CSE
A Treasure House of Knowledge!
The cover of this report was designed by a new Masters Graduate, **Arati Mahimane.**

Arati is originally from India where she earned a Bachelor of Computer Engineering from Cummins College of Engineering, Pune, India in 2009. Before joining CSE in Autumn 2011, she worked as a Software Engineer for Persistent Systems Ltd., Pune. While at CSE, her adviser was Jayashree Ramanathan and she worked on Enterprise Architecture. Currently, Arati is a Software Developer at Rackspace in Austin, TX. She is working on Rackspace cloud products and plans to continue her journey in the field of Cloud Computing. During her free time, she likes to draw and paint. She says, “I created the Annual Report cover design in order to give something back to the department before I graduate.”

And the Department Of Computer Science And Engineering appreciates her efforts.
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Welcome from the Chair’s Office

Dear Colleagues, Alumni, Friends, and Parents,

We present to you a copy of 2012-2013 Annual Report of the Department of Computer Science and Engineering at Ohio State. The report provides archival data of the department in education and research in the last year and in the last 10 years, giving you a quantitative insights into the progress of the department in a long term. We also selectively present achievements and activities of our students, faculty, and alumni in the last year. I would like to highlight some of them in my introduction.

- Four new assistant professors will join the department: Spryos Blanas from University of Wisconsin (in databases), Chunyi Peng from UCLA (in networking), Alan Ritter from Carnegie Mellon University and University of Washington (in natural language processing), and Anastasios Sidiropoulos from MIT and University of Illinois (in computer science theory).
- Three CSE assistant professors received the NSF Career Awards: Michael Bond in programming language and software engineering, Kannan Srinivasan in wireless networks, and Radu Teodorescu in computer architecture. CSE Alum Sriram Chellappan (Ph.D.’07, Assistant Professor of Computer Science at Missouri University of Science and Technology) was also honored by an NSF Career Award. CSE alumni Pavan Balaji (Ph.D.’06) received a Career Award from the U.S. Department of Energy.
- Two senior CSE family members have been named ACM Fellows: Ahmed Elmagarmid (Ph.D.’85, Executive Director of Qatar Computing Research Institute, and Professor of Computer Science at Purdue University, and Xiaodong Zhang (CSE Chair).
- Professor Bruce Weide received Ruth and Joel Spiral Excellence in Teaching Award.
- Emeritus Professor Stu Zweben received the Linton E. Grinner Distinguished Service Award from the Accreditation Board for Engineering and Technology (ABET).
- I would like to congratulate Jim Davis and Dong Xuan for their promotions to the rank of full professors. Same congratulation goes to Feng Qin for his promotion to the rank of associate professor with tenure.

In the coming year, I look forward to presenting new progress and more accomplishments via our web site, social media and the next annual report.

Cordially yours

Xiaodong Zhang
Chairperson
Robert M. Critchfield Professor
Three Trailblazing Faculty Named Among Top Scholars

Three junior faculty members earned one of the nation’s most prestigious scientific awards - the National Science Foundation Faculty Early Career Development (CAREER) award. Given each year to the nation’s top scholars, the CAREER award supports junior faculty who exemplify the role of teacher-scholars.

Mike Bond joined Ohio State in 2011 with the goal of making modern computer systems reliable and efficient. Achieving this goal presents serious challenges as chip manufacturers make processors faster by adding more and more cores; this trend makes it notoriously difficult for programmers to develop and debug software that is both accurate and fast.

As part of his current project, “Practical Language and System Support for Reliable Concurrent Software,” Professor Bond will work closely with graduate and undergraduate students in his research group, Programming Languages and Software Systems (PLaSS), to design and implement the first practical approaches for guaranteeing reliable parallel execution without sacrificing performance. These innovations will ultimately help parallel software systems overcome existing challenges and address society’s growing computing needs.

Kannan Srinivasan studies and develops wireless network and communication systems with the aim of improving performance, reliability, and security. He joined the university in 2011 and during that time has investigated everything from networking protocols to measurements to wireless nodes.

The specific proposal that earned him the CAREER award was “Together We Rise: A Unified MIMO - Full Duplex Network Architecture.” It aims to find a solution for one of the field’s most pressing problems: the need for higher capacity wireless networks. In the past, wireless networks have relied on a system that uses either all of its antennas for transmission or for reception; or, uses half of them for transmission and the other half for reception. Working closely with students and researchers, Professor Srinivasan will develop more flexible radios that can dynamically choose the number of antennas to transmit and receive, greatly increasing their capacity. Such a flexible radio can be used for optimizing reliability, security, or capacity. After development, he plans to work closely with Ohio State’s Technology Commercialization Office to patent and market the fully redesigned system.

Radu Teodorescu leads Ohio State’s Architecture Research Lab, a group focused on computer architecture, power management, and the impact of technology scaling on microprocessor design. Since joining the faculty in 2008, Professor Teodorescu’s research has centered on improving the energy efficiency of computing devices.

His primary project, “An Integrated Treatment of Voltage Noise and Process Variability in Many-core and GPU Systems with Microarchitectural Solutions,” aims to develop a new class of microprocessors that dynamically adapt to their environment and the applications they run, reducing energy usage. These systems are essential for big data centers, as well as personal gadgets such as mobile phones and portable devices, both of which are experiencing an increased demand for faster, more energy efficient computing. A unique aspect of this work, Teodorescu will partner closely with the Metro Early College High School, recruiting minority and female students as part of the project.

Xiaodong Zhang Named ACM Fellow

Xiaodong Zhang, is one of the 52 the leading computer scientists worldwide named as Fellows by the Association of Computing Machinery (ACM). ACM recognized Zhang “for his contributions to data and memory management in distributed systems.” ACM, the world’s largest scientific and educational computing society, bestows their Fellow awards to a small and elite group of ACM members who have made significant contributions to the field of computing.
members for their outstanding accomplishments in computing and information technology and in the large computing community.

Xiaodong Zhang is the Robert M. Chritfield Professor in Engineering, and Chair of the Computer Science and Engineering Department at The Ohio State University. In addition to his busy administrative and professional service duties, Zhang continues to maintain a high profile research program. While the intellectual pursuit still maintains prominence in his research, Xiaodong also strives to transfer his work into advanced technology to impact general-purpose computing systems in both hardware and software. Several technical innovations and research results from his research group have been widely adopted in commercial processors, major operating systems and databases, and distributed systems.

Zhang joined Ohio State as the CSE Department Chair in 2006 from the College of William and Mary, where he was Lattie P. Evans Professor and Chair of the Computer Science Department. He was named as IEEE Fellow for his contributions in computer memory systems in 2008. He received his Ph.D. in Computer Science from University of Colorado at Boulder, where he received a Distinguished Engineering Alumni Award in 2011.

**WANG AWARDED $1.8M TO IMPROVE SPEECH UNDERSTANDING**

Professor DeLiAng (Leon) Wang will lead a five-year $1.8 million research grant from the National Institute on Deafness and Other Communication Disorders (NIDCD), one of the institutes that compromises the National Institutes of Health (NIH), to develop an algorithm to improve speech reception in noise by hearing-impaired listeners.

Wang, in collaboration with co-investigator Eric Healy (OSU Dept. of Speech and Hearing Science) and graduate students Sarah Yoho and Yuxuan Wang, recently provided the first demonstration of speech intelligibility improvements by hearing-impaired listeners. All listeners in their study demonstrated improvements in sentence recognition following algorithm processing. These improvements were often quite substantial, as many listeners who were unable to understand any speech showed near-perfect recognition after processing.

This NIH project has the potential to revolutionize our treatment of hearing loss.

Wang received his BS and MS degrees from Peking University in Beijing. He then went on to receive a PhD in computer science from the University of Southern California. His research interests include machine perception and neurodynamics. In 2008, he won the Helmholtz Award from the International Neural Network Society. He is an IEEE Fellow, and currently serves as the co-editor-in-chief of Neural Networks, a premier journal in the field.

**WEIDE RECEIVES LUTRON ELECTRONICS AWARD**

Lutron Electronics gave Dr. Bruce Weide their esteemed Ruth and Joel Spira Excellence in Teaching Award. This award is given to an individual who excels in teaching and inspiring students and has made significant contributions to field of education. Ruth and Joel Spira founded Lutron Electronics in 1961, two years after Joel invented the solid state dimmer switch.

Dr. Weide, who retired in June 2013 after teaching and leading for 35 years, has advised or co-advised 28 PhD graduates although he is equally known for his enduring connection to many undergraduates. Though humble concerning his impact, Bruce is no stranger to awards. His excellent work with students garnered recognition from the Institute of Electrical and Electronics Engineers (IEEE) Computer Society. In 2000, he was one of the first educators to receive their Computer Science and Engineering Undergraduate Teaching Award, which he received jointly with his recently retired friend and colleague Tim Long. He and Dr. Long also earned the Ohio State College of Engineering Boyer Teaching Award. Individually, he was given the CSE Teaching Award three times and CSE Service Award twice.
ZWEBEN RECEIVES ABET’S HIGHEST HONOR

The Accreditation Board for Engineering and Technology (ABET) bestowed the 2012 Linton E. Grinter Distinguished Service Award on Dr. STUART (STU) ZWEBEN, Professor Emeritus and former CSE Chairperson. He received this recognition for “outstanding leadership in computing accreditation worldwide, including more than 27 years of service to ABET and CSAB, and for being a catalyst behind the growth of computing accreditation in the United States over the last 25 years.” It is the highest award ABET gives and is named for engineering and engineering technology education pioneer Linton E. Grinter.

From the beginning of his career, Dr. Zweben has been involved in computing program accreditation. In the early 80’s, he was influential in the Association for Computing Machinery’s decision to join with the IEEE Computer Society to form the Computing Sciences Accreditation Board, now CSAB, an organization he lead as President in 1989-1991. After CSAB merged with ABET in the late 1990’s, Stu was a essential framer of the Computing Accreditation Commission (CAC), initially as a member and later as its 2007-2008 Chair.

Subsequently to his time with the CAC, Zweben served ABET as a member of the organization’s Accreditation Council for five years, including as the council’s Chair for 2009-11. Currently, he is a member of its Global Council.

Stu joined CSE in 1974, leading the Department as Chair for 11 years. He then move to the OSU’s College of Engineering where he was Associate Dean for Academic Affairs and Administration for six years before he retiring in 2011.

He is a Fellow of ABET, ACM, and CSAB.

NARAYANAN AWARDED SBC PRESIDENTIAL FELLOWSHIP

ARUN NARAYANAN, a 5th year CSE PhD candidate in Artificial Intelligence with concentration in computational audition and machine learning, received an SBC Presidential Fellowship. The Presidential Fellowship is the most prestigious award given by The Ohio State University Graduate School to recognize the outstanding scholarly accomplishments and potential of graduate students. Arun joins 16 others in winning the autumn 2012 competition, and this is the first time a CSE graduate student has received this honor in several years.

The goal of Arun’s research is to improve the performance of automatic speech recognition systems in the presence of background noise by utilizing both the low-level acoustic properties of speech and the learned top-down models of phonetic units and time-frequency masks. The fellowship will fund 12 months of his study towards the completion of a doctoral dissertation.

Prior to joining Ohio State, Arun earned an undergraduate degree in Computer Science and Engineering from the University of Kerala, India. Afterwards, Arun worked at IBM India for three years until beginning his graduate program in 2008.

NEW CSE RESEARCH SCIENTIST EARNS MENTORSHIP RECOGNITION

The Undergraduate Research Office awarded MICHAEL MANDELL, CSE Research Scientist, an Outstanding Research Mentor award. This award, part of the Denman Undergraduate Research Forum is given “to recognize the clinical & research faculty, lecturers, post-doctoral researchers, and graduate students who also contribute extraordinary guidance to the undergraduate students who work with them.” To receive the award Michael had to be nominated by an undergraduate(s) participating in the Denman Undergraduate Research Forum, and must demonstrate excellence in teaching and mentorship.

In this year’s Denman, Michael advised Jordan Hawkins, a senior in Electrical and Computer Engineering, for his undergraduate honors thesis. The project was to replicate certain tasks that DJs do manually, via software
processing it automatically. Specifically, he built systems that will smoothly transition between tracks in a playlist and create ‘mashups’ by combining parts of other songs.

Dr. Mandel joined Computer Science and Engineering in Autumn 2012. Prior to that he earned his BSc in Computer Science from the Massachusetts Institute of Technology in 2004 and his MS and PhD with distinction in Electrical Engineering from Columbia University in 2006 and 2010 as a Fu Foundation School of Engineering and Applied Sciences Presidential Scholar. From 2009 to 2010 he was an FQRNT Postdoctoral Research Fellow in the Machine Learning laboratory at the Université de Montréal. From 2010 to 2012 he was an Algorithm Developer at Audience Inc, a company that has shipped millions of noise suppression chips for cell phones.

Faculty Promotions
The Ohio State University Board of Trustees approved all three faculty nominations for promotion. Drs., James W. Davis and Dong Xuan will become Full Professor effective October 2013. At the same time, Dr. Feng Qin will join the ranks of Associate Professors.

Rewards to the Brave

Dr. Steve May (BS ’90, MA ’92, PhD ’98), Chief Technology Officer at Pixar, and his team won an Oscar for the animated feature film, Brave. This is the fourth Oscar winning production May has worked since the 2002 establishment of the category.

Dr. May is solidly a Buckeye having earned a bachelor’s in 1990, master’s in 1992, and PhD in 1998, all in Computer and Information Science.

For Brave, which opened at No. 1, May oversaw and developed technology used in the film; ensured the movie lined up with the director’s creative vision; and supervised animators.

Alum Recognized for Professional Achievement

Matt Desch (BS ’80) received a 2012 Alumni Association Award for Professional Achievement. The Professional Achievement Award is presented to alumni who have superb records of distinguished career accomplishments and who have made outstanding contributions to their professions. No more than three individuals will be selected in any one year for this award.

Matt is Chairman and CEO of Iridium Communications, Inc. in Washington, D.C. The company provides voice and data services to ships, corporate aircraft, the U.S. military and for machine-to-machine applications like asset tracking. Matt serves as a member of the President’s National Security Telecommunications Advisory Committee and on a number of boards in the high tech and telecom industry including as the Chairman of the Board of Airspan Networks (a public supplier of WiMAX infrastructure).

Fortin Receives Distinguished Alum Award

The College of Engineering named Dr. Michael Fortin (MS ’87; PhD ’91) a 2012 Distinguished Alumni for his contributions to computer science.

Dr. Fortin is a Distinguished Engineer in the Windows Core Operating Systems Division at Microsoft. He began his career at Microsoft in 1997, where he worked on Windows 2000 doing development on tools to aid in improving system and application performance.

Alum Chellappan’s CAREER Progressing

CSE alumnus, Sriram Chellappan (PhD ’07) received a CAREER award from the National Science Foundation. Titled “Human Behavior Assessment from Internet Usage: Foundations, Applications and Algorithms,” this research improves upon current self-reporting studies in cyber-psychology that are limited in reliability. The goal is to establish private, passive and unobtrusive internet applications to monitor mental health care, improve online socializing, enhance cyber security and detect cyber bullying. The data collected from these applications, in tandem with behavioral psychology will be analyzed by classification
algorithms; the research will ultimately demonstrate the application’s potential to achieve significant insights and conclusions in assessing human behavior through internet usage data. The research is currently tested with college-aged students but Chellappan will also collaborate with K-12 schools to further enhance project outreach.

Dr. Chellappan, currently an assistant professor in the Department of Computer Science at the Missouri University of Science and Technology, was advised by CSE Professor Dong Xuan. His other degrees include a MS earned from The Ohio-State University in 2006 and a M.S. in Electrical Engineering also from The Ohio State University in 2002. He received a BE from the University of Madras, Chennai, India in 1999.

DEPARTMENT OF ENERGY MOVES BALAJI’S CAREER

The DOE granted Dr. PAVAN BALAJI (PhD ’06) a CAREER award for his work on efficient communication systems for supercomputers equipped with complex computational and memory hierarchies, including heavily hierarchical processing units and complex heterogeneous architectures such as integrated or discrete accelerators.

Balaji was chosen by Crain’s as one of Chicago’s “40 Under 40” individuals who are on the rise and worth watching. Currently his research is being done at Argonne National Laboratories.

COMPUTER SCIENCE RESEARCH AT OHIO STATE MAKES IMPACT IN APPLE’S HYBRID STORAGE PRODUCT

In October 2012, Apple Inc. announced its new storage product called Fusion Drive that combines a small solid state drive (SSD) and a large hard drive. This integrated storage is managed by Apple’s operating system, Mac OS X Mountain Lion, in a single logical space. This product can significantly accelerate data accesses in a cost-effective way for widely used Apple products, including iMac and Mac Mini.

The product’s untold story is its close relationship with a research project conducted at The Ohio State University by former CSE PhD student FENG CHEN and his advisor XIAODONG ZHANG, in collaboration with Intel Labs research scientist David Koufaty. The three researchers published and presented a paper entitled “Hystor: Making the Best Use of Solid State Drives In High Performance Storage Systems” in the 25th ACM International Conference on Supercomputing (ICS 2011) in May 2011. This work presents a hybrid storage system framework called Hystor with a small SSD and a large hard drive. The high performance and cost-effectiveness of the Hystor framework comes from three basic system components. First, instead of using the SSD as a hard drive cache, Hystor logically merges the SSD and the hard disk into a single block device managed by the operating system. Second, Hystor is driven by a set of algorithms that decide in which device (SSD or hard drive) the data should be stored and accessed. Finally, to provide sustained data processing performance, Hystor adaptively and timely migrates and retains data in the most suitable devices for users by storing smaller, more frequently accessed data in the SSD drive and larger, less used data in the hard drive.

The Hystor paper received the Best Paper Award in ICS 2011. Following the paper’s publication, the Apple Fusion Drive group had detailed discussions with the authors of the paper. A senior software engineer of Apple made the following comment on the Hystor paper:

Hystor is a well-designed system, and its paper discussed several key systems trade-offs in details. The Apple software engineers had carefully and systematically evaluated Hystor. This work had a significant influence in the design of Apple’s Fusion Drive. Some design elements and algorithms in Hystor have been directly used in Apple’s Fusion Drive.

Feng Chen completed his PhD in CSE at Ohio State in 2010, where he received a Graduate Research Award. He joined the Intel Labs as a research scientist after his graduation.
DK PANDA AND TEAM ADVANCES IN MULTIPLE AREAS

Dr. Dhabaleswar Panda’s software MVAPICH fueled “Stampede,” National Science Foundation’s powerful new supercomputer, to 7th Place on Top500. This is particularly exciting for all the teams involved in the Stampede system, as at the time it was still half operational (the complete system became operational around Jan ’13). Built at the Texas Advanced Computing Center at The University of Texas at Austin, it has 204,900 cores and is currently delivering 2.66 Petaflop performance using MVAPICH2. This system uses InfiniBand FDR and the new Intel MIC accelerators.

Stampede is one of the world’s most powerful supercomputers. At its initial peak performance, it processes at 10 petaflops, contains 272 terabytes (272,000 gigabytes) of total memory, and handles 14 petabytes (14 million gigabytes) of disk storage. Eventually, Intel will be adding new generations of MIC processors which will then allow Stampede to clock at 15 petaflops.

Dr. D. K. Panda has proudly noted that the software MVAPICH, developed in his Network Based Computing Lab (NOWLAB), has helped power faster computers on the TOP500 list. This showing marks the highest entrance yet. MVAPICH/MVAPICH2 (pronounced em-va-pich) software delivers best performance, scalability and fault tolerance for high-end computing systems and servers using InfiniBand, 10GigE/iWARP and RoCE networking technologies. All components of Stampede will be integrated with InfiniBand FDR 56G/bs network. MVAPICH improves the processing by connecting traditional supercomputing software with innovative networking technologies and protocols, thus increasing the data flow speed in a significant manner.

In support of research into supercomputer connectivity, the Intel Corporation gave Dr. Dhabaleswar Panda $50,000. These funds will be used in the development for projects including “Stampede.”

In addition to his work with Supercomputers, Dr. Panda is participating in the development of a “Science DMZ.” The Ohio State University is leading the establishment of a “sub-Internet” which will allow scientists the opportunity to collaborate across the cloud with little interference from each institution’s security. This “demilitarized zone” will presumably put an end to the information bottlenecks that occur when encountering an organization’s firewalls.

Funded from a $1 million grant from the National Science Foundation, Carol Whitacre, OSU vice president for research, heads up the team for the next two years. This team will consist of members from Ohio State, the University of Missouri and the Ohio Technology Consortium’s Research and Innovation Center. Locally, the team members will include D. K. Panda and his lab, the Ohio Academic Resources Network (OARnet), as well as the computational and storage resources of the Ohio Supercomputer Center, Umit Catalyurek, professor of Biomedical Informatics, and Datta Gaitonde, professor of Mechanical and Aerospace Engineering.

As a part of this project, Prof. Panda and his team will be designing high-performance networking protocols and middlewares (such as Grid-FTP) using RDMA-based mechanisms. In his lab, two different networking technologies, RDMA over Converged Enhanced Ethernet (RoCE) and Internet Wire RDMA Protocol (iWARP), will be used. The new protocols and middlewares will be experimented to support high-throughput data transfer between end computing/storage nodes across the campus and also over the 100Gbps networking infrastructure.

“In the Six.”
Looking through the gold number six in the Garden of Constants, we see the newly renamed Enarson Hall, formerly Central Classrooms.
Photo by Graphic Designer, Ann; courtesy of Ohio State Image of the Day.
Best Paper & Poster Awards

Best Student Paper at INTERSPEECH 2012

Preethi Jyothi, CSE Graduate Student, earned a Best Student Paper recognition at the 13th Annual Conference of the International Speech Communication Association (Interspeech 2012). The paper, titled “Discriminatively Learning Factorized Finite State Pronunciation Models From Dynamic Bayesian Networks” is joint work with Dr. Eric Fosler-Lussier (Jyothi’s advisor) and Karen Livescu of Toyota Technological Institute at Chicago. The work involves spoken language, especially conversational speech, as it is characterized by a large amount of pronunciation variability and words often do not conform to dictionary pronunciations. This makes the task of recognizing conversational speech particularly challenging for automatic speech recognition (ASR) systems. The work explores one such model that uses a machine learning framework called dynamic Bayesian networks (DBN) to relate the movements of a speaker’s articulators (i.e. lips, tongue, etc) to sounds produced in the form of loosely coupled streams. The researchers present a general approach to transform such DBN models into a finite state representation that allows for more flexible models that can be further trained to improve the accuracy of the recognizer. Their experimental results on an isolated word task show that the proposed approach performs significantly better than the original DBN model.

Optimal Scheduling Earns “Best” Recognition

At IEEE International Symposium on Modeling and Optimization in Mobile, Ad Hoc Wireless Networks (WiOPT) 2012, WenZhuo Ouyang, took the Best Student Paper Award for his paper Low-complexity Optimal Scheduling Over Correlated Fading Channels with ARQ Feedback. Ouyang is a PhD student working in information processing systems with CSE Professor Neesh Shroff and OSU Electrical and Computer Engineering Professor Atilla Eryilmaz. The paper investigates the downlink scheduling problem under Markovian ON/OFF fading channels, where the instantaneous channel state information is not directly accessible, but is revealed via ARQ-type feedback. Ouyang’s research shows that under an average number of transmissions constraint, a low-complexity index policy is throughput-optimal.

CCGrid Chooses Ravi for Best Paper

CSE Graduate Student Vignesh Ravi was lead author for the Best Student Paper winning work at The 12th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing for his paper Scheduling Concurrent Applications on a cluster of CPU-GPU Nodes. The paper, in collaboration with his advisor CSE Professor Gagan Agrawal and alumni David Chiu and WenJing Ma, tackles the problem that supercomputers and cloud environments commonly employ a combination of multi-core CPUs and GPUs, and are concurrently used by various users. State of the art practical schedulers for independent jobs lack features and policies that are desirable today and in the future. Exploiting portability offered by OpenCL, their novel scheduling policies significantly improve the throughput by allowing dynamic mapping of jobs to resources and minimizing the resource idle times.

Student, Professor and Industry Collaborators Get Best Paper

Bin Ren, CSE PhD candidate, was awarded a Best Paper Award at CGO 2013 for his paper “SIMD Parallelization of Applications that Traverse Irregular Data Structures,” with authors CSE Professor Gagan Agrawal, James R. Larus (Microsoft Research), Todd Mytkowicz (Microsoft Research), Tomi Poutanen (Milq Inc.), and Wolfram Schulte (Microsoft Research). SIMD parallelism is becoming more commonplace, but so far has only been used for regular applications. This paper describes methods that allow irregular, pointer-traversal based applications to be parallelized on SIMD hardware.

Vision Track Award Goes to Assistant Professor

Arnab Nandi, CSE Assistant Professor, won the Vision Track Best Paper award at the 2013 Conference on Innovative Data Systems Research in Asilomar, California. His paper “Querying Without Keyboards,” outlines a vision for database system architectures in the age of keyboardless
computing devices such as tablets, smartphones, and Kinects.

**PH.D. STUDENTS & FACULTY AWARDED BEST PAPER AT IEEE MASS 2012.**

**Jing Li**, CSE PhD candidate, received a best paper award for “Achievable Throughput in Duty-Cycled Wireless Networks,” authored by Li, Wenjie Zeng (CSE Graduate Student) and Anish Arora (CSE Professor), at IEEE MASS 2012 in Las Vegas, Nevada. The paper presents throughput capacity bounds in wireless networks whose radios must alternately wake-up and sleep to conserve energy. The research examines canonical classes of existing duty in terms of the capacity they achieve, and shows that the class of “receiver-centric, synchronous” MACs achieve capacity that is closest to a certain theoretically optimal (but not easily implemented) duty-cycled MAC scheduler.

**Sadayappan and Pouchet Awarded Best Paper at 21st ACM/SIGDA Symposium**

“Polyhedral-Based Data Reuse Optimization for Configurable Computing,” authored by Louis-Noel Pouchet (former post-doctoral researcher in CSE), with co-authors Peng Zhang and Jason Cong, UCLA, and P. Sadayappan, CSE, received the best paper award at the 21st ACM/SIGDA International Symposium on Field-Programmable Gate Arrays (FPGA 2013). The paper describes a new tool called PolyOpt/HLS that can automatically and simultaneously perform loop transformations on-chip memory buffering, off-chip data access re-ordering, and design-space exploration that frequently outperforms hand-coded Register Transfer Logic design. Pouchet is now a visiting research professor at UCLA.

**Kurt and Agrawal Awarded Best Paper at HiPC 2012**

CSE Graduate Student Mehmet Can Kurt and Professor Gagan Agrawal received a best paper award from HiPC 2012, for their paper “A Fault-Tolerant Environment for Large-Scale Query Processing.” This paper focuses on making a large data store fault-tolerant, by strategically replicating data. The foundation of the paper is storage and query processing in a cluster environment where data from scientific experiments are stored. The goal is to provide not only high fault-tolerance, but also load balancing both in absence and presence of failures.

**GRAVITY REACHES OUT AND EARNS TOP AWARD**

The GRAVITY research group received a best poster award and an honorable mention for best paper award at the IEEE Scientific Visualization conference (SciVis) and the Symposium for Large-Scale Data Analysis and Visualization (LDAV), respectively. While both works focus on large-scale flow visualization, they address two different challenges. The poster entitled “Exploring Flow Fields Using Fractal Analysis of Field Lines,” authored by Abon Chaudhuri, Teng-Yok Lee (Alum and Research Scientist), Han-Wei Shen (CSE Professor), Marc Khoury (Alumnus) and Raphael Wenger (CSE Assistant Professor), presented a fractal theory based method of visually exploring large data without becoming tedious and ineffective to the user. The paper “Flow-guided File Layout for Out-of-core Pathline Computation,” authored by Chun-Ming Chen, Bonthanome Nouanesengsy, Teng-Yok Lee and Han-Wei Shen, provided a novel algorithm that allows efficient computation of pathlines from large-scale time varying flow fields.

Ohio Stadium commencement Spring 2013. Photo courtesy of Yi Liu.
NEW FACULTY HIRINGS STARTING IN 2013-2014

SPYROS BLANAS

Joining the Systems Group in the area of Big Data is Dr. Spyros Blanas, a newly minted doctor from the University of Wisconsin--Madison. Spyros aims to make data management more efficient by exploring how software can better interact with hardware. The goal of his research is to make data-rich applications use less energy and become more responsive. His dissertation work explored how to improve the performance of data processing if main memory becomes the primary storage medium for data. Part of his dissertation work is being commercialized in Microsoft’s flagship data management product, SQL Server 2014. Spyros looks forward to arriving on campus in January 2014.

CHUNYI PENG

Joining the CSE department in Autumn 2013, Dr. Peng will become part of the Networking group. Chunyi’s research has primarily been in the areas of networking, systems, and security support for mobile applications with additional work in data center networking and cognitive radio networking. This work, done at the University of California, Los Angeles culminated in her attaining the coveted UCLA Fellowship with the Chancellor’s Prize as well as an IBM Ph.D. Fellowship.

ALAN RITTER

Dr. Alan Ritter’s arrival in Columbus will be delayed till Autumn 2014 as he will be researching in a year’s post-doctoral position with Carnegie Mellon. His research into information extraction and natural language processing in social media, particularly in extracting meaning from large user-generated text streams, will benefit the Artificial Intelligence area. Ritter will also be doing extensive work with CSE’s collaborative partners in Biomedical Informatics. Alan received his Ph.D. from the University of Washington.

ANASTASIOS SIDIROPoulos

In a joint position with the Department of Mathematics, Dr. Sidiropoulos will join CSE after leaving the University of Illinois at Urbana-Champaign where he worked as a post-doctoral researcher. His research interests have been focused on theoretical computer science, with an emphasis on algorithms. Anastasios’s papers have appeared at SODA and FOCS. He received his Ph.D. from the Massachusetts Institute of Technology in 2008.
Annual Departmental Awards

Scholarships

Central Ohio Chapter of Association of Computing Machinery (ACM)
Maxwell Roseman
Crowe Horwath, LLP & Marathon Oil Co.
Cory Dahlstrand
Harris Corporation
Jeremy Villa
Ernest William Leggett, Jr. Scholarship
The Leggett Family Award
Ian Freshwater
Zachary Knickerbocker
Michael McNamara
Grace Wannemacher
Matt J. Desch & Ann M. Murphy Award
Elizabeth Burl
Jeremy LeDonne
The O’Connell Family Award
Brandon Mills
Raytheon Corporation
Alan Thornburg
Zachary Wein
B. Chandrasekaran & Sandy Mamrak Scholarship
Olga Benson
Jeffrey Tornwall
Mike Liu Scholarship
Brett Dickson
Adam Wheeler
Jimmy Yi
CSE Undergraduate Scholarships
Arathi Mani
Ashley Biales-Wise
Tyler Leonhardt
Claude Mbemba
Brandon Rogers
Jacob Shields

Department Awards

Outstanding Teaching Award
Paolo Bucci
Bruce Weide
B. Chandrasekaran & Sandra Mamrak Graduate Fellowship
Krishna Kandalla
Mike Liu Graduate Fellowship Award
Hari Subramoni
Jin Teng
Eleanor Quinlan Memorial Award
Diego Zaccai
Outstanding Service Award
Carrie Stein
Kathryn “Kitty” Reeves
Founders Recognitions
Roy Reeves

Jacob Shields and his mother, Connie.
Colleagues and good friends Bruce Weide and Stu Zweben share a moment as Stu presents Bruce with the Outstanding Teaching Award.

One of the many tables at the banquet. Left to right, Brandon Mills, Neelam Soundarajan, Kit Kniesley, Brandon Rogers, Jeff Rogers, Arathi Mani and Ram Mani.

Left, Young Ellen Stein is all smiles with pride for her mom, Carrie, who received her second Outstanding Service Award.

Right, Arnab Nandi presents Corey Dahlstrand with his scholarship certificate.

ACM Scholarship recipient, Maxwell Roseman with Associate Professor Emeritus, Dr. Clint Foulk.

Diego Zaccai, Eleanor Quinlan Award winner, (2nd from left) shares the evening with friends (l to r) Paloma Choroco, S. M. Faisal, David Fuhrly, and June Kaewprag.
RESEARCH HIGHLIGHTS

COMPUTATIONAL TOPOLOGY AND ITS APPLICATION TO SHAPE AND DATA PROCESSING

Computational topology is an area that emerged in the late 90’s to address various topological issues encountered while processing shapes and data with computational tools. Rooted both in theory and practice, the area grew out of a synergy between classical mathematics such as algebraic and differential topology and the computational disciplines such as geometry processing, data analysis, and algorithms in general. Tamal Dey has played a significant role in developing this area from his early years in research. In fact, he is credited with some of the earliest papers in the field and a very influential survey titled “Computational Topology” written with two other co-authors in 1998.

In the past decade or so, Dey and his Jyamiti group focused mainly on processing shapes in three dimensions that invariably required topological concepts while developing various algorithms. Among these, they have focused mainly on two problems: (i) surface reconstruction, and (ii) mesh generation. Lately, he has become more engaged into understanding data from topological view point, which brings the third problem into our discussion, namely, (iii) topological data analysis.

Reconstruction: Modeling a shape from a point sample has become an ubiquitous problem in many applications in science and engineering. The conversion of the point data into a polygonal surface is the Surface Reconstruction problem. For this problem, Prof. Dey and his group developed a suite of solutions called Cocone algorithms along with software based on them (http://www.cse.ohio-state.edu/~tamaldey/cocone.html). Various issues such as noise, boundary effects, scales, and robustness are addressed in these developments. One of the main hallmarks of this research is that the algorithms guarantee topological equivalence (homeomorphism) of the output approximation with the sampled surface. The Cocone software has gained a considerable popularity over the years which is evident from its routine downloads. Figure 1 shows an example reconstruction by Cocone and also the title page of a book published by Cambridge University Press in 2007 in which Prof. Dey summarized the recent developments in provable surface reconstruction algorithm designs.

Mesh Generation: In this problem, one is given a shape such as a surface or volume represented by a polygonal approximation, or by an implicit equation. The task is to produce a triangular decomposition in case of a surface and a tetrahedral decomposition in case of a volume. The difficulty here is to produce these meshes with mathematical guarantees about topology and geometry for a variety of input ranging from smooth

Figure 1: Modeling a jaw bone from sample with Cocone software; The reconstruction book.

Figure 2: Two output of DelPSC software and the Delaunay Mesh Generation book.
surfaces and volumes to non-smooth domains such as polyhedra, piecewise smooth surfaces, and non-manifolds. The Jyamiti group focused on how to generate these meshes with a versatile technique called Delaunay refinement. In fact, Dey and his group provided the first viable solution for the difficult problem of meshing piecewise smooth complexes that include a wide variety of input. The theoretical guarantee draws heavily upon concepts developed in computational topology. A software called DelPSC (http://www.cse.ohio-state.edu/tamaldey/delpsc.html) has been released based on this work. Dey collaborated with Siu-Wing Cheng from HKUST and Jonathan Shewchuk from U. of California, Berkeley to write a book titled “Delaunay Mesh Generation” that got published in December, 2012 by CRC press.

Topological Data Analysis: After working on algorithm/software design for shape representation and shape analysis mainly for three dimensional geometries, Prof. Dey focused on the generalization of these problems in higher dimensions. In particular, he aimed at applying his experience and expertise in computational topology to the problem of data analysis which deals with point data in high dimensions. This direction of research is a part of an emerging area called topological data analysis that concerns with extracting topological information from point data presumably sampled from a hidden space. Figure 3 shows an example where important cycles have been detected in a point data sampled from a double torus.

In some of his recent works, Dey and his co-researchers have designed new algorithms for computing homology groups and their representatives from point data in high dimensions. These are important topological information that can aid in understanding the space from where the data are sampled. For high dimensional data, one main challenge is to tame the curse of the dimension. Often, the complex built on the data to extract topological information is too huge in size to be processed effectively. Recently, Dey and his colleague Yusu Wang and their student Fengtao Fan have shown that a sub-sampling strategy merged with techniques from computational topology can provide a much sparsified complex called ‘Graph Induced Complex’ which can be useful for topological inference. While working on this problem, they also realized that persistent homology which is a widely used tool in topological data analysis needs to be extended further to enhance its scope. They devised a new topological persistence algorithm for this purpose.

The potential of data analysis has already been demonstrated in data mining and machine learning. Can the topological data analysis complement and enhance the existing approaches that are built mostly on statistical techniques? The hope is that, examining the data from a topological view perhaps will reveal more global properties and thereby enhance the robustness against noise. Prof. Dey wants to pursue this direction further in future research.
Recently there has been a lot of interest in ‘big data’ problems, i.e., dealing with increasing volumes, velocity, and variety of data. GAGAN AGRAWAL’s research group has been working on these problems for a number of years, applying his background in high performance computing to develop innovative solutions. Just as a background, for several decades, much of the existing (commercial) data was managed through structured (relational) databases. Unfortunately, structured databases did not handle increasing data volumes and velocity too well, in terms of providing required scalability, fault-tolerance, flexibility, and speed of data ingestion. This has led to a NoSQL movement, with systems like MapReduce (and its variants) and key-value stores being used to store and process massive data. While relational databases were very efficient and parallelized effectively, the team has observed that popular implementations of MapReduce and other recent data processing solutions do not use parallel systems very efficiently.

With the research team’s extensive background in high performance computing, they have been developing alternative solutions which address performance as well as the following other limitations of existing MapReduce implementations:

1) require that data be loaded into a specialized file-system, which is simply not feasible while working with massive scientific datasets,

2) cannot allow algorithm specification to be portable across use of different data formats, which is often the case in many scientific domains.

3) cannot support use of accelerators and/or other modern many-core architectures, and

4) are not optimized for use of cloud-based data storage services.

Their system is referred to as MATE (MapReduce with an Alternate API) and demonstrated a variant of the original MapReduce API, which still allows ease specification of parallel algorithms, but eliminates the shuffling/grouping/sorting overheads. The generalized reduction API supported by the MATE system integrates map, combine, and reduce together while processing each element. Because the updates to the reduction object are performed directly after processing, the team avoids intermediate memory overheads. Their earlier work showed that MATE can outperform Hadoop by a factor of 10-20 on several standard data mining algorithms, and the specific improvement from the use of this API itself is a factor of 1.5 or higher. More recently, they have shown that by implicitly managing a reduction object, their implementation approach can also support the original MapReduce API more efficiently. One of the results of this work is the fastest known implementation of MapReduce on GPUs.

Another direction related to ‘big data’ has been data management, i.e., providing basic database like functionality on massive datasets. In many applications, the volume of data limits the ability to load data into a traditional database. At the same time, basic database-like query processing ability is desired. We have developed an approach we refer to as automatic data virtualization. This approach automatically generates data services to support a simple virtual view of the data, while keeping the data in the original format. It allows users to specify subsets and aggregations of interest with such a virtual view, using a high-level language like SQL. Agrawal’s research team has developed implementations of these approaches on popular scientific data formats, like NetCDF and HDF5. A recent emphasis has been adding indexing as a service to work in conjunction with data virtualization. The motivation is as follows. Indexing has been one of the main advantages of conventional data management solutions. However, popular indexing techniques require that data be reorganized, and index be built during the data ingestion phase. With massive volume and/or velocity of data, this approach is not feasible. They have developed a variant of the bitmap approach, where index can be built on top of an existing multi-dimensional dataset, and used to optimize query processing. The team is also exploring services based on these indices, such as sampling using bitmaps, processing of data with missing values, and others.

Agrawal and his associates’ research continues to work on traditional high performance computing problems as well. Their main emphasis has been use of accelerators such as GPUs. In fact, many aspects of their work
has been driven by insights we have gained from working on big data problems. For example, they are taking a “communication pattern” driven approach, i.e. showing how one can automate the generation of efficient code by considering different application patterns. This work can be viewed as a generalization of the MapReduce approach that has been applied to big data problems. So far, this work has considered irregular reductions and stencil computations as other possible patterns. By developing simple APIs specific to these computations, the team has shown that they can execute efficient code on GPUs as well as a multi-core CPU and a GPU together, for both discrete and fused GPUs.

Dr. Agrawal notes, “I have been very fortunate to work with a number of excellent PhD students at Ohio State. Fourteen Ph.D.s have graduated under my supervision in the last nine years and I am currently working with another eleven students. Mentoring of these students is the most rewarding aspect of this research, and the associated human capital development likely the biggest impact.”

SSDs under Power Faults ?!

Can SSDs really provide non-volatility? What would happen if there are unexpected power faults? Modern storage technology (SSDs, No-SQL databases, commoditized RAID hardware, etc.) brings new reliability challenges to the already complicated storage stack. Among other things, the behavior of these new components during power faults – which happen relatively frequently in datacenters – is an important yet mostly ignored issue in this dependability-critical area. Understanding how new storage components behave under power faults is the first step towards designing new robust storage systems.

Together with his collaborators and students, **Dr. Feng Qin** has recently studied the behavior of flash-based solid-state disks (SSDs) under power faults. As SSDs are replacing spinning disk as the non-volatile component of computer systems, the extent to which they are actually non-volatile is of interest. Although loss of power seems like an easy fault to prevent, recent experiences show that a simple loss of power is still a distressingly frequent occurrence even for sophisticated datacenter operators like Amazon. If even well prepared and experienced datacenter operators cannot ensure continuous power, it becomes critical that one understand how the non-volatile components behave when they lose power.

In this project, Dr. Qin’s research group worked with HP Labs to create an automatic failure testing framework (shown in the accompanying figure). In particular, the team devised and built hardware to directly inject power faults into block devices. Furthermore, they purposely used a side channel to communicate with the customized power cutting hardware, so none of the OS, device driver, bus controller, or the block device itself has an opportunity to perform a clean shutdown. With the capability of direct power cutting, the testing framework coordinates a specially-crafted workload that is stressful to a device while allowing efficient consistency checking after fault recovery. Their record format includes features to allow easy detection of a wide variety of failure types with a minimum of overhead. Their consistency checker detects and classifies both standard “local” failures (e.g., bit corruption, flying writes, and shorn writes) as well as “global” failures such as lack of serializability.

With the implementation of the testing framework, the team subjected 15 commercially available SSDs and 2 spinning disks from 7 different vendors to more than three thousand fault injection cycles in total. The experimental results show that SSDs have counter-intuitive behavior under power faults: of the tested devices, only
two SSDs (of the same model) and one enterprise-grade spinning disk adhered strictly to the expected semantics of behavior under power fault.

In addition to the recent study on the reliability issues of SSDs, Dr. Qin has mainly focused his research on efficient and effective system mechanisms for improving software reliability and availability for the past decade. More specifically, he has proposed and developed various approaches for safely surviving and preventing software bugs during production runs, efficiently detecting software bugs at runtime, and effectively exposing hidden software bugs. The proposed methods exploit the support from operating systems, runtime systems, existing hardware features, static compiler analysis, and/or dynamic instrumentation.

## Research Grants, Awards & Gifts

### New Grants Established July 2012 - June 2013

<table>
<thead>
<tr>
<th>Grant Funding Source</th>
<th>Title</th>
<th>Date(s)</th>
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<td>CATR Task 0006</td>
<td>JAMES W. DAVIS</td>
<td>11/16/10 – 9/28/14</td>
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<td><strong>Department of Defense National Security Agency (DOD NSA)</strong></td>
<td>Information Assurance Scholarship Program</td>
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<td>Building a Practical Wireless In-Band Full Duplex System</td>
<td>KANNAN SRINIVASAN</td>
<td>7/12/12 – 7/11/14</td>
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<td>Exploration of Modern Storage Systems under Failure</td>
<td>FENG QIN</td>
<td>9/1/12 – 5/31/14</td>
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<td><strong>Hewlett Packard Co.</strong></td>
<td>Exploring the Behavior of Modern Storage Systems</td>
<td>P. SADAYAPPAN</td>
<td>9/1/12 – 8/31/15</td>
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<td></td>
<td>Reducing Special Education/Reading Risk Through An Oral Reading Fluency Intervention For Urban Learners</td>
<td>ERIC FOSLER-LUSSIER, RAJIV RAMNATH</td>
<td>7/1/12 – 6/30/13</td>
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The proposed methods exploit the support from operating systems, runtime systems, existing hardware features, static compiler analysis, and/or dynamic instrumentation.
Mellanox Technologies
High Performance and Scalable Design of HDFS over InfiniBand
• D. K. Panda
8/15/12 – 8/14/13 $200,000
Research on High Performance and Scalable MPI over InfiniBand.
• D. K. Panda
8/22/12 – 8/14/13 $181,264

National Board of Medical Examiners
Virtual Patients Simulations to Assess Data-Gathering and Clinical Reasoning
• Douglas R. Danforth (Dept. of Obstetrics & Gynecology)
- Eric Fosler-Lussier
7/1/12 – 6/30/13 $149,861

National Institutes of Health
Speech Segregation to Improve Intelligibility of Noisy Speech
• DeLiang Wang
- Eric Healy (Dept. of Linguistics)
1/1/13 – 12/31/17 $1,791,143

National Institutes of Health (NIH) National Library of Medicine
An Information Fusion Approach To Longitudinal Health Records
• Albert Lai (Dept. of SBS-Biomedical Informatics)
- Eric Fosler-Lussier, Peter Embi (Dept. of SBS-Biomedical Informatics)
9/1/12 – 8/31/17 $1,536,793

National Science Foundation
CAREER: Practical Language and System Support for Reliable Concurrent Software
• Michael Bond
3/1/13 – 2/28/18 $535,143
CSR: Small: Making Software Transactional Memory More Than A Research Toy
• Michael Bond
9/1/12 – 8/31/15 $400,000
II-EN: Infrastructure To Support Desktop Virtualization Experiments For Research and Education
• Prasad Calyam (Ohio Supercomputer Center/ OARnet)
- Jay Ramanathan, Albert Lai (SBS-Dept. of Biomedical Informatics)
6/1/12 - 5/31/15 $396,311
RI: Small: Hard Clustering via Bayesian Nonparameters
• Brian Kulis
6/1/12 – 5/31/15 $439,689
Large-Scale Computation of the Phonon Boltzmann Transport Equation
• Sandip Mazumder (Dept. of Mechanical & Aerospace Engineering)
- P. Sadayappan
09/15/12 – 08/31/15 $400,000
SHF:Large: Collaborative Research: Unified Runtime for Supporting Hybrid Programming Models on Heterogeneous Architecture
• D. K. Panda
- Karen Tomko (Ohio Supercomputer Center)
7/1/12 – 6/30/15 $1,045,822
SI2-SSI: Collaborative Research: A Comprehensive Performance Tuning Framework for the MPI Stack
• D. K. Panda
- Karen Tomko (Ohio Supercomputer Center)
6/1/12 – 5/31/15 $1,251,374
CCF: EAGER: Collaborative research: Scalable Graph Mining and Clustering On Desktop Supercomputers
• Srinivasan Parthasarathy
9/1/12 – 8/31/13 $75,000
SHF: Small: Collaborative research: Elastic Fidelity: Trading-Off Computational Accuracy For Energy Reduction
• Srinivasan Parthasarathy
8/1/12 – 7/31/15 $182,000
SHF: CSR: Small: Collaborative research: Automated Model Synthesis Of Library And System Functions For Program-Environment Co-Analysis
• Feng Qin
9/1/12 – 8/31/13 $90,000
EAGER: WideSpot: Enabling Predictable Wide-Area Coverage Over Scattered Hotspots
• Prasun Sinha
9/15/12 – 8/31/13 $100,000
NeTS: Medium: Collaborative Research: Enabling Cellular Services over Unplanned Femto-Cell Deployments: From Theory to Implementation
• Prasun Sinha
6/1/12 – 5/31/15 $380,000
CAREER: Together We Rise: A Unified Multi-Input Multi-Output (MIMO) - Full Duplex Network Architecture
• KANNAN SRINIVASAN
  3/1/13 – 2/28/18 $546,604

EAGER: Design and Implementation of a Renewable Adaptive Cluster
• CHRISTOPHER STEWART
  7/1/12 – 6/30/14 $200,000

CAREER: An Integrated Treatment Of Voltage Noise And Process Variability In Many-Core and Gpu Systems With Microarchitectural Solutions
• RADU TEODORESCU
  2/1/13 – 1/31/18 $520,000

CC-NIE Integration II: Innovations To Transition A Campus Core Cyberinfrastructure To Serve Diverse and Emerging Researcher Needs
• Caroline Whitacre (Dept. of Internal Medicine)
  • D. K. PANDA, Umit Catalyurek (Dept. of SBS-Biomedical Informatics), Paul Schopis (OARnet)
  10/1/12 – 9/30/14 $997,357

Toward Efficient and Distributed Cyber-Physical Systems Design for the Smart Electric Power Grid
• Cathy Xia (Dept. of Integrated Systems Engineering)
• NESS B. SHROFF
  9/1/12 – 8/31/15 $396,222

NeTS: Small: Integrating Electronic And Visual Signals For Accurate Localization
• DONG XUAN
  • Yuan F. Zheng (Dept. Electrical and Computer Engineering)
  7/1/12 – 6/3/15 $430,000

U.S.-China Workshop On Environmental Monitoring for Public Health and Disaster Recovery
• DONG XUAN
  5/15/12 – 12/31/14 $320,000

CSR: Medium: Collaborative research: On Closed-Loop And Cross-Layer Design And Implementation Of Data Storage Systems Utilizing Extremely Scaled Nand Flash Memory Technologies
• XIAODONG ZHANG
  7/1/12 – 6/30/14 $225,000

Travel support for the 33rd IEEE International Conference on Distributed Computing Systems
• XIAODONG ZHANG
  5/1/13 – 4/30/14 $10,000

National Science Foundation
(University of Illinois subaward)
Enhanced Intellectual Services- Direct PRAC support- Super instruction Architecture For Petascale Computing
• P. SADAYAPPAN
  7/1/12 – 9/30/13 $34,597

Ohio Department of Health
Stage 1: Application For Asthma Management And Education (AAME)
• RAJIV RAMNATH
  7/9/12 – 5/31/13 $34,000

Patient Centered Outcomes Research Institute
Pilot Grants Program
A Low-cost Virtual Reality Gaming Platform for Neurorehabilitation of Hemiparesis
• Lynne Gauthier (Dept. of Physical Medicine & Rehabilitation)
  • ROGER CRAWFIS, Linda Lowes (Dept. of Health & Rehabilitation Sciences), Lise Worthen-Chaudhari (Dept. of Physical Medicine & Rehabilitation)
  6/1/12-5/31/14 $653,014

Public Works and Government Services, Canada
Compendium Interface
• MIKHAIL BELKIN
  5/10/13 – 8/31/13 $28,459

Qatar University
Information Theory Enabled Secure Wireless Networking: Scaling Laws, Network Control, and Implementation
• Can Emre Koksal (Dept. of Electrical & Computer Engineering)
  • NESS B. SHROFF
  11/15/12-11/14/15 $279,890

RNET Technologies
Scalable Multi-tiered CFD and CSD Codes for Kestrel
• P. SADAYAPPAN
  • Jack McNamara (Dept. of Mechanical and Aerospace Engineering)
  1/1/13 – 12/31/14 $320,000
<table>
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<th>Funding Source</th>
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<th>Primary Investigator</th>
<th>Co-Investigators (when applicable)</th>
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<td><strong>Internet Attack Traceback-Cross-Validation And Pebble-Trace</strong></td>
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<td><strong>Aquilent, Inc. (National Library of Medicine subaward)</strong></td>
<td><strong>A Comprehensive Workflow for Robust Characterization of Microstructure for Cancer Studies</strong></td>
<td><strong>Raghu Machiraju</strong></td>
<td>Kun Huang (Dept. of SBS-Biomedical Informatics)</td>
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<td><strong>Multivariate Heavy-Tail Phenomena: Modeling and Diagnostics</strong></td>
<td><strong>Ness B. Shroff</strong></td>
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<td><strong>Stochastic Control of Multi-Scale Networks: Modeling, Analysis And Algorithms</strong></td>
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<td><strong>Programming Models For Scalable Parallel Computing</strong></td>
<td><strong>P. Sadayappan</strong></td>
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<td><strong>A Polyhedral Transformation Framework For Compiler Optimization</strong></td>
<td><strong>P. Sadayappan</strong></td>
<td>Atanas Rountev</td>
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Scalable Fault Tolerant Runtime Technology For Petascale Computers
• P. SADAYAPPAN
8/1/08 - 7/31/12 $375,820

Scalable Data-Management, Analysis, and Visualization (SDAV) Institute
• HAN-WEI SHEN
02/15/12 – 02/14/17 $750,000

Very Large 3D Flow Field Visual Analysis
• HAN-WEI SHEN
10/28/10 – 9/30/13 $461,074

An Information Framework For Enabling Extreme-Scale Science Discovery
• HAN-WEI SHEN
9/1/10 – 8/31/13 $462,095

SciDAC Institute For Ultrascale Visualization
• HAN-WEI SHEN
9/26/07-8/31/12 $750,000

Department of Energy Small Business Technology Transfer (STTR) Phase II (with RNET Technologies)
Creating Petascale File Systems Using Application-Aware Network Offloading
• D. K. PANDA
9/15/09 – 06/30/12 $275,000

HPC Application Energy Measurement And Optimization
• D. K. PANDA
02/15/12 – 02/14/14 $325,000

Hewlett Packard
Energy and Labor Efficient Sensor Networking For Underground Data Acquisition
• NESS B. SHROFF
- Can Emre Koksal (Dept. of Electrical and Computing Engineering)
09/01/12 – 08/31/15 $300,000

Honda
Contextual Resolution Of Locational References In Human-Computer Dialogue
• ERIC FOSLER-LUSSIER
01/01/12 – 06/30/12 $59,329

International Computer Science Institute (ICSI) (Intelligence Advanced Research Projects Activity (IARPA) subcontract)
SWORDFISH: Spoken Wordsearch With Rapid Development and Frugal Variant Subword Hierarchies
• ERIC FOSLER-LUSSIER
03/05/12 – 06/30/14 $819,764

JP Morgan Chase
Enterprise Systems Research
• RAJIV RAMNATH
09/01/11 – 06/30/12 $32,000

Kitware, Inc. (Department of Energy SBIR)
Cloud Computing And Visualization Tools For Kbase
Kun Huang (SBS-Biomedical Informatics)
• RAGHU MACHIRAJU
2/1/12 – 10/31/12 $49,532

Kuzer Co.
Air Force Office of Scientific Research Small Business Technology Transfer (STTR) (AFOSR STTR)
an Auditory Scene Analysis Approach To Speech Segregation
• DELIANG WANG
01/01/12 – 12/31/13 $300,000

Mellanox Technologies, Inc:
Research on High Performance And Scalable MPI Over Infiniband.
• D. K. PANDA
4/4/04-8/14/13 $1,141,957

National Library of Medicine
A Comprehensive Workflow for Large Histology Segmentation and Visualization
• RAGHU MACHIRAJU
- Kun Huang (Dept. of SBS-Biomedical Informatics) and Lisa Lee
6/25/10 – 6/24/12 $150,000

National Science Foundation
A Language Independent Framework For Compiling Data-Intensive Applications On Highly Parallel Systems
• GAGAN AGRAWAL
9/1/08 – 08/31/12 $502,000
DC: Small: Data Intensive Computing Solutions For Neuroimage Analysis
  • GAGAN AGRAWAL
    - RAGHU MACHIRAJU
    9/15/09-8/31/13 $488,000

EXP: GeoGames – A Virtual Simulation Workbench For Teaching and Learning through a Real-World Spatial Perspective
  • Karl Ola Ahlqvist (Dept. of Geography)
  - RAJIV RAMNATH, Kathryn Plank (University Center for the Advancement of Teaching)
  10/01/11 – 09/30/13 $374,772

PC3: Collaborative Research: Wireless Sensor Networks For Protecting Wildlife And Humans
  • ANISH ARORA
    10/01/11 – 09/30/13 $178,209

CPS: Small: Collaborative Research: Localization and System Services For Spatiotemporal Actions In Cyber-Physical Systems
  • ANISH ARORA
    9/15/09-8/31/12 $200,001

Career: Geometry and High-Dimensional Inference
  • MIKHAIL BELKIN
    10/01/07 – 12/31/012 $498,972

RI: Small: Algebraic And Spectral Structure Of Data In High Dimension
MIKHAIL BELKIN
  7/1/11 – 06/30/14 $450,000

AF: Medium: Collaborative Research: Optimality In Homology – Algorithms And Applications
  • TAMAL DEY
    08/01/11 – 07/31/15 $352,896

AF: Small: Analyzing Spaces And Scalar Fields Via Point Clouds
  • TAMAL DEY
  - YUSU WANG
    08/01/11 – 07/31/14 $499,761

MCS: Reconstructing And Inferring Topology And Geometry From Point To Point Cloud Data
  • TAMAL DEY
    - Dan Burghelea (Dept. of Mathematics)
    9/1/09-8/31/12 $462,000

AF: Small: Analyzing Spaces And Scalar Fields Via Point Clouds
  • TAMAL DEY
  - YUSU WANG
    08/01/11 – 07/31/14 $499,761

CI-P: Collaborative Research: The Speech Recognition Virtual Kitchen
  • ERIC FOSLER-LUSSIER
    6/1/12 – 05/31/13 $48,509

Collaborative Research: Ri: Medium: Explicit Articulatory Models Of Spoken Language, With Application To Automatic Speech Recognition
  • ERIC FOSLER-LUSSIER
    7/1/09-6/30/13 $334,469

CAREER: Breaking The Phonetic Code: Novel Acoustic-Lexical Modeling Techniques For Robust Automatic Speech Recognition
  • ERIC FOSLER-LUSSIER
    12/15/06-11/30/12 $502,952

CPATH T Newpath: Nurturing, Through Entrepreneurship, IT World Leaders
  • David Lee
  - BRUCE WEIDE, RAJIV RAMNATH, NEELAM SOUDARAJAN, DONG XUAN, HAN-WEI SHEN,
    Waleed Ali Muhanna (Fisher College of Business), Eylem Ekici (Dept. of Electrical and Computer Engineering), Stephen Camp (Center for Entrepreneurship)
    7/1/07 – 6/30/14 $622,822

Ge&V: Medium: Collaborative Research: Large Data Visualization Using An Interactive Machine Learning Framework
  • RAGHU MACHIRAJU
  - HAN-WEI SHEN
    6/1/11 – 5/31/14 $542,002

CPS: Medium: Autonomous Driving In Mixed-Traffic Urban Environments
  • Ümit Özgüner (Dept. of Electrical and Computer Engineering)
  - BRUCE WEIDE, PAUL SIVILOTTI, Ashok Kumar
    Krishnamurthy (Dept. of Electrical and Computer Engineering), Füsun Özgüner (Dept. of Electrical and Computer Engineering)
    9/1/09-8/31/13 $1,296,683

Collaborative Research: Dynamic Staging Architecture For Accelerating I/O Pipelines
  • D. K. PANDA
    5/1/10 – 4/30/13 $90,000

Topoology-aware MPI Collectives And Scheduling For Petascale Systems With Infiniband
  • D. K. PANDA
    09/15/06-09/30/13 $920,000
SHF: Small: Designing Qos-Aware Mpi And File Systems Protocols For Infiniband Clusters
- **D. K. Panda**
  09/01/09 – 08/31/12  $491,570

EAGER: Towards New Scalable Stochastic Flow Algorithms
- **Srinivasan Parthasarathy**
  08/01/11 – 07/31/12  $150,000

Collaborative Research: Serious Play In Synthetic Worlds: Social Media Enhanced Organized Sensemaking In Emergency Response
- **Srinivasan Parthasarathy**
  09/01/11 – 08/31/14  $270,000

Global Graphs: A Middleware For Data Intensive Computing
- **Srinivasan Parthasarathy**
  - **P. Sadayappan**
    09/1/09-8/31/13  $515,997

CETI IUCRC Memberships
- **Jay Ramanathan**
  - **Rajiv Ramnath**
    10/1/06 – 04/30/12  $790,104

Center for Experimental Research In Computer Systems- Research Site
- **Jay Ramanathan**
  - **Rajiv Ramnath**
    5/1/08 – 4/30/13  $240,000

Curriculum for Accelerated Services Engineering (CASE)
- **Atanas Rountev**
  9/15/10 – 8/31/13  $356,531

CAREER: Dataflow Analysis For Modern Software Systems
- **Atanas Rountev**
  9/15/06-8/14/12  $407,000

Customizable Domain-Specific Computing
- **P. Sadayappan**
  - **Atanas Rountev**
    9/1/09-8/31/14  $749,998

Collaborative Research: An Environment For High-Productivity High-Performance Computing Using Gpus/Accelerators
- **P. Sadayappan**
  9/15/09-8/31/13  $468,492

Collaborative Research: Petascale Simulations Of Quantum Systems By Stochastic Methods
- **P. Sadayappan**
  9/1/09-8/31/13  $639,952

- **Ness B. Shroff**
  - **Prasun Sinha** and Can Emre Koksal (Dept. of Electrical and Computer Engineering)
    9/1/08 – 8/31/13  $500,000

Networking Technology and Systems (NeTS): Medium: Collaborative Research: Mobile Content Sharing: Networks: Theory To Implementation
- **Ness B. Shroff**
  - **Dong Xuan**
    7/1/11 – 6/30/15  $628,946

Networking Technology and Systems (NeTS): Large: Collaborative Research: Foundations For Network Cooperation At Signal Scale
- **Ness B. Shroff**
  07/01/2010 – 06/30/2015  $330,000

Networking Technology and Systems (NeTS) -Medium: Collaborative Research: Unifying Network Coding And Cross-Layer Optimization For Wireless Mesh Networks: From Theory To Distributed Algorithms To Implementation
- **Ness B. Shroff**
  09/01/09 – 08/31/13  $350,000

- **Prasun Sinha**
  - 9/1/07 – 8/31/12
  - $216,017


- **Radu Teodorescu**
  - Khalil Waleed (Dept. of Electrical and Computer Engineering)
  - 7/1/11 – 06/30/14
  - $400,000

AF: EAGER: Collaborative Research: Integration Of Computational Geometry And Statistical Learning For Modern Data Analysis

- **YuSu Wang**
  - Mikhail Belkin
  - 09/01/10 - 08/31/12
  - $196,000

CAREER: Geometric And Topological Methods In Shape Analysis, With Applications In Molecular Biology

- **YuSu Wang**
  - 2/1/08 – 1/31/13
  - $420,000

Automated Support For Developing Logical Reasoning Skills In Discrete Mathematics Courses

- **Bruce Weide**
  - Harvey Friedman (Dept. of Mathematics), Dennis Pearl (Dept. of Statistics)
  - 3/1/10-8/31/12
  - $199,775

CPA-SEL: Collaborative Research: Continuing Progress Toward Verified Software

- **Bruce Weide**
  - Harvey Friedman (Dept. of Mathematics)
  - 9/1/08 – 02/28/13
  - $232,591$279,107

NeTS: Small: Connected Coverage Of Wireless Sensor Networks In Theoretical And Practical Settings

- **Dong Xuan**
  - Ten-Hwang Lai
  - 9/1/09-8/31/12
  - $400,000

SI2-SSE: A Unified Software Environment To Best Utilize Cache And Memory Systems On Multicores

- **Xiaodong Zhang**
  - 6/1/12 – 5/31/15
  - $500,000

Travel Support For The 32nd IEEE International Conference On Distributed Computing Systems

- **Xiaodong Zhang**
  - 04/01/12 – 03/31/13
  - $10,000

Basic Research For Developing SSD-Based Caching And Hybrid Storage Systems

- **Xiaodong Zhang**
  - 8/1/09-7/31/13
  - $400,000

Collaborative Research: CSR-PSCE, TM: Effective Resource Sharing And Coordination Inside Multicore Processors For High Throughput Computing

- **Xiaodong Zhang**
  - 9/1/08 – 8/31/12
  - $330,000

Nile University:

Educational Support For Nile University In The Area Of Wireless Communications

- **Ness B. Shroff**
  - 3/1/10 – 8/31/12
  - $15,000

NVIDIA Corporation

High-Performance MPI Design For Infiniband Clusters With GPUs

- **D. K. Panda**
  - 07/01/11 – 03/31/13
  - $115,237

Pennsylvania State University (Army Office of Research Multidisciplinary University Research Initiative (ARO MURI) Subaward)

Design Of Urban Sensor Networks

- **Ness B. Shroff**
  - 6/15/07 – 05/19/13
  - $300,000

Raytheon BBN Technologies

GENI Educational Kits for Wireless Sensor Networks

- **Anish Arora**
  - Rajiv Ramnath
  - 10/01/11 – 09/30/14
  - $204,884

RNET (Air Force Office of Scientific Research Small Business Technology Transfer Program [AFOSR STTR])

Highly-Scalable Computational-Based Engineering Algorithms for Emerging Parallel Machine Architectures

- **P. Sadyappan**
  - Co-PI: Sandip Mazumder (Dept. of Mechanical and Aerospace Engineering)
  - 01/01/12 – 09/30/12
  - $47,097
RNET Technologies  
(Department of Energy Small Business Technology Transfer Program [DOE STTR])

*Catalytic Converter Modeling on Emerging Personal Computers and Small Clusters*
Sandip Mazumder (Dept. of Mechanical and Aerospace Engineering)  
- P. SADAYAPAN  
  2/20/12 – 11/19/12  $46,428

*Accelerating Parallel Numerical Libraries to Petascale and Beyond*
- P. SADAYAPAN  
  8/15/10 – 8/31/12  $245,000

Uniformed Services University Health Sciences  
– Tri-Service Nursing:
*Effectiveness and Benefit of Two STI Prevention Delivery Methods for Military Women*
  - Nancy Ryan-Wenger (College of Nursing)  
  - Co-PI: Elizabeth Barker (College of Nursing), Maria Palazzi (Advance Center for Computer Art and Design), Rajiv Ramnath, Victoria Von Sadovszky (College of Nursing)  
  8/1/11 – 7/31/14  $660,959

University of Texas at Austin  
(National Science Foundation subaward)
*World-class Science Through World Leadership in HPC*
- D. K. PANDA  
  10/1/10 – 9/30/13  $172,616

Xerox Corporation
*Customization and Individualization Of Reading Materials for an Individual or Group*
- ERIC FOSLER-LUSSIER  
  7/1/11 – 08/31/12  $98,468

Yale University  
(National Institute of Health (NIH) Subaward)
*Acute Coronary Syndrome and Care-Seeking Delay: A Web Based Behavioral Study*
- RAJIV RAMNATH  
  - Curtis Haugtvedt (Dept. of Marketing and Logistics)  
  9/1/07 – 4/30/12  $228,239

2012 - 2013 GIFTS RECEIVED

Arnab Nandi  
NEC Research Gift  
$20,000

Arnab Nandi & Srinivasan Parthasarathy  
Google Award Gift  
$49,003.04

D. K. Panda  
NVIDIA Corporation  
$115,000

D. K. Panda  
Intel  
$50,000

Rajiv Ramnath  
Maarg  
$14,000

Prasun Sinha  
Toyota  
$10,000

Xiaodong Zhang  
IBM Faculty Award  
$25,000

Xiaodong Zhang  
IBM  
$20,000
ARTIFICIAL INTELLIGENCE


Graphics


NETWORKING


SOFTWARE ENGINEERING / PROGRAMMING LANGUAGES


SYSTEMS


Theory

Gagan Agrawal
Associate Editor
*IEEE Transactions on Cloud Computing*
*International Journal of Next Generation Computing (IJNGC)*

Anish Arora
Journal Editor
*New Generation Computing*
*Real Time Systems*
Editor
*Journal of Self Computing. (Journal).*

Mikhail Belkin
Associate Editor
*The Journal of Machine Learning Research.*
*IEEE Transactions on Pattern Analysis and Machine Intelligence.*

Tamal Dey
Journal Editorial Board
*Discrete & Computational Geometry*
*Journal of Computational Geometry*
Journal Associate Editor
*Graphical Models*

Eric Fosler-Lussier
Journal Editorial Board
*Journal of Experimental Linguistics.*
Journal Associate Editor
*ACM Transactions on Speech and Language Processing*
*Transactions of the Association for Computational Linguistics*
Confernece Leadership
Program Chair, North American Association for Computational Linguistics Human Language Technologies Conference (NAACL HLT)
Area Chair (3 yr term), IEEE ICASSP, IEEE International Conference on Acoustics, Speech, and Signal Processing,

Ten-Hwang Lai
Editor
*ACM/Springer Wireless Networks*
*International Journal of Ad Hoc and Ubiquitous Computing*
*International Journal of Sensor Networks*
Confernece Leadership
Co-General Chair, 2012 IEEE 32nd International Conference on Distributed Computing Systems

Raghu Machiraju
Associate Editor
*IEEE Transactions on Visualization and Computer Graphics*
*IEEE Transactions of Visualization and Graphics*

D. K. Panda
Associate Editor
*IEEE Transactions on Computers*
 Subject Area Editor
*Journal of Parallel and Distributed Computing*
Confernece Leadership
Program Chair, International Symposium on High Performance Computing (HiPC)

Sririvasan Parthasarathy
Associate Editor or Action Editor
*ACM Transactions on Knowledge Discovery and Data Mining*
*Data Mining and Knowledge Discovery: An International Journal*
*Distributed and Parallel Databases*
*Journal of Parallel and Distributed Computing*
*IEEE Transactions on Knowledge and Data Engineering*
*SIGKDD Newsletter*
Confernece Leadership
Chair of the Steering Committee for the SIAM Data Mining Conference

Atanas Rountev
Editorial Board
*Journal of Information and Software Technology*
*Journal of Object Technology*

Han-Wei Shen
Manuscript Guest Editor
*IEEE Transactions on Visualization and Computer Graphics: Special Issue on Pacific Vis*
*IEEE Computer Graphics and Applications, Special Issue On Extreme Scale Visual Analytics*
*2012 IEEE Computer Graphics and Applications Special Issue On Extreme Scale Visual Analytics*
Associate Editor
*Journal of Visualization*
*Journal of Computer Science and Technology*

Ness B. Shroff
Technical Editor
IEEE Network Magazine
Editorial board
Network Science Journal
Associate Editor
Computer Networks

**Prasun Sinha**
Journal Editorial Board
IEEE Transactions on Mobile Computing (TMC)
Guest Editor
Special Section on ICDCN, Pervasive and Mobile Computing (PMC),

**Christopher Stewart**
Chief Editor
“IEEE Sustainable Computing Register.” IEEE Special Technical Committee on Sustainable Computing Newsletter

**DeLiang Wang**
Co-Editor-in-Chief
Neural Networks
Editor
Cognitive Neurodynamics
EURASIP Journal on Audio, Speech, & Music Processing
Neural Computing & Applications
IEEE Transactions on Audio, Speech, and Language Processing
Cognitive Computation

**Yusu Wang**
Associate Editor
Journal of Computational Geometry.

**Dong Xuan**
Journal Editor
IEEE Transactions on Distributed and Parallel Systems (TPDS)
Journal of Ad Hoc & Sensor Wireless Networks

**Xiaodong Zhang**
Editorial Board
IEEE Micro
Journal of Parallel and Distributed Computing

**Colloquiums**

**Distinguished Guest Lecturers**

**Chandrjit Bajaj**
The University of Texas - Austin
Multi-Component Assembly Prediction: 3D Jigsaw Puzzles

**Renee J. Miller**
University of Toronto
On Schema Discovery

**Richard Stallman**
Free Software Foundation
Free Software and Your Freedom

**Guest Speakers**

**Azza Abouzied**
Yale University
Solving the Scalability, Flexibility and Usability Challenges of Database Systems

**Danielle Basset**
University of California, Santa Barbara
Distilling Predictive Network Structure in Complex Biological Systems

**Spyros Blanas**
University of Wisconsin, Madison
High-Performance Main-Memory Data Management
Ceren Budak
University of California, Santa Barbara
Understanding and Managing the Diffusion of Information in Online Social Networks

Michael Dinitz
The Weizmann Institute of Science
Approximating Spanners via Convex Relaxations

Mark Harris
NVIDIA
CUDA 5 and Beyond

Jeff Huang
University of Washington
Big Data in Search and Beyond: By People, For People

Dr. Hyun-Wook Jin
Konkuk University, Seoul, Korea
OS Support for High-Performance Networking over Multi-Core Processors

Marc Khoury
Microsoft Research
Progressive Graphs for Large Graph Visualization

K. Rustan M. Leino
Microsoft Research
Dafny: a Programming System for Program Correctness

Jennifer Neville
Purdue University
Prediction in Complex Networks: The Impact of Structure on Learning and Inference

Adam O’Neill
Boston University
Efficiently Searchable Encryption: A Practical Foundation for Privacy in Outsourced Databases

Chunyi Peng
University of California, Los Angeles
Network Support for Mobile Devices and Applications: Infrastructural Limitations and Solutions

Don Sheehy
INRIA Saclay
A New Approach to Output-Sensitive Voronoi Diagrams and Delaunay Triangulations

Anastasios Sidiropoulos
University of Illinois, Urbana-Champaign
Simplification of Metric Spaces and Its Algorithmic Applications

Stefano Tessaro
Massachusetts Institute of Technology
Theoretical Foundations for Practical Cryptography

Tao Zhang
Starkey Laboratories, Inc.
Signal Processing Research for Digital Hearing Aids: Challenges, Solutions and Future Directions

Guest Speakers Presented jointly with Biomedical Informatics

Shay Cohen
Columbia University
Improving the Accuracy, Efficiency and Data Use for Natural Language Parsing

Heng Ji
Queens College, City University of New York
Cross-source Information Extraction and Knowledge Base Population

Yanjun Qi
NEC Labs, America
Machine Learning in Biomedical Informatics

Alan Ritter
University of Washington
Extracting Knowledge from Informal Text

Feng Yue
University of California, San Diego
Comprehensive Analysis of the cis-Regulatory Elements in the Mammalian Genome
# Students

## Ten Year Statistical History

<table>
<thead>
<tr>
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<td>Students Taught</td>
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<td>12,208</td>
<td>10,623</td>
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<td>14,523</td>
<td>12,457</td>
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</tbody>
</table>

## The Graduate Program

The 2012 – 2013 academic year brought a major change to The Ohio State University as we moved from a quarters timeline to semesters. All courses were re-designed and updated to suit the new 14 week class time. It was a massive undertaking requiring three years of preparation. In the final analysis, it is found to be a success and should help drive the Department Of Computer Science And Engineering to even greater heights.

The Graduate program continues to excel. Autumn 2012 gave us our 500th Doctorate graduate, Justin Holewinski. This gives us an average of 11 Ph.D. graduates per year. Our Masters program continues to grow and gain in popularity.
## Doctorates Granted

<table>
<thead>
<tr>
<th>Graduate</th>
<th>Advisor</th>
<th>Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATTHEW BOGGUS</td>
<td>Dr. Roger Crawfis</td>
<td>Toledo, Ohio, USA</td>
</tr>
<tr>
<td>Dissert Title</td>
<td>Modeling, Evaluation, Editing, and Illumination of Three Dimensional Mazes and Caves for Computer Games</td>
<td>Senior Lecturer, The Ohio State University</td>
</tr>
<tr>
<td>Vita</td>
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</tr>
<tr>
<td>OLEKSIY BUSARYEV</td>
<td>Dr. Tamal Dey</td>
<td>Odessa, Ukraine</td>
</tr>
<tr>
<td>Dissert Title</td>
<td>On Computing and Tracking Geometrical and Topological Features</td>
<td>Google, Inc., Mountain View, California, USA</td>
</tr>
<tr>
<td>MATTTHEW BOWGUS</td>
<td>Dr. Roger Crawfis</td>
<td>Toledo, Ohio, USA</td>
</tr>
<tr>
<td>Dissert Title</td>
<td>Modeling, Evaluation, Editing, and Illumination of Three Dimensional Mazes and Caves for Computer Games</td>
<td>Senior Lecturer, The Ohio State University</td>
</tr>
<tr>
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<tr>
<td>BOXUAN GU</td>
<td>Dr. Dong Xuan</td>
<td>Nanjing, China</td>
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<tr>
<td>Dissert Title</td>
<td>Context-Aware Malicious Code Detection</td>
<td>A10 Networks, Sunnyvale, California, USA</td>
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<td>WILLIAM HARVEY</td>
<td>Dr. Yusu Wang</td>
<td>Columbus, Ohio, USA</td>
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<tr>
<td>Dissert Title</td>
<td>Understanding High-Dimensional Data Using Reeb Graphs</td>
<td>Nationwide Childrens’ Hospital; Columbus, Ohio, USA</td>
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<tr>
<td>JUSTIN HOLEWINSKI</td>
<td>Dr. P. Sadyappan</td>
<td>Columbus, Ohio, USA</td>
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<tr>
<td>Dissert Title</td>
<td>Automatic Code Generation for Stencil Computations on GPU Architectures</td>
<td>NVIDIA, Corp., Durham, North Carolina, USA</td>
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<td>KE HU</td>
<td>Dr. DeLiang Wang</td>
<td>Pengzhou, China</td>
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<tr>
<td>Dissert Title</td>
<td>Speech Segregation in Background Noise and Competing Speech</td>
<td>Kuzer, Inc.</td>
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<td>WEI JIANG</td>
<td>Dr. Gagan Agrawal</td>
<td>Tianmen, China</td>
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<tr>
<td>Dissert Title</td>
<td>A Map-Reduce-Like System for Programming and Optimizing Data-Intensive Computations on Emerging Parallel Architectures</td>
<td>Cluster R&amp;D, Quantcast, San Francisco, California, USA</td>
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<td>Vita</td>
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<tr>
<td>TAEEWOO Kwon</td>
<td>Dr. Anish Arora</td>
<td>Columbus, Ohio, USA</td>
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<tr>
<td>Dissert Title</td>
<td>Reasoning About Wireless Protocol Behavior</td>
<td>Scientific Forming Technologies, Corp.</td>
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<tr>
<td>JING LI</td>
<td>Dr. Anish Arora</td>
<td>Hefei, China</td>
</tr>
<tr>
<td>Dissert Title</td>
<td>Translational Research of Suramin as a Chemosensitizer in Pancreatic Cancer</td>
<td>Siemens Technology, Beijing, China</td>
</tr>
<tr>
<td>Vita</td>
<td></td>
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<tr>
<td>SHUANG LI</td>
<td>Dr. Ness Shroff</td>
<td>Shiyan, Hubei, China</td>
</tr>
</tbody>
</table>
Managing Dynamic Spectrum Access Under Uncertainty In Cognitive Radio Networks
B.S.Honors, Wuhan University of Technology; M.S., Auburn University; M.S., The Ohio State University
Yahoo!, Sunnyvale, California, USA

TANTAN LIU
Data Mining over Hidden Data Sources
B.Engr., University of Science and Technology of China; Mech.Engr., Chinese Academy of Sciences; M.Appl. Stats., The Ohio State University
Google, Inc., Mountain View, California, USA

STEVEN MARTIN
Scaling Data Transformations for Low-Latency Large-Scale Data Analysis
B.S., Rensselaer Polytechnic University; M.S., The Ohio State University
Two Sigma Investment, New York City, NY, USA

BOONTHANOME NOUANESENGY
High-Concurrency Visualization on Supercomputers
B.S. Civil Eng., University of Arkansas
Los Alamos National Laboratory, Los Alamos, New Mexico, USA

SUNDARESAN RAMAN
Phenotypical Analysis of Tumor Microenvironment
B.Engr., Birla Institute of Technology and Science; M.S., The Ohio State University
Birla Institute of Technology and Science - Pilani, Pilani, Rajasthan, India

PAWAS RANJAN
Discrete Laplace Operator: Theory and Applications
B.Tech., Dr. Babasaheb Ambedkar Technological University
Conviva, San Mateo, California, USA

ENHUA TAN

B.Engr., University of Science and Technology of China; Master’s, Chinese Academy of Science; M.S., The Ohio State University
LinkedIn Corp., Mountain View, California, USA

YING TU
Focus-Based Interactive Visualization For Structured Data
B.Engr., Zhejiang University; M.S., The Ohio State University
Microsoft Inc., Redmond, Washington, USA

XINTIAN YANG
Towards Large-Scale Network Analytics
B.Engr., Harbin Institute of Technology; M.S., The Ohio State University
Google, Inc., Mountain View, California, USA

WENJIE ZENG
Topics in Energy Efficiency of Low-Power Wireless Sensor Networks
B.Engr., Shanghai Jiao Tong University; M.S., The Ohio State University
Google, Inc., Seattle, Washington, USA

Masters grad Yi Liu (2nd right) and friends.
Masters Graduates

Name Advisor Home Vita

Uzma Arjunum
Gagan Agrawal
Bareilly, India
B.Engr., University of Pune

Praseeda Badami
Atanas Rountev
Upper Arlington, Ohio, USA
B.S.Cptr.Sci.Engr., The Ohio State University

Subha Balaraman
Rajiv Ramnath
Chennai, India
B.Engr., Anna University

Deepa Balasubramanian
P. Sadayappan
Chennai, India
B.Tech., Anna University

Narendra Ram Chandraseharan
Jayashree Ramanathan
Columbus, Ohio, USA
Bachelor’s, Regional Engineering College, Bharathidasan University

Jau-Yuan Chen
Feng Qin
Taipei, Taiwan, ROC
B.S., M.P.H., National Taiwan University

Zhizhe Chen
Feng Qin
Langyan, China
B.S., M.S., Zhejiang University

Yogesh Chidambarnathan
P. Sadayappan
Bangalore, India
B.Tech., Birla Institute of Technology

Tyler Clemens
Srinivasan Parthasarathy
Reynoldsburg, Ohio, USA
B.A., Capital University

Jie Cui
Luís Rademacher
Shanghai, China
B.Engr., Shanghai University

Manojprasadh Dhanapalan
Rajiv Ramnath
Tiruchchirappalli, India
B.Engr., Anna University

Vijay Dhanraj
Dhabaleswar Panda
Chennai, India
Bachelor’s, Anna University

Dhinesh Dharman
Ness Shroff
Chennai, India
B.Tech., National Institutes of Technology, India

Abhishek Dharmapurikar
Jayashree Ramanathan
Aurangabad, India
B.Tech., University of Pune

Puneeth Doddalingappa Nagarathna
Rajiv Ramnath
Bangalore, India
Bachelor’s, Visveswaraiah Technological University

John Eisenlohr
P. Sadayappan
Columbus, Ohio, USA
B.A., Swathemore College; M.A., Rice University (Mathematics); Ph.D., Rice University

Saranya Devi Ganesan
Rajiv Ramnath
Chennai, India
Bachelor’s, Anna University

Cynthea Rajam Godwin
Bruce Weide
Columbus, Ohio, USA
B.Engr., Anna University

Jeswin Samuel Godwin
P. Sadayappan
Chennai, India
B.Engr., Anna University; M.S., University of Florida

Aravind Gopalakrishnan
Rajiv Ramnath
Chennai, India
B.Tech., Annan University

Matthew Goyder
Srinivasan Parthasarathy
Birmingham, UK
B.S., Youngstown State University
GEORGE GREEN
Rajiv Ramnath
Columbus, Ohio, USA
B.A., The Ohio State University; M.A., The Ohio State University; J.S.D., The Ohio State University

KUN HAN
DeLiang Wang
Chuzhou, China
B.Engr., Nanjing University of Aeronautics and Astronautics; M.s., University of Science and Technology of China

WILLIAM HARVEY
Yusu Wang
Columbus, Ohio, USA
B.A., B.S., University of Washington

THOMAS HENRETTY
P. Sadayappan
Akron, Ohio, USA
B.S.Cptr.Sci.Eng., The Ohio State University

ZIQI HUANG
Luis Rademacher
Hangzhou, Zhejiang, China
B.S., Zhejiang Science and Technical University

JAI JASWANI
Tamal Dey
New Delhi, India
Bachelor’s, University of Delhi

PRASANTH JAYACHANDRAN
Arnab Nandi
Erode, India
B.Engr., Birla Institute of Technology an Science

VINH KHUC
Rajiv Ramnath
Ho Chi Minh City, Vietnam
Diploma, Moscow State University

KISHOR YADAV KOMMANABOINA
P. Sadayappan
Hyderabad, India
B.S. International Institute of Information Technology, Hyderabad

ONUR KUCUKTUNC
Umit Catalyurek
Ankara, Turkey
B.S., M.S., Bilkent University

SHWETA KULKARNI
Rajiv Ramnath
Pune, India
Bachelor’s, University of Pune

MICAH LAMB
Roger Crawfis
Granville, Ohio, USA
B.S., The Ohio State University

CHEN LI
Christopher Stewart
Taiyuan, China
Bachelor’s, Hangzhou University

XINYU LI
Feng Qin
Songyuan, China
B.S., Beijing University of Posts and Telecommunications

YIXUE LI
Rajiv Ramnath
Luzhou, China
Bachelor’s, Northern Jiaotong University

ZHIZHOU LI
Ten-Hwang Lai
Zhongshan, China
B.Engr., Master’s, Tsinghua University

WENJIE LIN
Ten-Hwang Lai
Fuzhou, Fujian
B.Engr., Beijing University of Posts and Telecommunications

YI LIU
Rajiv Ramnath
Changyuan, China
BEngr., Chongqing University

MIAO LUO
Dhabaleswar Panda
Shijiazhuang, China
B.Engr., Beijing University of Posts and Telecommunications

THOMAS LYNCH
Rajiv Ramnath
Toledo, Ohio, USA
B.S., The Ohio State University (Social Welfare); B.S., Bowling Green

STEVEN MARTIN
Han-Wei Shen
New York City, New York, USA
B.S., Rensselaer Polytechnic Institute

ANANTH MAHADEVAN MURALIDHARAN
Rajiv Ramnath
Coimbatore, India
Bachelor’s, Bharathiar University
<table>
<thead>
<tr>
<th>Name</th>
<th>Degrees and Institutions</th>
</tr>
</thead>
</table>
| Ragavendar Nagapattinam Ramamurthi | P. Sadayappan  
Coimbatore, India  
Bachelor’s, Anna University |
| Vineet Nair                 | Han-Wei Shen  
Mumbai, India  
B.Engr., University of Mumbai |
| Arun Narayanan              | DeLiang Wang  
Kannur, India  
B.Tech., University of Kerala |
| Balaji Palaniswami         | Rajiv Ramnath  
Coimbatore, India  
B.Engr., P.S.G. College of Technology, Bharathiar University; M.S., Wayne State University |
| Rohan Patil                | Rajiv Ramnath  
Bangalore, India  
B.Engr., Visveswaraih Technological University |
| Mohammed Rahman            | P. Sadayappan  
Dublin, Ohio, USA  
B.S., M.S., Bangladesh University of Engineering and Technology; M.B.A., University of Dhaka; M.B.A, M.S., Wright State University |
| Satyajeet Raie             | Jayashree Ramanathan  
Pune, India  
Bachelor’s, University of Pune |
| Shriram Ramamurthy         | Rajiv Ramnath  
Chennai, India  
B.Engr., Coimbatore Institute of Technology |
| Jithendra Kumar Rangaraj   | Rajiv Ramnath  
Coimbatore, India  
B.S., M.S., Anna University |
| Mahesh Ravishankar         | P. Sadayappan  
Bangalore, India  
B.A., Indian Institute of Technology, Madras |
| Chethan Rudramuni          | Rajiv Ramnath  
Bangalore, Karnataka, India  
B. Philosophy, Visveswaraih Technical University |
| Karthik Raj Santhalingam   | P. Sadayappan  
Columbus, Ohio, USA  
Bachelor’s, Anna University |
| Alhad Sapre                | Jayashree Ramanathan  
Pune, India  
Bachelor’s, University of Pune |
| Ashwin Saraf               | Eric Fosler-Lussier  
Calcutta, India  
B.Tech., National Institutes of Technology, India |
| Rohit Ronur Sasikumar      | Srinivasan Parthasarathy  
Bangalore, India  
B.Engr., Visveswaraih Technological University |
| Abhijit Shirke             | Jayashree Ramanathan  
Pune, India  
Bachelor’s, |
| Himanshu Shivhare          | Mikhail Belkin  
Ghaziabad, Uttar Pradesh, India  
B.S., Uttar Pradesh Technical University |
| Jonathan Silliman          | Atanas Rountev  
Ayersville, Ohio, USA  
B.S.Cptr.Sci.Eng., The Ohio State University |
| Ritu Singh                 | Eric Fosler-Lussier  
Haryana, India  
Bachelor’s, University of New Delhi |
| Chaitanya Solapurkar       | Srinivasan Parthasarathy  
Bangalore, India  
Bachelor’s, Visveswaraih Technological University |
| Rachit Sood                | Jayashree Ramanathan  
Belgaum, India  
Visveswaraih Technological University |
| Ankush Srivastava          | Jayashree Ramanathan  
Bareilly, India  
National Institutes of Technology, India |
SAKTHEESH SUBRAMONIAPILLAI AJEEWA
Rajiv Ramnath
Chennai, India
B.Engr., Anna University

YIPING SUN
Han-Wei Shen
Tianjin, China
B.S., Nankai University

ADITI TAGORE
Bruce Weide
Kolkata, India
B.Tech., West Bengal University of Technology

SANKEE TAVAREGERI
P. Sadayappan
Hubli, India
B.S., National Institutes of Technology, India

JIN TENG
Dong Xuan
Shanghai, China
B.Engr., Master's, Shanghai Jiao Tong University

KARTHIK TUNG GOPINATH
Arnab Nandi
Bangalore, India
B.Engr., Visvesvaraiyah Technological University

AISHWARYA VENKATARAMAN
Rajiv Ramnath
Bangalore, India
Bachelor’s, Birla Institute of Technology and Science

YE WANG
Srinivasan Parthasarathy
Xinyi, China
B.Engr., Huazhong University of Science and Technology

SEAN WEDIG
Neelam Soundarajan
Columbus, Ohio, USA
Bachelor’s, Case Western University

ALEC WISEMAN
P. Sadayappan
Williamsburg, Virginia, USA
B.S., University of Rio Grande; M.S., College of William and Marty

ANNATALA WOLF
Jayashree Ramanathan
Columbus, Ohio, USA
B.A. University of Illinois-Springfield; B.S.Cptr.Sci. Eng., The Ohio State University

RONG XIE
Rajiv Ramnath
Hezhou, China
B.Engr., South Central University of Nationalities; Master’s, Chonbuk National University

DACONG YAN
Atanas Rountev
Quanzhou, China
Bachelor’s, Shanghai Jiao Tong University

DONG ZHANG
Anish Arora
Shenyang, China
Bachelor’s, Beijiang University of Posts and Telecommunications

SEN ZHANG
Dong Xuan
Shenyang, China
B.Engr., Northeastern University

XIAOJIA ZHAO
DeLiang Wang
Nanyang, China
B.S., Nankai University

DANIEL ZIEMBA
Rajiv Ramnath
St. Clairsville, Ohio, USA
B.S.Cptr.Sci.Engr., The Ohio State University
The 2012-2013 academic year was a true challenge for the Undergraduate Advising Office. The retirement of Peg Steele meant understaffing for a brief time, but with Nikki Strader moving into Peg's position and with the addition of Chelsea Norris, the office was soon back up to speed. With the change to semesters, the Advising Office was one of the busiest places in Dreese Labs. The lines were long, but students were patient and understanding, and generally everyone went away satisfied.

The Advising Office, working with new Associate Chair Neelam Soundarajan, continues to respond to the needs of the students. The popularity of the Computer Science majors is once again on the rise, requiring enrollment management, so the minimum GPA increased from 2.0 to 2.5 in January 2013 and will increase again to 3.0 effective May 2014.

Students have 3 options for a Computer Science major: a B.S. from the College of Engineering (BSCSE); a B.S. from the College of Arts and Sciences (BSCIS); or a B.A. from the College of Arts and Sciences (BACIS). The most popular of the three is the BSCSE, but the BSCIS and BACIS are growing as well.

PEG STEELE, Coordinator of Academic Advisement, retired at the end of October 2012. She was the coordinator of academic advising for the department for 14 years. Peg was an active advocate for academic advising locally at Ohio State and nationally through NACADA (National Academic Advising Association), for which she is completing a three-year tenure on the Board of Directors. Peg has received many accolades including “Outstanding Advisor” from NACADA in 2004 and twice from ACADAOS (Academic Advising Association at Ohio State) during her career.

NIKKI STRADER, formerly Academic Advisor & Staff Assistant and now Academic Advising Coordinator, has been with the department since 2003. She is an active member of ACADAOS (Academic Advising Association at Ohio State), for which she was President from 2006 to 2008 and from which she received one of two “Outstanding Advisor” awards in 2007. She is also a musicologist, having presented and written about the composer Benjamin Britten, the subject of her dissertation.

CHELSEA NORRIS, Academic Advisor. Chelsea is new to OSU and began advising in CSE in January. She was previously working as an advisor at Ohio University after earning her Masters of Arts in Higher Education and Student Affairs. Starting this summer, she will serve as the primary contact for all first year pre-CSE students, instructor for CSE survey classes and facilitator for orientation.

MARY JO DEERVESTER, Academic Advisor & Staff Assistant. Mary Jo graduated from OSU in 1971 with a Bachelor of Science degree in Education. (Major: English; Minor: Psychology) She followed that in 1983 with a Master’s Degree in Guidance and Counseling. Mary Jo previously worked as an Academic Advisor at Columbus State Community College and as an Academic Advisor/Staff Assistant for the OSU College of Engineering.

JEFF WALSH, Graduate Advising Assistant. He is working on his Master’s degree in Computer Science & Engineering, with a focus on computer graphics, and he intends to graduate after Spring semester 2014.
College of Arts & Sciences - Undergraduate Degrees Achieved

Name Degree Honors Home

Donald Lee Bacharowski; BS Columbus, Ohio, USA
Matthew David Bear; BS Powell, Ohio, USA
Shoshana Lynn Berleant; BS Summa Cum Laude with Honors in the Arts and Sciences Little Rock, Arkansas, USA
Daniel James Bibyk; BS Columbus, Ohio, USA
Nathan Wise Blackstone; BS Cum Laude with Honors in Arts and Sciences Columbus, Ohio, USA
Andrew Wallace Buelow; BS Centerville, Ohio, USA
Timothy Ellis Carpenter; BS Westerville, Ohio, USA
Matthew Garrett Eberts; BS Hamden, Ohio, USA
Moustafa Hosni Eid; BS Cum Laude Columbus, Ohio, USA
Justin James Frye; BS Liberty Center, Ohio, USA
Simeon Pandov Georgiev; BS Cincinnati, Ohio, USA
Mark Samuel Gutentag; BA Lewis Center, Ohio, USA
Alexander Christopher Heck; BA Lebanon, Ohio, USA
Eric Joshua Hill; BS Avon Lake, Ohio, USA
Jay Francis Hines; BS Upper Arlington, Ohio, USA
Trevor Douglas Holl; BS Chardon, Ohio, USA
Cameron Patrick Jett; BA Dayton, Ohio, USA

Frans Raharja Kurniawan; BS Indonesia
David Charles Lashock; BS Columbia Station, Ohio, USA
Benjamin Elliott Morris; BS Marion, Ohio, USA
Jason Richard Motz; BS Bath, Ohio, USA
Thuan Nguyen; BA Columbus, Ohio, USA
Edward Dessloch Powell; BS Selkirk, New York, USA
Christopher Allen Price; BS Hilliard, Ohio, USA
Philip Joseph Ross; BS Canton, Ohio, USA
Steven William Ruiz; BS West Chester, Ohio, USA
Breawn Darnay Schoun; BA Hilliard, Ohio, USA
Ian J. Shortridge; BS Toledo, Ohio, USA
Drake Allen Sigler; BS Logan, Ohio, USA
Brian James Sommers; BS Brooklyn, Ohio, USA
David Richard Spetz; BS Cleveland, Ohio, USA
Charles Matthew Stockton; BS Eaton, Ohio, USA
Daniel Lowe Tedder; BS Columbus, Ohio, USA
Jamison Michael Trefzger; BS Westerville, Ohio, USA
Sanjay Verma; BS Columbus, Ohio, USA
Zeya Jack Wang; BA Cincinnati, Ohio, USA
Max Renaud Weinberg; BS Bexley, Ohio, USA
STEVEN DAVID WILSON; BS
Cambridge, Ohio, USA

JIANAN ZHENG; BS
Dalian, China

ADAM CHRISTOPHER ZIMMERMAN; BS
Hilliard, Ohio, USA

COLLEGE OF ENGINEERING UNDERGRADUATES

Name
Honors
Home

JESSE MITCHELL AKERS
Powell, Ohio, USA

 Sofya Olegovna Akhnameteyva
Novosibirsk, Russia

DAVID LAWRENCE ALBERT
Magna Cum Laude
Dublin, Ohio, USA

KYLE DAVID ALBERT
Magna Cum Laude
Brook Park, Ohio, USA

BOYAN ALEXANDROV
Sofia, Bulgaria

MIHIR A. AMIN
Cum Laude
Dublin, Ohio, USA

CHRISTOPHER NICHOLAS ASHTON
Cincinnati, Ohio, USA

SAMUAL JAMES BANTNER
Pataskala, Ohio, USA

LOWELL CLIFFORD BATeman
Cincinnati, Ohio, USA

SCOTT ALLEN BEAber
Columbus, Ohio, USA

VISHAL BHATNAGAR
Mason, Ohio, USA

Tiffany Esther Eline Bogantz
Magna Cum Laude
Johnstown, Ohio, USA

SERGIY BORYsov
Topeka, Kansas, USA

NATHAN LEE Braid
Pickerington, Ohio, USA

RYAN WILLIAM BROWN
Dublin, Ohio, USA

DAVID OLIVER BURL
with Honors Research Distinction in Computer Science and Engineering
Chagrin Falls, Ohio, USA

KEVIN JAMES CANTWELL
Westlake, Ohio, USA

STEVEN JACOB CASSIDY
Aurora, Ohio, USA

LAP HOU CHan
Macau, China

HAOCHI CHEN
Columbus, Ohio, USA

JOSEPH STEVEN CHIRICO
Avon Lake, Ohio, USA

SAGAR KANTILAL CHOPDA
Nasik, India

JAHI ASA SEDALE CROUCH
Columbus, Ohio, USA

GRANT EDWARD CURELL
Centerville, Ohio, USA

RYAN T. CUTLER
Cum Laude
Strongsville, Ohio, USA

ANDREW DAVID DAUGHTERS
Columbus, Ohio, USA

KEVIN PAUL DAVID
Cum Laude
with Honors in Engineering
Sylvania, Ohio, USA
Evan Michael Dawson  
Lancaster, Ohio, USA

William Alan Dazey, Jr.  
Canton, Ohio, USA

Christopher Lee Dean  
Summa Cum Laude  
with Honors in Engineering  
with Honors Research Distinction in Electrical and Computer Engineering  
Columbus, Ohio, USA

Jeffrey Ryan Depassio  
Columbus, Ohio, USA

Michael Detwiler  
Hilliard, Ohio, USA

Sada Yero Diallo  
Columbus, Ohio, USA

Nathaniel Philip Dikeman  
Magna Cum Laude  
Cincinnati, Ohio, USA

Connor Dockry  
Youngstown, Ohio, USA

Colin Francis Drake  
Bellbrook, Ohio, USA

Maxwell Land Elliott  
Worthington, Ohio, USA

Oscar Flores  
Tehuixtlera, Mexico

Vince Lee Fonte  
Waynesburg, Ohio, USA

Joel David Friedly  
Miamisburg, Ohio, USA

Jeremy Heath Gardner  
Worthington, Ohio, USA

Calvin Matthew Goodman  
Summa Cum Laude  
Columbus, Ohio, USA

Michael Andrew Griscom  
Summa Cum Laude  
with Honors in Engineering  
with Honors Research Distinction in Computer Science and Engineering  
Reynoldsburg, Ohio, USA

Daniel James Haaser  
Cincinnati, Ohio, USA

Justin Lawrence Harrison  
Cum Laude  
Akron, Ohio, USA

Brad Hartshorn  
Magna Cum Laude  
Hamilton, Ohio, USA

Hitoe Hayasaka  
Dublin, Ohio, USA

Gregory Carl Hermack  
Summa Cum Laude  
Toms River, New Jersey, USA

Andrew Scott Herman  
Austin, Texas, USA

David Scott Hewitt  
Summa Cum Laude  
Loveland, Ohio, USA

James Chandler Hickman  
Liberty Township, Ohio, USA

Jonathon Murray Hickman  
Magna Cum Laude  
Liberty Township, Ohio, USA

Robert Alan Holbert  
Columbus, Ohio, USA

Nicholas Scott Hunter  
Springboro, Ohio, USA

David Huynh  
Cincinnati, Ohio, USA

Zhixuan Jia  
Cum Laude  
Baotou, China

Ali Ahmed Jiraki  
Cleveland, Ohio, USA

Mike Thomas Johnson  
Hillsboro, Ohio, USA

Neil Martin Johnson  
Dublin, Ohio, USA

Jason Jay Kao  
Cincinnati, Ohio, USA

Ryan Alan Karason  
Amherst, Ohio, USA

Basheer Kayali  
Columbus, Ohio, USA

William Nicholas Kentris  
Cum Laude  
Fostoria, Ohio, USA
YAMAN ISLAM KHAN  
Strongsville, Ohio, USA

JOSEPH RUSSELL KINZIG  
Beavercreek, Ohio, USA

DAVID MATTHEW KLIMEK  
Cum Laude  
West Chester, Ohio, USA

LISA ANN KRAUSS  
Naperville, Ohio, USA

JAN ALEXANDER KUMOR  
Centreville, Ohio, USA

KYLE ANTHONY KYNARD  
Toledo, Ohio, USA

KEVIN JOHNATHON LANDERS  
Magna Cum Laude  
with Honors in Engineering  
Liberty Township, Ohio, USA

LEI LI  
Cum Laude  
Barberton, Ohio, USA

THOMAS WILLIAM LOGAN  
Columbus, Ohio, USA

AUSTIN ROBERT LOHR  
Cincinnati, Ohio, USA

YIRAN LUO  
Magna Cum Laude  
Nanjing, China

MICHAEL ANDREW MALINOWSKI  
Eastlake, Ohio, USA

CLAYTON JAMES MALLORY  
Columbus, Ohio USA

MOHAMMAD IBRAHIM MANDOURAH  
Mandourah, Jeddah, Saudi Arabia

JONATHAN DAVID MARTIN  
Birmingham, Alabama, USA

MARK DANIEL MATHIS  
West Chester, Ohio, USA

JACOB MCCONNELL  
Lakewood, Ohio, USA

RYAN VINCENT MCGOWAN  
Magna Cum Laude  
Columbus, Ohio, USA

TIMOTHY MCLEAN  
Magna Cum Laude  
Port Clinton, Ohio, USA

MATTHEW JAMES MEADE  
Magna Cum Laude  
West Chester, Ohio, USA

JOSHUA PAUL MEEK  
Cum Laude  
Shadyside, Ohio, USA

YI QUN MEI  
Brooklyn, Ohio, USA

ARTHUR YEN BIN MO  
Dublin, Ohio, USA

BASHIR MIRE MOHAMED  
Columbus, Ohio, USA

SHANE LOUIS MYERS  
Toronto, Ohio, USA

MEGAN ELIZABETH NAFTZIGER  
Westerville, Ohio, USA

ALEXANDER PAUL NOTWELL  
Columbus, Ohio, USA

EVERLY CHINEM OKORJI  
Summa Cum Laude  
Port Harcourt, Nigeria

JOSHUA FRANK OWUSU-DEKYI  
Indianapolis, Indiana, USA

SHITIANYU PAN  
Nanjing, China

DEVEN RAMESH PANDYA  
North Olmstead, Ohio, USA

JACOB M. PEDDICORD  
Cum Laude  
Delaware, Ohio, USA

ADAM GENE PERKS  
Springfield, Ohio, USA

DMITRIY PILIPENKO  
Solon, Ohio, USA

CHRISTOPHER DAVID POWERS  
Magna Cum Laude  
Columbus, Ohio, USA

STEPHEN POWERS  
Columbus, Ohio, USA

JANET MICHELLE RAPACZ  
Parma, Ohio, USA

TIMOTHY JOSEPH RAFAEL  
Magna Cum Laude  
Cincinnati, Ohio, USA
TRISTAN JAMES REICHDART
Grand Blanc, Michigan, USA

DAVID CHRISTOPHER REING
Cum Laude
Perrysburg, Ohio, USA

BRANDON JAMES ROCKWELL
Sandusky, Ohio, USA

JUAN A. ROMAN
Cum Laude
Cleveland, Ohio, USA

WILLIAM W. ROSE, IV
Massillon, Ohio, USA

NICHOLAS TAYLOR ROTONDA
Marysville, Ohio, USA

AARON D. RYAN
Dublin, Ohio, USA

KRIT SAEFANG
Cum Laude
Bangkok, Thailand

KYLE RICHARD SALBERG
Magna Cum Laude
with Honors in Engineering
Rocky River, Ohio, USA

CHRISTOPHER ANDREW SEDAR
Stow, Ohio, USA

MATTHEW ERIC SEFFERNICK
Cum Laude
with Honors in Engineering
with Honors Research Distinction in Computer Science and Engineering
Celina, Ohio, USA

GREGORY PHILLIP SHAYKO
Cleveland, Ohio, USA

Aaron William Shortridge
Toledo, Ohio, USA

Carl Andrew Shotwell
Medina, Ohio, USA

DAVID WILLIAM SMELSER
Columbus, Ohio, USA

ALEXANDER RICHARD SMITH
Hudson, Ohio, USA

STEPHEN JEFFREY SMITH
New London, North Carolina, USA

EBLE ALBERT JUSTIN SMITH
Third Lake, Illinois, USA
President Barack Obama speaking to graduates, friends and families at the Spring 2013 commencement.
Photo courtesy of Tracy Tucholski

We must walk consciously only part way toward our goal, and then leap in the dark to our success.
Henry David Thoreau

Taran Sasikumar (left most), Karthik Tunga, Vineet Nair, Chaitanya Solapurkar, Yogesh Chidambaram (hidden behind Chaitanya), Ananth Mahadevan, Prasanth Jayachandran, Abhishek Dharmapurikar (right most)

Photo courtesy of Manas Agrawal
Tenured & Tenure-Track Faculty

GAGAN AGRAWAL Full Professor
B.S., Computer Science & Engineering, Indian Institute of Technology, Kanpur, India, 1991; M.S., Computer Science, University of Maryland, College Park, Maryland, 1994; Ph.D., Computer Science, University of Maryland, College Park, Maryland, 1996
Department Research Area: SYSTEMS

ANISH ARORA Full Professor
B. Tech., Computer Science and Engineering, Indian Institute of Technology, New Delhi, 1986; M.S., Computer Science, University of Texas, Austin, 1988; Ph.D., Computer Science University of Texas, Austin, 1992.
Department Research Area: NETWORKING
Interests: Wireless Sensor Networks; Cyberphysical Systems; Fault-tolerant, Secure And Timely Computing; Distributed Systems and Networks; Component-Based Design; Formal Methods; Concurrency Semantics.

Mikhail Belkin Associate Professor
Hon.B.Sc. with High Distinction, Mathematics, University of Toronto, 1995; M.S., Mathematics, University of Chicago, 1997; Ph.D., Mathematics, University of Chicago, 2003.
Department Research Area: ARTIFICIAL INTELLIGENCE
Interests: Machine Learning And Statistical Analysis Of Natural Data; Manifold And Spectral Methods For Machine Learning; Algorithms For Semi-Supervised Learning And Clustering; Understanding The Value Of Unlabeled Data In Pattern Recognition; Theoretical analysis of algorithms, particularly in high dimension; Connections to Human Cognition.

MICHAEL BOND Assistant Professor
B.S., Computer Science, University of Illinois at Urbana-Champaign, 2002; M.C.S., Computer Science, University of Illinois at Urbana-Champaign, 2003; Ph.D., Computer Sciences, The University of Texas at Austin, 2008
Department Research Area: SOFTWARE ENGINEERING AND PROGRAMMING LANGUAGES
**Roger Crawfis**  
*Associate Professor*

B.S., Computer Science and Applied Mathematics, Purdue University, 1984; M.S., Computer Science, University of California, Davis, 1989; Ph.D., Computer Science, University of California, Davis, 1995.

Department Research Area: GRAPHICS  
Interests: Computer Graphics; Video Game Technology; Serious Games; Scientific Visualization; Medical Imaging; and Volume Rendering.

---

**James W. Davis**  
*Associate Professor*

B.S., Computer Science, University of Central Florida, 1994; M.S., Media Laboratory, Massachusetts Institute of Technology, 1996; Ph.D., Media Laboratory, Massachusetts Institute of Technology, 2000.

Department Research Area: ARTIFICIAL INTELLIGENCE  
Interests: Computer Vision; Automatic Visual Surveillance and Monitoring; Human Activity Recognition; Video Understanding; and Human-Computer Interaction.

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**Tamal K. Dey**  
*Full Professor*

B.E., Electronics, Jadavpur University, 1985; M.Tech., Computer Science, Indian Institute of Science-Bangalore, 1987; Ph.D., Computer Science, Purdue University, 1991.

Department Research Area: THEORY, GRAPHICS  
Interests: Computational Geometry; Computational Topology; Geometric Modeling; Meshing; Data Analysis.

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**Eric Fosler-Lussier**  
*Associate Professor*


Department Research Area: ARTIFICIAL INTELLIGENCE  
Interests: Automatic Speech Recognition; Computational Linguistics; Machine Learning.

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**Brian Kulis**  
*Assistant Professor*

B.A., Computer Science and Mathematics, Cornell University; Ph.D., Computer Science University of Texas at Austin, 2008.

Department Research Area: ARTIFICIAL INTELLIGENCE  
Interests: Machine Learning, Statistics, Large-Scale Data Analysis, Numerical Optimization, Data Mining, Computer Vision.
**Ten-Hwang (Steve) Lai**  *Full Professor*
B.S., Mathematics, Fu-Jen University, Taiwan, 1972; M.S., Mathematics, Fordham University, 1976; Ph.D., Computer Science, University of Minnesota, 1982.
Department Research Area: NETWORKING
Interests: Cryptography; Network Security; and Parallel and Distributed Computing.

**Raghu Machiraju**  *Full Professor*
B.Sc., Electrical Engineering, Delhi University, 1982; M.S., Automation, Indian Institute of Science, Bangalore, 1984; Ph.D., Computer Science, The Ohio State University, 1996.
Department Research Area: GRAPHICS
Interests: Data Visualization; Imaging; Bioinformatics; Computational Biology.

**Arnab Nandi**  *Assistant Professor*
Bachelors in Information Science, University of Delhi, India, 2005; M.S., University of Michigan, Ann Arbor, 2007; Ph.D., University of Michigan, Ann Arbor, 2011.
Department Research Area: SYSTEMS
Interests: Structured Search and Large-scale Data Analysis Efficient Interaction with Databases and the Management of Large, Diverse Data Collections.

**Dhabaleswar K. (D. K.) Panda**  *Full Professor*
Department Research Area: SYSTEMS
Interests: Parallel Computer Architecture; High Performance Networking; Network-Based Computing; Cluster Computing; High Performance File/Storage Systems; Lan-Wan Interfacing and Communication; and Resource Management.

**Srinivasan Parthasarathy**  *Full Professor*
B.E., Electrical Engineering, University of Roorkee, India, 1992; M.S., Electrical Engineering, University of Cincinnati, 1994; M.S., Computer Science, University of Rochester, 1996; Ph.D., Computer Science, University of Rochester, 2000.
Department Research Area: SYSTEMS
Interests: Data Mining; Database Systems; Network Analysis; Bioinformatics; High Performance Computing Systems.
**Feng Qin** *Assistant Professor*

B.E., University of Science and Technology of China, 1998; M.E., Chinese Academy of Sciences, 2001; Ph.D., the University of Illinois, Urbana-Champaign, 2006.

Department Research Area: SYSTEMS
Interests: Operating Systems; Software Reliability; Security and Distributed Systems.

**Luis Rademacher** *Assistant Professor*

Bachelor in Engineering Sciences, Mathematics, Universidad de Chile; Santiago, Chile, 2002; Mathematical Engineering Title (Masters Equivalent) Universidad de Chile. Santiago, Chile, 2002; Ph.D., Applied Mathematics, Massachusetts Institute of Technology, 2007.

Department Research Area: THEORETICAL COMPUTER SCIENCE
Interests: High Dimensional Geometry; Random Structures; Matrix Approximation; Optimization.

**Nicoleta Roman** *Assistant Professor, Lima Campus*

B.S., Computer Science, University of Bucharest, Romania, 1996; M.S., Computer Science, University of Bucharest, Romania, 1997; Ph.D., Computer Science and Engineering, The Ohio State University, Columbus, Ohio, 2005.

Department Research Area: ARTIFICIAL INTELLIGENCE
Research interests: Computational Auditory Scene Analysis; Binaural sound localization and separation; Automatic Speech Recognition; Machine Learning.

**Atanas (Nasko) Rountev** *Associate Professor*

B.S., Computer Science & Engineering, Technical University, Sofia, Bulgaria, 1995; M.S., Computer Science, Rutgers University, 1999; Ph.D., Computer Science, Rutgers University, 2002.

Department Research Area: SOFTWARE ENGINEERING AND PROGRAMMING LANGUAGES
Interests: Static and Dynamic Program Analysis; Programming Languages and Compilers; Software Understanding and Testing; High-Performance Computing.

**Ponnuswamy (Saday) Sadayappan** *Full Professor*


Department Research Area: SYSTEMS
Interests: Compiler/Runtime Systems For High-Performance Computing; Performance Optimization; High-Productivity, High-Performance Scientific Computing.
HAN-WEI SHEN  Full Professor
B.S., Computer Science, National Taiwan University, 1988; M.S., Computer Science, State University of New York, Stony Brook, 1992; Ph.D., Computer Science, University of Utah, 1998.
Department Research Area: GRAPHICS
Interests: Computer Graphics; Information Visualization; Parallel Visualization; Scientific Visualization; Visual Analytics.

NESS B. SHROFF  Ohio Eminent Scholar of Networking and Communications Endowed Chair Professor
B.S., University of Southern California, 1988; M.S.E, University of Pennsylvania, 1990; M.Phil, Columbia University, 1993; Ph.D., Columbia University, 1994.
Department Research Area: NETWORKING
Interests: Wireless Networks; Next Generation Internet; Sensor Networks; Cloud Computing; Network Optimization; Network Design and Dimensioning; Network Security; Information Theoretic Security; Queueing Theory; Dynamic Control; Network Coding; Scaling Laws; Distributed Algorithms; Complexity and Approximability; Game Theory; Pricing.

PRASUN SINHA  Associate Professor
B. Tech., Computer Science and Engineering, Indian Institute of Technology, Delhi, India, 1995; MS, Computer Science, Michigan State University, 1997; PhD, Computer Science, University of Illinois, Urbana-Champaign, 2001.
Department Research Area: NETWORKING
Interests: Sensor Networking; Ad-hoc Networking; Mobile Computing; Wireless Networking

PAUL A. G. SIVILOTTI  Associate Professor
Department Research Area: SOFTWARE ENGINEERING AND PROGRAMMING LANGUAGES
Interests: Distributed Systems; Software Engineering; and Tool-based Support for Testing Component Implementations.

NEELAM SOUNDARAJAN  Associate Professor and Associate Chairperson (effective January 2013)
B.S., Physics, Bombay University, India, 1970; M.S., Physics, Bombay University, India, 1972; Ph.D., Computer Science, Bombay University, India, 1978.
Department Research Area: SOFTWARE ENGINEERING AND PROGRAMMING LANGUAGES
Interests: Software Engineering; Reasoning about Program Behavior; Specification; Verification; Testing; Issues in Engineering Education.
KANNAN SRINIVASAN  Assistant Professor
B.S., Electronics & Communications Engineering, University of Madras, Chennai, India, 2000; M.S., Electrical & Computer Engineering, Oklahoma State University, 2002; Ph.D., Electrical Engineering, Stanford University, Stanford, CA, USA, 2010
Department Research Area: SYSTEMS

CHRISTOPHER STEWART  Assistant Professor
B.S., Computer Science, Morehouse College, 2003; M.S., Computer Science, University of Rochester, 2005; Ph.D., Computer Science, University of Rochester, 2008
Department Research Area: SYSTEMS
Interests: Operating Systems; Distributed Systems; Performance Management; and Power Management.

KENNETH J. SUPOWIT  Associate Professor
A.B., Linguistics, Cornell University, 1978; Ph.D., Computer Science, University of Illinois, 1981.
Department Research Area: THEORETICAL COMPUTER SCIENCE
Interests: Combinational Algorithms

RADU TEODORESCU  Assistant Professor
Dipl. Eng. in Computer Science, Technical University of Cluj-Napoca, Romania, 2002; M.S., Computer Science, University of Illinois at Urbana-Champaign, 2005; Ph.D., Computer Science, University of Illinois at Urbana-Champaign, 2008.
Department Research Area: SYSTEMS
Interests: Computer Architecture, with a Focus On Designing Energy Efficient and Reliable Microprocessors and Systems.

DE LIANG (LEON) WANG  Full Professor
B.S., Computer Science, Beijing University, 1983; M.S., Computer Science, Beijing University, 1986; Ph.D., Computer Science, University of Southern California, Los Angeles, 1991.
Department Research Area: ARTIFICIAL INTELLIGENCE
Interests: Machine Perception and Neuodynamics
HUAMIN WANG  Assistant Professor
B.Eng., Computer Science and Engineering, Zhejiang University Hangzhou, China, 2002; M.S., Computer Science, Stanford University Stanford, CA, USA, 2004; Ph.D. in Computer Science Georgia Institute of Technology Atlanta, GA, USA, 2009
Department Research Area: SOFTWARE ENGINEERING AND PROGRAMMING LANGUAGES
Interests: Component-Based Software; Verified Software.

YUSU WANG  Associate Professor
Department Research Area: GRAPHICS

BRUCE W. WEIDE  Full Professor and Associate Chairperson (effective through December 2012)
B.S.E.E., Electrical Engineering, University of Toledo, 1974; Ph.D., Carnegie Mellon University, 1978.
Department Research Area: SOFTWARE ENGINEERING AND PROGRAMMING LANGUAGES
Interests: Component-Based Software; Verified Software.

REPHAEL WENGER  Associate Professor
B.S.E., Computer Science, Princeton University, 1984; Ph.D., Computer Science, McGill University, 1988.
Department Research Area: GRAPHICS
Interests: Computational Geometry; Computer Visualization; Isosurface Reconstruction; and Image Processing.

DONG XUAN  Associate Professor
B.S., Electronic Engineering, Shanghai Jiao Tong University, China, 1990; M.S., Electronic Engineering, Shanghai Jiao Tong University, 1993; Ph.D., Computer Engineering, Texas A&M University, 2001.
Department Research Area: NETWORKING
Interests: Distributed Computing, Computer Networks and Cyber Space Security
**XIAODONG ZHANG**  Chairperson of Computer Science & Engineering  
*Robert M. Critchfield Professor*

B.S., Electrical Engineering, Beijing University of Technology, 1982; M.S., Computer Science, University of Colorado at Boulder, 1985; Ph.D., Computer Science, University of Colorado at Boulder, 1989.

Department Research Area: SYSTEMS

Interests: Distributed and High Performance Systems

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**CLINICAL FACULTY**

**JAY RAMANATHAN**  Research Associate Professor  
*Director of Research of Center for Experimental Research in Computer Systems*

B.S., Computer Science, Purdue University, 1970; M.S. in Computer Science, Purdue University, 1972; Ph.D. Computer Science, Rice University, 1977.

Research Interests: Analysis and Engineering of the Complex Adaptive Environments to achieve overall objectives, performance and Business-IT alignment. Related applications include Serious Gaming and technology-mediated collaborative platforms. Tools and methods of interest include knowledge mining, complexity theory, autonomic computing; technologies such as OWL, Middleware, Workflow, Mobile Computing, and Web Services.

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**RAJIV RAMNATH**  Associate Professor of Practice  
*Director, Collaborative for Enterprise Transformation and Innovation (C.E.T.I.)*

B.Tech., Indian Institute of Technology, New Delhi, India, 1981; M.S., Computer & Information Science, The Ohio State University, 1983; Ph.D., Computer & Information Science, The Ohio State University, 1988

EMERITUS APPOINTMENTS
Professor Emeritus

BALAKRISHNAN CHANDRASEKARAN
CHARLES A. CSURI
MING-TSAN (MIKE) LIU
SANDY MAMRAK
MERVIN E. MULLER
STUART ZWEBEN
Associate Professor Emeritus

EMERITUS APPOINTMENTS
Professor Emeritus

CLINTON R. FOULK
DOUGLAS S. KERR
TIMOTHY LONG
WILLIAM F. OGDEN
ANTHONY E. PETRARCA

COURTESY APPOINTMENTS

WAYNE CARLSON    Chair, Industrial Design
HARVEY M. FRIEDMAN  Mathematics
KUN HUANG          Biomedical Informatics
FURRUKH KHAN       Electrical and Computer Engineering
MICHAEL KNOPP      Chair, Radiology
ALBERT M. LAI      Biomedical Informatics
VIRGINIA NIVAR     Davis Heart & Lung Research Institute
ALAN SAALFELD     Geodetic Science
CATHERINE HONGHUI XIA
Tao Shi
ALPER YILMAZ      Integrated Systems Engineering

COURTESY APPOINTMENTS

KIKUO FUJIMURA

ADJUNCT FACULTY
RESEARCH SCIENTISTS

**Balakrishnan Chandrasekaran**  *Professor Emeritus  
*Senior Research Scientist*

B.E., Electrical Engineering, Madras University, India, 1963; Ph.D., Electrical Engineering, University of Pennsylvania, 1967


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**Lei Guo**  *Research Scientist*

Bachelor in Space Physics, University of Science and Technology of China; Masters in Computer Science, University of Science and Technology of China; Ph.D. in Computer Science and Engineering, The Ohio State University.

Research Interests: Distributed Systems, Measurement and Modeling Of Internet Services, and Big Data Analytics.

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**Jihun Hamm**  *Research Scientist*


Research Interests: Machine Listening, Signal Processing, Machine Learning, Speech Recognition, Psychoacoustics

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**John Josephson**  *Research Scientist*

B.S., Mathematics, The Ohio State University 1968; M.S., Mathematics, The Ohio State University, 1970; Ph.D., Philosophy, The Ohio State University, 1982

Research Interests: Artificial Intelligence; Computational Epistemology, Abductive Inference, Causal Reasoning, Multiple Criteria Decision Making, Perception, Information Fusion, Diagnosis, Theory Formation, Logic of Investigation and Foundations of Science

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**William M. Leal**  *Research Scientist*

B.A. Mathematics, University of California, Berkeley, 1969; M.S. Computer Science, University of South Alabama, Mobile, 1994; M.S. Computer Science, The Ohio State University, 2001; Ph.D., Computer Science, The Ohio State University, 2001.

Rubao Li  Research Scientist
B.S., Mechatronics, Jingdezhen Ceramic Institute, 2000; M.S., Computer Science, Beijing University of Technology, 2003; Ph.D., Computer Science, Chinese Academy of Sciences, 2008.

Michael Mandel  Research Scientist
Research Interests: Machine Listening, Signal Processing, Machine Learning, Speech Recognition, Psychoacoustics.

Post-Doctorate Researchers
Khaled Hamidouche  Louis Noel Pouchet
Teng-Yok Lee  Kevin T. Streib
Xiaoyi Lu  Jerome Vienne
Hao Wang

Lecturers
Gojko Babic  Senior Lecturer
B.S., Electric Engineering, University of Sarajevo, 1972; M.S., Computer Science, Florida Institute of Technology, 1975; Ph.D., Computer Science, The Ohio State University, 1978.

Bettina Bair  Senior Lecturer
PAOLO BUCCI  Senior Lecturer
Laurea in Scienze Dell’ Informazione, Universita’ Degli Studi di Milano, Italy, 1986; M.S., Computer & Information Science, The Ohio State University, 1989; Ph.D., Computer & Information Science, The Ohio State University, 1997.

MATTHEW BOGGUS  Senior Lecturer
B.A., Computer Science and Mathematics, Hiram College, 2006; Ph.D., Computer Science and Engineering, The Ohio State University, 2012.

DOREEN CLOSE  Lecturer
B. S., Computer and Information Science, The Ohio State University, 1979; M. S., Computer Science and Engineering, The Ohio State University, 1981.

WAYNE HEYM  Senior Lecturer
B.Phil., Miami University, 1978; M.S., Cornell University, 1980; M.S., Computer & Information Science, The Ohio State University, 1989; Ph.D., Computer & Information Science, The Ohio State University, 1995.

PERUMEL “KRISH” KRISHNASWAMY  Lecturer
Master’s, Mathematics, Madras University; M.S., Computer Science, The Ohio State University.

MICHELLE A. MALLON  Lecturer

RAYMOND MCDOWELL  Senior Lecturer
S.B., in Computer Science and Engineering, Massachusetts Institute of Technology, 1986; S.M., in Computer Science and Engineering, Massachusetts Institute of Technology, 1986; Ph.D., Computer and Information Science, University of Pennsylvania, 1997

JEREMY MORRIS  Senior Lecturer
B.S., Mathematics and Computer Science, Bowling Green State University, 1996; M.A., Education, The Ohio State University, 1998; M.S., Computer Science and Engineering, The Ohio State University, 2007; Ph.D., Computer Science and Engineering, The Ohio State University, 2010.
KATHRYN REEVES  Lecturer
BCPE, Computer Engineering, Auburn University, 1986; M.S., Computer Science, Auburn University, 1991.

LORI A. RICE  Lecturer
B.S., Information Systems, Ohio Dominican College; M.A., Workforce Development and Education, The Ohio State University.

NAEEM SHAREEF  Senior Lecturer

KATHERINE WENGER  Lecturer
B.S., Computer Science, University of Kentucky, 2001.

ANATALA T. WOLF  Lecturer
B.A., Psychology, University of Illinois, Springfield; B.S., Computer Science, The Ohio State University; M.S., The Ohio State University, 2013.

PART-TIME LECTURERS

Senior Lecturers
Thomas Bihari
Moez Chaabouni
Matt Curtin

Lecturers
Michael H. Burkhardt
Peter J. Dohm
Charles Giles
Steve Gomori
Cindy L. Grimme
Igor Malkiman
William Thomas Martin
Robert Mathis
G. Beth McGrath
Laura M. Moses
Bhuvarahamur Narasimhan
Perumal N. Ramasamy
Steven Romig
Issam Ibrahim Safa
David J. Stucki
Al Stutz
John Thomas
ADMINISTRATIVE STAFF
Catrena Collins: Human Resources Officer
Tamera Cramer: Public Relations Coordinator.
Don Havard: Fiscal Officer
Z. Lynn Lyons: Graduate Admissions and Graduate Studies Coordinator.
Meg Murnane: Information Associate
Kitty Reeves: Academic Program Administrator
Carrie Stein: Grants Administrator

COMPUTING SERVICES STAFF
Joseph Coe -- Operations Specialist
Michael Compton -- Director, Computing Services
Aaron Jenkins – Systems Manager
Bob Joseph-- Systems Developer/Engineer, DBA
Tami King -- Sr. Systems Developer/Engineer
Dave Kneisly -- Systems Administrator
Todd Lucal -- Systems Administrator
Jeff Moser -- Windows Administrator
Shaun Rowland -- Manager, Software Support and Development
Ted Welch -- Systems Administrator

A CELEBRATION OF A CAREER WELL DONE
2013 brought the retirement of Professor and Associate Chairperson Bruce Weide.

Dr. Weide with his family (l-r): Son, Alan, Bruce, daughter Lauren and wife, Jane.

A number of colleagues paid tribute to working with Bruce.

Dr. Weide made a difference beyond the walls of Dreese Labs. Drs. Linda Lobao and Enrico Bonello, colleagues from the University Faculty Senate, stopped by to wish Weide well.