It's an exciting time for computer science in Louisiana. The program at Louisiana State University has undergone a major organizational shift and transitioned to the LSU College of Engineering. Now part of the School of Electrical Engineering and Computer Science and part of the fifth fastest growing engineering college in the country, the program is entering a rebuilding mode with the major expansion of computer science research and educational programs.

In addition to transitioning computer science into the College of Engineering, LSU has also entered into a historic partnership with Louisiana Economic Development and IBM to rapidly expand computer science education in Louisiana. The state has committed to provide $14 million in funding over 10 years to expand education programs and increase computer science graduates. At LSU, this initiative will help us double our faculty size and significantly increase the number of computer science graduates over the next few years. To achieve these goals, we continue making the best efforts to upgrade our undergraduate and graduate programs.

The research and professional activities of computer science faculty and students continue to be strong with opportunities for growth. Three-fourths of our faculty have active grants from major funding agencies including the National Science Foundation, and the division maintained its outstanding publication record with faculty publishing more than 15 journal and 30 proceeding paper last year. Several faculty members received prestigious recognition, which include being named to the Baton Rouge Business Report's 2012 Forty Under 40 list, the Occidental Chemical Company Professorship, a 2013 Tiger Athletic Foundation Michael R. Mangham College of Engineering Memorial Teaching Award, a JSPS fellowship from the Japan Society for Promotion of Science and a NSF CAREER Award. Computer science students were also recognized for their accomplishments. The division has awarded more than a dozen doctoral degrees in computer science since spring 2012.

We are extremely happy to welcome two new faculty members. Dr. Feng Chen, a PhD graduate of the Ohio State University, from the Intel Lab has joined us as an assistant professor. Dr. Clint Whaley, a recent National Science Foundation CAREER award winner, has joined us as a tenured associate professor. Two faculty have also been promoted with tenure. Effective this fall, Dr. Costas Busch and Dr. Rahul Shah are associate professors, bringing the number of tenured members in the Division of Computer Science and Engineering to 12.

LSU's Computer Science program is growing fast! We plan to recruit two tenure-track faculty members this year, with the anticipation of filling many more positions in subsequent years. I look forward to sharing more updates about our efforts and successes with you.

Bijaya B. Karki, Chair
Division of Computer Science and Engineering
School of Electrical Engineering & Computer Science
IBM, LED, LSU College of Engineering Partner to Transform Computer Science in Louisiana

By Mimi LaValle

Director of Communications

“IBM Services Center: Baton Rouge” represents Louisiana’s largest software development project to date; with Louisiana Economic Development support, LSU will dramatically expand its computer science program. The groundbreaking for the new facility was held in September 2013.

The rapid and widespread adoption of mobile and social technologies within the last three years has changed the way customers and companies interact with one another – driving fundamental transformations to business processes and applications. Louisiana Economic Development plans to make a major investment in LSU’s College of Engineering to rapidly grow the state’s technology workforce needs and support the new IBM Services Center in Baton Rouge.

The center is the result of an innovative, public/private partnership that will include expanded higher-education programs related to computer science. The center will employ a broad range of college graduates and experienced professionals with backgrounds in computer science and other quantitative-intense fields, such as engineering, mathematics, and science to provide software development and software maintenance services to clients in the United States. In addition to the 800 jobs that will be created at the center over the next four years, LSU estimates the project will result in approximately 542 new indirect jobs, for a total of approximately 1,342 new, permanent jobs in the Capital Region.

The state will provide $14 million in funding over 10 years for expanded higher-education programs designed primarily to increase the number of annual computer science graduates. At least 65 percent of these funds will be provided for expansion of the Computer Science Division of the School of Electrical Engineering and Computer Science at LSU.

“An IBM-LSU means we will bring new educational and job opportunities to our state,” said William Jenkins, previous interim president and interim chancellor. “The State wants to expand its economic base and this partnership demonstrates that LSU can fulfill that workforce need of that future economy.”

To support this new endeavor, LSU’s College of Engineering is committed to double its computer science faculty and triple the number of computer science graduates in five years, which will place the LSU Computer Science program in the top 10-15 nationally for the number of bachelor degrees in computer science awarded annually. The College will also expand its computer science programs and curriculum innovation as LSU students will benefit from internship opportunities and more jobs upon graduation, keeping the best and brightest in the state.

“This public/private partnership with Louisiana Economic Development, IBM and LSU is a powerful
example of the triangulation between industry, government and academia that elevates the state’s role as a national leader in economic development,” said Rick Koubek, dean, LSU College of Engineering. “LSU’s College of Engineering is committed to developing a mutually beneficial partnership with IBM and LED that stimulates economic growth and helps to meet the workforce development needs of the state.”

To fast track program growth, LSU’s College of Engineering will launch the “Geaux Digital Louisiana” consortium. This unique initiative represents a statewide partnership with high schools, community and technical colleges, and other universities to promote interest in computer science related career fields and enhance student recruitment.

Additionally, IBM will work closely with local professors at LSU to create coursework focused on technology, math and software development, and equip students to meet the growing demand for business services including advanced analytics, process innovation and application development.

“IBM is renowned in the academic community as a global leader in innovation and we look forward to partnering on research and development to help us all achieve IBM’s vision of a ‘Smarter Planet’,” Koubek said. “We are committed to fostering a symbiotic partnership to prepare our graduates for IBM’s workforce needs and to leverage our faculty to assist in IBM’s research endeavors.”

Louisiana Governor Bobby Jindal announces state partnership with IBM and the LSU College of Engineering to expand computer science education in the state.

Colleen Arnold, senior vice president of Application Management Services, IBM Global Business Services, said this is a proud day for IBM.

If you would like to learn more about the college of engineering’s partnership with IBM, please contact the college’s office of external relations at 225.578.8408.

Transitioning to the College of Engineering

Effective July 12, 2012, the Department of Computer Science merged with the Department of Electrical and Computer Engineering to form the School of Electrical Engineering and Computer Science (EECS) in the LSU College of Engineering. The school is made of two divisions: the Division of Electrical and Computer Engineering (ECE) and the Division of Computer Science and Engineering (CSE).

Each division has separate budgets, independent administrations, and its own Chairperson, who reports to the dean of the College of Engineering.

The overall objective of the realignment in serving the academic mission of LSU included repositioning these two organizational units, fostering further collaboration, solidifying academic expertise in the academic disciplines as well as the profession.

The current divisional model provides each unit with an environment to advance within its discipline and at the same time it provides a unique opportunity for interdivisional interactions to promote joint research and educational activities of mutual interest and expertise. The CSE division offers an ABET accredited BS program in Computer Science, offers MS degree program in Systems Science, and PhD program in Computer Science.
Teaching Updates

The Division of Computer Science and Engineering is working towards upgrading computer science education to better prepare our graduates to compete in rapidly evolving computer and IT fields. Our deliberate efforts include developing new courses in emerging and key areas, revising course content, and providing industry-oriented specializations.

Lab components have been added to two freshmen courses (CSC 1350 and CSC 1351 Java programming) required for computer science majors. The lab session will be run by highly qualified tutors, in addition to the course instructor, to provide students with necessary help for successfully completing their programming assignments on time. Lab components will be developed for other programming courses in the future.

CSE offers a bachelor’s degree in computer science with three concentrations/specializations: computer science with a second concentration, computer science with a software engineering concentration and computer science with a distributed systems and networking concentration.

Students select a concentration option in the second semester of their sophomore year. There is a plan to introduce one or two new concentrations in the near future in the emerging areas of cloud computing and data analytics. In addition, students can also complete a minor in computer science.

In recent years, several key courses have been introduced or revived to provide our students with more options for computer science course electives. They include: applied algorithm, video game design, object-oriented design, interactive computer graphics, interface design and technology, systems programming, software modeling techniques, robotics, and optimization.

The CSE Division has recently revised our PhD and MS program policies after careful thought and much deliberation in order to better regulate and improve the quality of these graduate programs. This will help us improve our PhD retention rate and completion time. The graduate enrollment has shown a steady increase in recent years exceeding 100 students.

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LSU, Florida International Hold Joint Workshop in Baton Rouge

Between June 24 and July 1, six faculty/student scholar pairs from Louisiana State University and its partner Florida International University School of Computing and Information Science participated in a workshop at Patrick F. Taylor Hall.

The workshop was part of the “Multi University Research and Training in Protection of Critical Information Infrastructures” project funded by the National Science Foundation with LSU Computer Science Assistant Professor Dr. Supratik Mukhopadhyay as the CO-PI. In collaboration with FIU and LSU research centers, faculty/student scholar pairs interacted with distinguished scholars from national laboratories and homeland security laboratories. The project’s coordinated efforts in security research and training will provide experience in anti-terrorism, cyber crime, and counter-terrorism techniques as well as invaluable information on projects initiated by both state and federal law enforcement agencies. Through the exploration of open scientific problems, and the development of training and pedagogical materials that use model-based approaches to vulnerability analysis, this project will prepare its participants to transfer their new knowledge to classroom instruction and research programs at their home institutions.
Dr. Clint Whaley joined the Division of Computer Science and Engineering this semester as a tenured associate professor holding a joint appointment with CCT. He received his PhD in 2004 from Florida State University where he also worked as a post-doctoral researcher and an adjunct faculty in 2005. He was a full-time researcher at the University of Tennessee at Knoxville from 1994 to 2001. Dr. Whaley served as assistant professor at the University of Texas at San Antonio from 2005 to 2012 before his promotion with tenure. His research interests include empirical optimization, optimizing compilers, high performance computing, computer architecture, and parallel computing. He received a NSF CAREER award in 2012. Whaley is the lead architect and developer of ATLAS (Automatically Tuned Linear Algebra Software) and several other software packages.

Two Faculty Members Promoted to Associate Professor

Dr. Costas Busch and Dr. Rahul Shah who joined LSU computer science in August 2007 as assistant professor have recently been promoted to associate professor with tenure. Each of them has established highly impressive publication and funding record. Since joining LSU, Busch has published 12 journals and 25 conference papers in the areas of distributed algorithms, transactional memory, and game theory. He has recently been awarded a major NSF grant of $350,000 as the PI.

Since joining LSU, Shah has published 10 journal and 35 conference papers in the area of algorithms and databases. His research is currently supported by a couple of NSF grants with a total funding amount exceeding $500,000.

13 Computer Science Graduate Students Receive Doctoral Degrees

Since the spring semester of 2012, a PhD degree in computer science has been awarded to the following students (with the thesis title given):

Shuju Bai, “A Hybrid Framework of Iterative MapReduce and MPI for Molecular Dynamics Applications.”

Williams Duncan, “Gene Set Based Ensemble Methods for Cancer Classification.”


David Sathiaraj, “Identification of Critical Nuggets During Classification Tasks.”


Hongyi Chen, “Program Analysis: Termination Proofs for Linear Simple Loops.”


Manuel A. Peralta, “Perpetual Requirements Engineering.”

Alfred Samman, “A New Model for Coalition Formation Games.”

Cornelius Toole, “Software Architectural Support for Tangible User Interfaces in Distributed, Heterogeneous Computing Environments.”


Xinqi Wang, “Semantically-Aware Data Discovery and Placement in Collaborative Computing Environments.”

Sharma Thankachan, “Space-Efficient Data Structures for String Searching and Retrieval.”
LSU RESEARCHERS AWARDED NEARLY $1 MILLION FOR BIG DATA RESEARCH

Dr. Seung-Jong Park, PI for an NSF grant of $947,860 to bring Big Data computational capabilities to LSU’s Division of Computer Science in the College of Engineering.

By Paige Brown
Graduate Assistant
LSU Research Communications

LSU’s Seung-Jong Park, associate professor of computer science with joint appointment in the Center for Computation & Technology, or CCT, along with co-investigators Joel Tohline, Sean Robbins, Lonnie Leger, K. Gus Kousoulas and other senior LSU faculty, recently received an NSF grant of $947,860 for a campus-wide project aimed at bringing “Big Data” computational capabilities to separate University research groups. Samsung Electronics is also participating in the project as an industrial collaborator.

The project, titled “CC-NIE Integration: Bridging, Transferring and Analyzing Big Data over 10Gbps Campus-Wide Software Defined Networks,” will empower scientific breakthroughs at LSU by providing researchers with advanced information technologies and cyberinfrastructure.

Genome sequencing is one of the major drivers in Big Data research.

Genome sequencing, which involves determining the exact sequence of an organism’s hereditary molecule known as DNA, has many applications in biological and medical research, including personalized medicine. However, genome sequencing and comparisons of genomes across organisms require large amounts of data processing. The human genome, for example, contains three billion molecular units, like three billion beads on a string arranged in a specific order. Assembling this amount of data, or even assembling shorter genome sequences like those of the West Nile or AIDS virus, for example, will require massive computational power and data storage capabilities.

Park and colleagues are building a high-speed intra-campus network that will connect separate lab groups on campus to LSU’s primary supercomputer facility.

Samsung is collaborating with LSU on the high-speed network-building phase of the project, helping to establish high-speed networks and large memory storage units on campus in order to handle the massive amounts of data generated by Big Data applications. Samsung has donated 70 terabytes of solid state disk storage to LSU for this project.

The concept is similar to that of cloud computing, where instead of needing their own high-performance computers in the future, LSU researchers will be able to send all of their scientific data over a network to be processed and analyzed automatically by a large number of connected computers across campus.

You can read more about the NSF grant and “Big Data” research being done at LSU by visiting www.eng.lsu.edu.
Brandon Oubre, a computer science and discrete/applied mathematics junior, received the 2012-2013 Clayton Engineering Excellence Award for Outstanding Undergraduate Students during the Spring 2013 semester.

A LaSTEM scholar, Oubre has a cumulative GPA of 4.0. He is currently working on an independent project involving the development of inexpensive educational robotics tools. This project aims to create a low-cost robot that can be used to expand hands-on robotics and programming education in middle and high schools. He is also working to develop an autonomous system for automatically docking ships or boats using a PTZ camera and a laser range finder. After graduation, Oubre intends to pursue a PhD at LSU in computer science with a research focus on robotics and possibly artificial intelligence.

This research could be used in technology such as autonomous space exploration probes, improved military drones and automated repair and construction drones. He did a summer internship with NASA.

The Donald W. Clayton Engineering Excellence Award is granted each year to an outstanding undergraduate student(s) who exhibits extraordinary character, scholastic achievement and evident leadership in the College of Engineering. Nominations are made by faculty, staff and students. The award entails a stipend of $5,000 and a commemorative plaque.

The awards were founded in 2004 through a generous donation by Donald W. Clayton (BS PETE, 1959), who was inducted into the College of Engineering Hall of Distinction in 1993, and Gloria Pichon Clayton.

Brandon Oubre, a junior majoring in computer science and mathematics received the 2012-2013 Clayton Engineering Excellence Award during the Hall of Distinction Ceremony in April.

Outstanding Undergraduates

**Bruno Beltran** is a dual major in both computer science and mathematics, and also an Honor student. In April 2013 he was awarded the prestigious, nationally competitive Goldwater scholarship by the Barry M. Goldwater Scholarship and Excellence in Education Program. He is a participant in the LA-STEM research scholars program.

**Brian Poulin** received the Honors College Outstanding Thesis Award for his work entitled “Semantic Analysis in the Tensor Contraction Engine.” His research was under the mentorship of Dr. Baumgartner. Mr. Poulin received his BS in computer science, Spring 2013, with a concentration in software engineering and a minor in mathematics.

**Andre Oliver Wiggins** was selected to present the student invited speech at the Spring 2013 Commencement for the College of Engineering. Wiggins completed the software engineering concentration with a minor in information technology management. He is a past president of the student chapter of the Association for Computing Machinery. Wiggins is currently employed by Microsoft.

**Suroj Shrestha** received upper division honors for completing 12 semester hours of honor courses as upperclassman and completed research and a senior thesis under the direction of Dr. Karki.

**Benjamin Christian Birk** is a senior pursuing dual majors in computer science and mathematics and a minor in philosophy. He is also in the honors program. He participated in a summer internship with Microsoft.

**Tyler Longwell** is a past president of the student chapter of the Association for Computing Machinery. He is a computer science major and is pursuing a minor in anthropology. In the Summer 2013, he participated in a summer internship with LinkedIn.

**Morgan Hargrove** is the current president of the student chapter of the Association for Computing Machinery. She is majoring in computer science (software engineering concentration) with minors in both AVATAR Digital Media (technology track) and music. She spent the summer 2013 participating in an Research Experience for Undergraduates at Berkeley (CA).
COMPUTER SCIENCE INDUSTRY ADVISORY BOARD NAMED

The Division of Computer Science and Engineering Industry Advisory Board (IAB) is comprised of representatives in many companies and industries from Baton Rouge and throughout the state of Louisiana. The board meets at least once a year to advise the division on updating computer science curriculum and training to better meet the workforce needs and industry expectations for graduates from both our undergraduate and graduate programs. The current IAB member list, which includes new members from IBM and Ameritas is:

Frank Auer, Praeses
Rob Rolfsen, Cisco
John Zachary, Baton Rouge Area Chamber
Mike Moles, Antares Technology Solutions, Inc.
Brian Pangburn, The Pangburn Co.
Scott St. Cyr, Cytious Software
Patrick McDowell, Naval Research Lab
Lisa Traina, LDTCRA, LLC
Shelly Stubbs, DQSI, Inc.
Ob Soonthornsima, Blue Cross & Blue Shield
Kevin Kolz, Geocent, New Orleans
Bill Bradley, Century Link
Mitch Haskett, Ameritas Technologies
Adreanne Liggins, IBM
Shamin Akhtar, Comcast
Lewis Sams, ExxonMobil
Charles Simon, Louisiana Workers Comp. Corp.
Juliette Dupré, Gameloft
Jason Devillier, Red Stick Robotics
Trevor Reeves, LocalMed
Mark McDuff, Amedisys

COMPUTER SCIENCE RESEARCH PROFILE

The CSE Division has structured its research profile by defining six major research areas, and specifying subareas (projects) within each area. This revised research structure will help us better communicate with our prospective students, collaborators and sponsors about our research.

Theoretical Foundations: This area includes mathematically provable design of computer systems and methods. Theoretical analysis is important in proving correctness of computer systems. Algorithms with provable efficiency guarantee firm building blocks for solutions to complex problems especially those involving “Big Data.” The efficiency can be in terms of time, network bandwidth, Input/output bottlenecks, disk space or memory usage, and/or energy. These algorithms have applications to virtually every subfield of computer science like optimization, information retrieval, databases, networking, vision, and computational biology. Semantic analysis forms the backbone of software systems. Several faculty work on different aspects of algorithms, data structures, and formal analysis. Areas of interest include: network optimization and graph algorithms, game theory, online algorithms and scheduling, semantics and program analysis, i/o efficient data structures, algorithms for string matching, and distributed and parallel computing. Research specializations include:

• Costas Busch: Game Theory, Communication Algorithms, Distributed Algorithms
• Rajgopal Kannan: Game Theory, Network Algorithms
• Sukhamay Kundu: Graph Algorithms
• Supratik Mukhopadhyay: Semantics and Program Analysis
• Rahul Shah: Disk-Bound Algorithms, Data Structures
• Evangelos Triantaphyllou: Optimization

Systems and Architecture: All aspects of computer systems have seen rapid advances in recent years and are still evolving. This makes major impacts on diverse demanding applications of computers spanning from micro-scale engineering applications to large-scale scientific applications in industry and academic communities. The systems and architecture group encompasses the structure, organization, implementation, and performance evaluation of the different building blocks of computer and network systems. Our network systems research covers a broad range of topics including wireless sensor networks, high-speed networks, network security, routing, mobile systems, and network simulations. Also our research interests are in distributed systems, multiprocessor systems, embedded and robotics systems, and
relevant operating systems and security. Research specializations include:

- Gerald Baumgartner: Embedded Systems Programming, Distributed Systems
- Costas Busch: Multiprocessor Systems, Transactional Memory
- Feng Chen: Operating systems, storage systems
- Rajgopal Kannan: Wireless Sensor Networks, Network Security
- Supratik Mukhopadhyay: Robotics
- Seung-Jong Park: High Speed Networks, Wireless Sensor Networks
- Brygg Ullmer: Tangible Devices, Embedded systems
- Clint Whaley: Computer Architecture, Parallel Computing
- Hartmut Kaiser (adjunct): ParalleX Execution and Programming

Software: From managing bank transactions to controlling the space shuttle and pacemakers, software is everywhere. Today’s software systems need to interact with the physical world, communicate through networks, and make decisions in real time in uncertain environments. With increasing complexity and scale, creating trustworthy software systems has become an intellectually daunting task. The software research group aims to develop techniques, algorithms, and tools that help developers and testers build reliable and secure software. The research areas covered by the group include, (i) software security: developing static analysis tools for automatically discovering security flaws in software, (ii) programming languages: developing novel programming languages that enable writing dependable code, (iii) compilers: development of compilers that allow refinement of high-level models into code, and (iv) software engineering and tools: developing software engineering practices that promote effective management of software projects and automated tools that promote program understanding, software reuse, and easy maintenance of software artifacts. Research includes:

- Gerald Baumgartner: Compilers, Programming Languages, Software Engineering
- Doris Carver: Software Development, Reusability, Reverse Engineering
- Sukhamay Kundu: Software Design, Modeling and Analysis
- Supratik Mukhopadhyay: Execution Models, Program Analysis
- Clint Whaley: Empirical Optimization, Compiler Optimization
- Chris Branton (adjunct): Software Engineering and Tools

Computational Science. Over the last decade, computational science (aka scientific computing) has taken an increased significance in all areas of science and engineering, and beyond. In fact, computation has grown into an effective and efficient approach, which complements and bridges traditional theoretic and experimental approaches. The computational science group contributes to
four major stages: (i) identification of research problems to be engaged computationally, (ii) development and application of underlying physical/mathematical models, (iii) implementation of computer programs and performance benchmarks, and (iv) conducting and analyzing simulations. We develop and apply a wide range of simulation and analysis tools and techniques to tackle a wide range of challenging problems requiring interdisciplinary and collaborative efforts. We work closely on these activities with CCT, with some of us holding joint position. The current research activities and future plan cover several domains: cloud computing, coastal and environmental modeling, computational biology, computational materials, computational humanities, and data-intensive computing. Research specializations include:

- Gerald Baumgartner: Computational Chemistry, Computational Humanities
- Jianhua Chen: Computational Humanities;
- Bijaya Karki: Computational Materials, Large-Scale Simulations
- Robert Kooima: Computational Image Processing
- Seung-Jong Park: Computational Biology, Data-Intensive Computing
- Brygg Ullmer: Computational Biology
- Clint Whaley: High Performance Computing, Scientific Computing
- Steven Brandt (adjunct): High Performance Computing
- Hartmut Kaiser (adjunct): High Performance Computing

Digital Media. In its “Strategy for the Future,” noting both global trends and state investments and strengths, Louisiana’s Department of Economic Development (LED) identifies “next generation digital media / software development as its first of six themes. Digital media engages, enables, and transforms virtually all areas of society -- science, engineering, business, entertainment, public affairs, and far beyond. The nature and particulars of digital media vary widely from work to work; but all typically engage several aspects in varying degrees: (i) digital media technology (software, hardware, and other science and engineering aspects which embody and characterize digital media), (ii) digital media arts (visual, physical, aural, and aligned elements that make digital media legible, actionable, inspirational, and aspirational), and (iii) digital media applications (science and engineering, business, productivity, and entertainment). The digital media research currently engages five broad areas: computer games, computer graphics, geographical information systems, human-computer interaction, and visualization. In addition, in partnership with CCT, we are also engaged in two major multi-college academic initiatives: an undergraduate digital media minor (including both tech and arts subthemes); and an emerging master’s degree in Digital Media Arts & Engineering. Research specializations include:

- Bijaya Karki: Visualization and Applications
- Robert Kooima: Display Technology, Digital Imaging
- Brygg Ullmer: Human-Computer Interaction, Tangible Visualization
- Nate Brener: Scientific Visualization
- Hartmut Kaiser (adjunct): Geographical Information Systems
- Xin Li (adjunct): Computer Graphics, Shape Mapping
- Omer Soysal (adjunct): Computer Vision, Geographical Information Systems

Let the Division of Computer Science and Engineering know what you are doing. Email any information updates to Laura Stuart, External Relations Coordinator, LSU College of Engineering at lauras@lsu.edu
**COMPUTER SCIENCE CURRENT GRANTS & PUBLICATIONS**

**GRANTS:**

NSF CNS-1059417: Research Software Infrastructure for Tensor Computations, $300,000; 06/11-05/14, PI: G Baumgartner, co-PI: J Ramanujam.

NSF CCF-1320835: Foundations of Transactional Memory Scheduling, $365,897; 09/13-08/16, PI: K Busch.

NSF CAREER: Empirical Tuning for Extreme Scale, $583,145; 03/12-03/17, PI: C. Whaley.


NSF IIS-0905478: Multi-Perspective Bayesian Learning for Automated Diagnosis of Advanced Malware, $152,462; 09/09-08/14, PI: J Zhang, co-PI: R Kannan.

NSF IIP-1265264: Commercialization of a Tool Chain for Static Program Analysis, $50,000; 10/12-03/14, PI: S Mukhopadhyay.

DARPA/RDECOM: Automated Techniques for Inferring Actionable Information, $815,000; 9/10 to 8/14, PI: S Mukhopadhyay, co-PI; SS Iyengar

NSF CCF-1017623: Pattern Matching for Massive Data Sets, $500,000, 08/10-07/14, PI: R Shah.

NSF CCF-1218904: Space-efficient Frameworks for Multi-pattern Matching in Text Streams, $184,261; 09/12-08/15, PI: R Shah.


**SELECTED PUBLICATIONS:**


We at LSU are committed to educating the very best engineers and to breaking new ground in education and research. To further those goals, the college has launched the Breaking New Ground campaign to herald the next generation of engineering at LSU. If you would like to learn more about the campaign, visit www.lsubreakingnewground.com.

YES, I want to do my part to help LSU!

Here is my payment in support of the LSU College of Engineering. (Please make your check payable to the LSU Foundation.)

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$________ Computer Science Development Fund - CSF04
$________ Other (Fill in your preference below)

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The Division of Computer Science is always interested in how its students, alumni and friends are doing. We hope you will take the time to send us your updates. Email your information to lauras@lsu.edu or mail it to the Division of Computer Science at:

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