, Sohu, and Sina.

In addition to exposing an underground market for trading fake social interactions, Dr. Ding's study suggests new online business opportunities, such as building a web service to detect how many followers of a Twitter user are fake.

Dr. Ding's research focuses on identifying social media platform threats and risks and developing protection solutions. More recent-

ly, he discovered that fake versions of Rovio's Bad Piggies game were installing ad injectors in Google's Chrome browser. His report, published October 3 on the Barracuda Labs blog, once again drew significant media attention, with mentions in *Forbes*, MSNBC, *PC Magazine*, CNET France, *PC World*, Threatpost, Sophos, and The Next Web.

Dr. Ding received his Ph.D. from Georgia State's Department of Computer Science in May 2011. After graduation, he joined Barracuda Labs, the research arm of Barracuda Networks, a leading network security and data protection company. Associate professor Yanqing Zhang was Dr. Ding's Ph.D. advisor.

## Ph.D. Students Win Travel Grants for ACM BCB 2012

Ph.D. students Bismita Srichandan and Serghei Mangul won travel grants to attend the ACM Conference on Bioinformatics, Computational Biology and Biomedicine (ACM BCB 2012), which was held on October 7–10 in Orlando.

Ms. Srichandan received a \$1,000 travel grant from ACM BCB to participate in the conference's Ph.D. Forum. In addition, she presented the paper "An Iterative MapReduce Approach to Frequent Subgraph Mining in Biological Datasets" at one of the conference's four workshops. The paper was co-authored by Steven Hill, a student at the University of Maryland, and Dr. Raj Sunderraman, Ms. Srichandan's Ph.D. advisor. Ms. Srichandan received additional travel support from Georgia State's Molecular Basis of Disease program.

Mr. Mangul also received a \$1,000 travel grant to attend BCB, where he participated in the Ph.D. Forum and presented a paper. The paper, titled "An Integer Programming Approach to Novel Transcript Reconstruction from Paired-End RNA-Seq Reads," was co-authored by Ph.D. student Adrian Caciula; Dr. Dumitru Brinza of Life Technologies; Dr. Sahar Al Seesi, Dr. Abdul Banday, Dr. Rahul Kanadia, and Dr. Ion Mandoiu (all of the University of Connecticut); and professor Alex Zelikovsky, Mr. Mangul's Ph.D. advisor. Mr. Mangul received his Ph.D. from GSU last December. He is currently a postdoctoral fellow at UCLA, working for Dr. Eleazar Eskin in ZarLab, Dr. Eskin's computational genetics group.

ACM BCB is the flagship conference of ACM's Special Interest Group on Bioinformatics, Computational Biology, and Biomedical Informatics (SIGBioinformatics). The focus of the conference, which has been held annually since 2010, is interdisciplinary and multidisciplinary research that spans the fields of computer science, mathematics, statistics, biology, bioinformatics, and biomedicine.

## Pan and Li Win Best Paper Award at MSN 2012



Dr. Yingshu Li

A paper co-authored by department chair Yi Pan and associate professor Yingshu Li won the best paper award at the 8th International Conference on Mobile Ad-hoc and Sensor Networks (MSN 2012). The winning paper, "Constructing Load-Balanced Data Aggregation Trees in Probabilistic Wireless Sensor Networks," was also co-authored by Dr. Jing (Selena) He and Shouling Ji. Dr. He received her Ph.D. degree from our department last year; she is now an assistant professor in the Department of Computer Science at Kenesaw State University. Dr. Pan was her Ph.D. advisor, with Dr. Li as a co-advisor. Mr. Ji is a Ph.D. student currently working under Dr. Li's supervision.

MSN 2012 was held in Chengdu, China, on December 14–16. The conference was organized by the University of Electronic Science and Technology of China, sponsored by the National Natural Science Foundation of China, and supported by the Hong Kong Polytechnic University and the City University of Hong Kong.

## GSU to Host iWON 2013 in December

On December 9, the Department of Computer Science will host the International Workshop on Optical Networking (iWON 2013) at Georgia State's Rialto Center for the Arts.

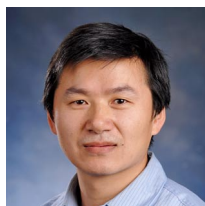


iWON will give optical networking researchers a forum to discuss the latest research and innovation in the design of smart optical network architectures, protocols, algorithms, services, and applications. The workshop will feature invited talks, panel discussions, presentations, and posters. There is no registration fee for the workshop, and meals are provided at no charge.

iWON is now accepting submissions in the form of a two-page extended abstract or position paper. The deadline for submissions is August 2, with notification of acceptance

by September 20 and final versions due on October 18. Authors of accepted papers will be invited to include a full version of the paper (up to six pages) in the workshop proceedings.

Associate professor Xiaojun Cao is chairing the workshop. Department chair Yi Pan is on the workshop's steering committee, and associate professor Anu Bourgeois is the publicity chair. Recent Ph.D. graduate Yang Wang is a member of the program committee.



Dr. Xiaojun Cao

iWON is being held at the same time as IEEE GLOBECOM 2013, although the two events are not connected. GLOBECOM, which is one of two flagship conferences of the IEEE Communications Society, is expected to draw about 2,000 researchers and industry leaders to downtown Atlanta during December 9–13.

2012 is the second year in which 2CI fellowships have been awarded. The goal of Georgia State's **Second Century Initiative** is to build nationally recognized scholarly strength and critical mass around common research themes in order to enhance the university's overall excellence, interdisciplinary richness, and competitiveness. During each year of the five-year program, 20 new faculty members will be hired. Each faculty position comes with three 2CI fellowships for Ph.D. students.

## Graduate Fellowship Winners Announced

Twenty-seven computer science Ph.D. students have won fellowships from GSU for the 2012–2013 academic year, including Second Century Initiative (2CI) fellowships, Molecular Basis of Disease (MBD) fellowships, and Brains & Behavior (B&B) fellowships.



Ten computer science students won 2CI University Doctoral Fellowships this year in four interdisciplinary research areas (the name of each student's advisor is in parentheses):

*Astroinformatics*

- Debraj De (Song)
- Xi He (Prasad)
- Andrew Rosen (Bourgeois)

### Bioinformatics

- Nicholas Mancuso (Zelikovsky)
- Serghei Mangul (Zelikovsky)
- Piyaphol Phoungphol (Zhang)

### New and Emerging Media

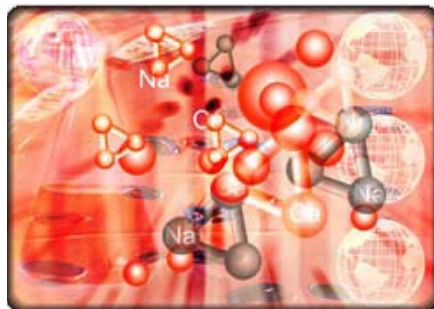
- Ayush Shrestha (Zhu)

### Trans Cultural Violence

- Janani Chathapuram Krishnamani (Sunderraman)
- Semra Kul (Belkasim)
- Yanjun Zhao (Belkasim)

Of these students, only two (Serghei Mangul and Ayush Shrestha) held a 2CI fellowship last year.

2CI doctoral fellowships are very prestigious. Obtaining a fellowship in a particular research area is a competitive process, with winners chosen by a committee containing faculty members from departments that participate in the area. Although the annual stipend for a 2CI fellow is \$22,000, the same as for an MBD or B&B fellow, winners of 2CI fellowships are allowed to hold additional fellowships and assistantships.



**Molecular Basis of Disease** is a program in computational biomedicine that includes faculty in six departments engaged in interdisciplinary research: Biology, Chemistry, Computer Science, Physics and Astronomy, Mathematics and Statistics, and Computer Information Systems. The program provides both graduate and undergraduate fellowships as well as support for state-of-the-art facilities in these departments.

New MBD fellowships were awarded to the following students:

- Adrian Caciula (Zelikovsky)
- Olga Glebova (Zelikovsky)
- Xuan Guo (Pan)
- Yunmei Lu (Zhang)
- Yvette Tiague (Zelikovsky)
- Chinua Umoja (Harrison)

The following students hold MBD fellowships that were awarded in prior years:

- Dinesh Agarwal (Prasad)
- Zainab Haydari (Zhang)

- Bismita Srichandan (Sunderraman)
- Bassam Tork (Zelikovsky)
- Yun Zhu (Zhang)



**Brains & Behavior** is a Georgia State initiative that unites a wide variety of researchers who bring unique perspectives about how nervous systems produce behavior. B&B research groups foster collaboration among faculty from Biology, Chemistry, Computer Information Systems, Computer Science, Mathematics and Statistics, Philosophy, Physics and Astronomy, and Psychology. The B&B program is administered by GSU's Neuroscience Institute.

New B&B fellowships were awarded to the following students:

- Satish Puri (Prasad)
- Zhiyi Wang (Zhu)
- Xuhong Zhang (Zhang)

The following students hold B&B fellowships from prior years:

- Xiao Chen (Zhu)
- Abinashi Dhungel (Weeks)
- Rasanjalee Dissanayake (Prasad)

## Fraser Returns to Georgia State

Professor emeritus Martin Fraser returned to Georgia State during the spring semester to teach CSC 8350 (Advanced Software Engineering).

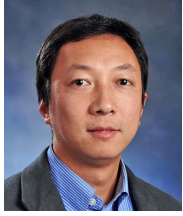
Dr. Fraser retired in 2005 after 33 years as a GSU faculty member. He was the chair of the Department of Computer Science from its inception in 1999 until his retirement.

CSC 8350 is a graduate-level course that covers advanced concepts in software engineering. According to the catalog, course topics may include new life-cycle paradigms, code reusability issues, formal specifications, and new design methodologies.



Dr. Martin Fraser

## Hu Research Featured in *International Innovation*



Dr. Xiaolin Hu

One of associate professor Xiaolin Hu's research projects was recently featured in the magazine *International Innovation*. The article, titled "No Smoke Without Fire," appeared in the August 2012 issue of *International Innovation North America*. It discussed Dr. Hu's work in developing new models and computation methods for effective wildfire response management by integrating weather prediction, wildfire simulation, data assimilation, and stochastic optimization.

Dr. Hu's project is funded by a \$300,000 grant from the National Science Foundation that he received in 2009. Dr. James Nutaro from Oak Ridge National Laboratory is co-principal investigator of the grant. Dr. Hu's funding is part of a \$1 million Collaborative Research grant. The remaining money went to the University of Oklahoma, where Dr. Ming Xue is the principal investigator and Dr. Yang Hong is the co-principal investigator, and to Texas A&M University, where Dr. Lewis Ntamo is the principal investigator. The Tex-

as Forest Service is providing the researchers with data on firefighting resources and historical wildfires.

*International Innovation* is published by Research Media Limited, a British company. According to the publisher, the magazine is "the leading global dissemination resource for the wider scientific, technology, and research communities."

## Srichandan Receives Dissertation Grant

Ph.D. student Bismita Srichandan has won a Georgia State University Dissertation Grant. Dissertation Grants are awarded annually to full-time doctoral students in a campus-wide competition. Ms. Srichandan was one of just 31 students to win a Dissertation Grant for fiscal year 2013. Each grant provides up to \$1,000 that can be used for expenses associated with conducting dissertation research.

Ms. Srichandan's proposal, titled "Mining Frequent Subgraphs Using Unconventional Methods," described her plan to design an improved data structure that will help general-purpose graphics processing units (GPGPUs) find subgraphs in massive graph databases. Professor Raj Sunderraman is Ms. Srichandan's Ph.D. advisor.

## Pan Gives Keynote Talk at CloudCon 2012

Department chair Yi Pan was one of five keynote speakers at the First Annual World Congress of



Cloud Computing (CloudCon 2012), which was held in Dalian, China on August 28-30. Dr. Pan's talk was titled "From Supercomputing to Cluster Computing to Grid Computing to Cloud Computing: Challenges and Solutions." The other four keynote speakers were top executives from major cloud computing companies, including Accenture, Broadvision, and IBM.

According to the conference website, topics covered at CloudCon 2012 included technology, business models, industry experiences, legal aspects, research, development, and the latest trends and innovations in the world of cloud computing.

CloudCon 2012 was sponsored by BIT Life Sciences, which organizes conferences related to life sciences and biotechnology. Five other BIT conferences were held in conjunction with CloudCon 2012. Over 200 participants from 36 countries attended the six conferences.

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published by the  
Department of Computer Science  
Georgia State University  
P.O. BOX 3994  
ATLANTA, GA 30302-3994