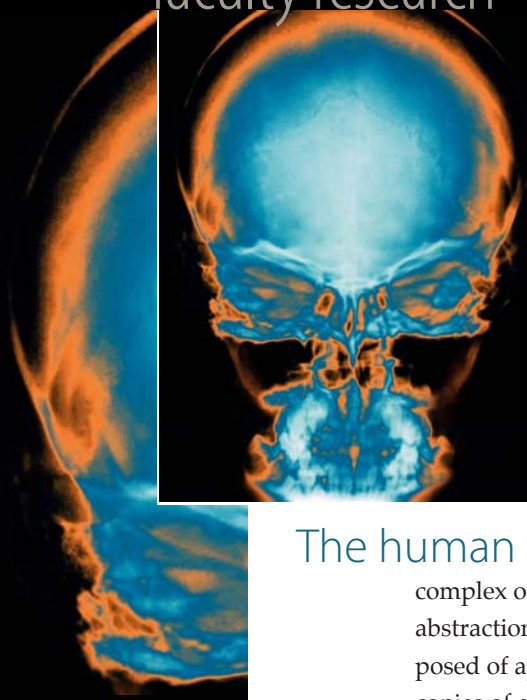


COMPUTER & INFORMATION SCIENCE & ENGINEERING

Fall
UNIVERSITY OF FLORIDA
2007



Professor Arunava Banerjee

Understanding the Dynamics of Neuronal Systems in the Brain

The human brain is an exceptionally complex organ. At the highest level of abstraction, it is a device that is composed of approximately 100 billion copies of a basic functional unit, the neuron, also called the nerve cell. This outlook, however, changes dramatically when the brain is considered at a more concrete level.

Viewed from a developmental perspective, the brain can be partitioned into multiple interacting subsystems. These subsystems include (i) structures in the endbrain, such as the cerebral cortex, which is responsible for higher order functions, the basal nuclei, and the olfactory bulb. (ii) Structures in the interbrain, including the thalamus, which acts as a processing gateway to all information bound for and departing from the neocortex, the hypothalamus, and other perithalamic structures, and (iii) the multitude of structures in the mid and the hindbrain including the tectum and tegmentum, the cerebellum, the pons, and the medulla. The way in which these structures and their constituent neurons interact to yield such high-level capabilities as perception and cognition remains one of the major mysteries of our times.

Our group is interested in a host of issues that deal with the complex physical dynamics — both natural and anomalous — of systems of neurons in the brain, and their computational implications. A common thread that ties together the targeted problems and proposed approaches is mathematical abstraction; that is we address problems that can be suitably framed in the language of mathematics. These include issues pertaining to system identification, prediction and detection, and information transmission. The remainder of this article details two of the projects that we are involved in.

Epilepsy, broadly defined, is a brain disorder in which certain groups of neurons display abnormal spiking behavior over brief intervals of time. These episodes, called ictal (seizure) states, can occur spontaneously and are usually interspersed with prolonged normal (interictal) states.

During an ictal state, the normal pattern of neuronal activity becomes disturbed, causing strange sensations, emotions and behavior, and in certain cases can cause convulsions, muscle spasms, and loss of consciousness.

According to some estimates, seven out of every 1,000 individuals (approximately 40 million people worldwide) are afflicted by this chronic disease. For those that suffer from it, socially-mandated restrictions, such as the withholding of driving privileges, impose serious limitations on their ability to lead a normal life. Given the widespread incidence of epilepsy, any device/ technique that could accurately predict an oncoming seizure

by more than five to ten minutes, from continuously recorded Electroencephalogram (EEG) signals, or even from intracranial field potentials recorded using chronically implanted electrodes, could immensely benefit those afflicted by the disease.

Figure 1 shows EEG traces from four electrodes at the onset of a seizure. As is apparent from the figure, EEG signals do change dramatically during an ictal episode. A far more difficult (and pertinent) question, however, is whether the signal changes substantially prior to the episode, thus making it possible to predict an oncoming seizure.

We hypothesize that the dynamics of networks of neurons in the brain pass through distinct stages before falling prey to a spreading seizure. By emulating this behavior we hope to predict an oncoming seizure several seconds or minutes before its onset.

In a second project, we are investigating the efficiency with which feed-forward systems of spiking neurons (such as that displayed in Figure 2) can transmit information. Research on several of the brain's primary sensory areas has indicated that their information transmission capacity is remarkably efficient and precise. Such precision and throughput, however, has not been replicated in simulated systems.

Part of the problem lies in the naïve choice of the neural coding schemes, such as rate and synchrony coding. To overcome this issue, we have generated realistic sound stimuli that we have then used to drive a phenomenological model of the auditory periphery—the Meddis inner-hair cell model—that faithfully encodes sound stimuli into auditory nerve spike trains (see Figure 3). By driving artificial networks with these spike trains, we are in the process of elucidating the nature of information transmission and recoding in such networks.

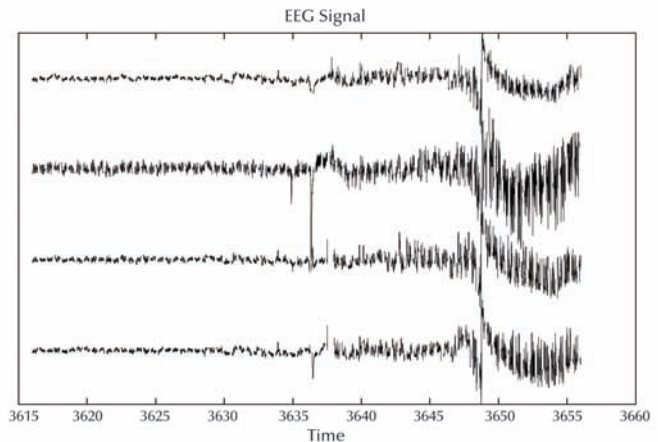


Figure 1: Signal on four EEG channels before a seizure (at 3635 sec)

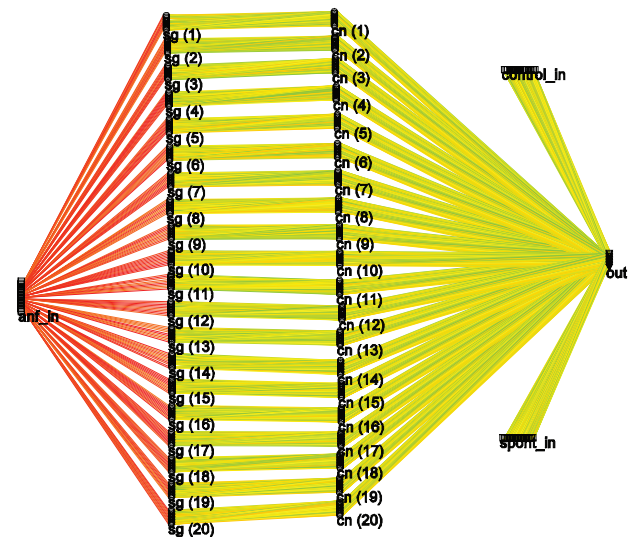


Figure 2: A feed-forward network of spiking neurons

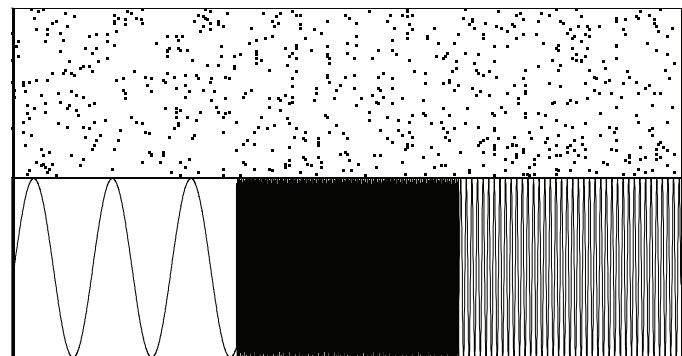


Figure 3: Sound input (bottom panel) and corresponding spike raster in the auditory nerve (top panel)

Professor Tim Davis Sparse Matrix Algorithms

For a mathematical object whose numerical values are mostly zero, sparse matrices are far from valueless in their use in practical problems in computational science. According to Jim Wilkinson, a founding father of computer science and numerical methods, a sparse matrix is one whose many zero entries can be economically exploited by an algorithm.

Probably the world's largest sparse matrix is the Google PageRank™ matrix. Each month, Google crawls the entire World Wide Web and creates a matrix in which a non-zero represents a link from page i to page j . It then solves a large sparse eigenvalue problem to compute the PageRank, or importance of each page.

The dimension of the matrix is in the billions, but since each page on the web has links to only a few other pages (seven on average), the matrix is mostly zero. The PageRank is determined by solving a sparse eigenvalue problem.

So every time you visit Google, you can thank sparse matrix algorithms for providing your search results in a nice order (by PageRank) and saving you oodles of time trying to find what you want.

Sparse matrices are in use in many other domains. If you drive a car, fly on a plane, use a cell phone, pump gas in your car, get an MRI, get an artificial knee, plug your coffee maker into the wall outlet, hope to retire

Figure 1: Nonzero pattern of a sparse matrix that simulates a Comanche helicopter.

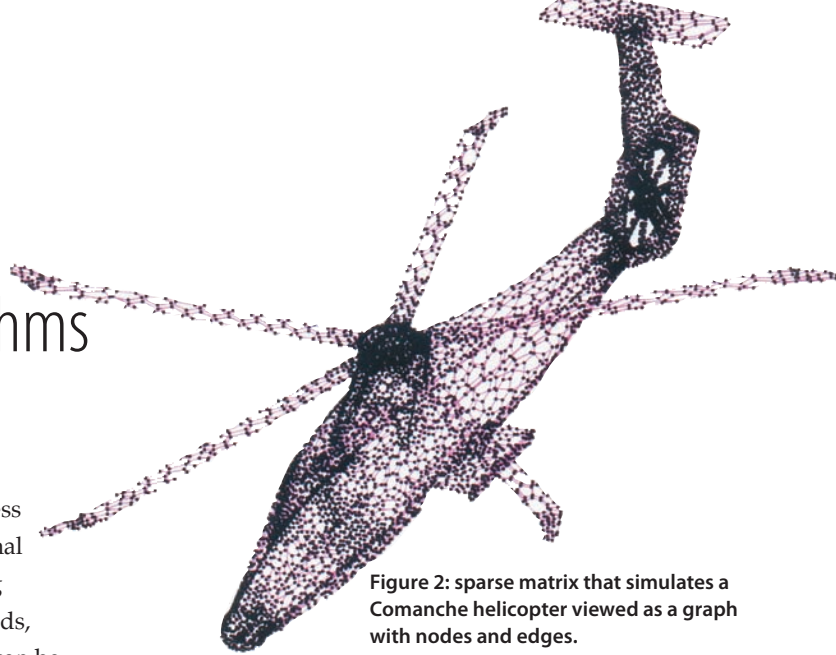
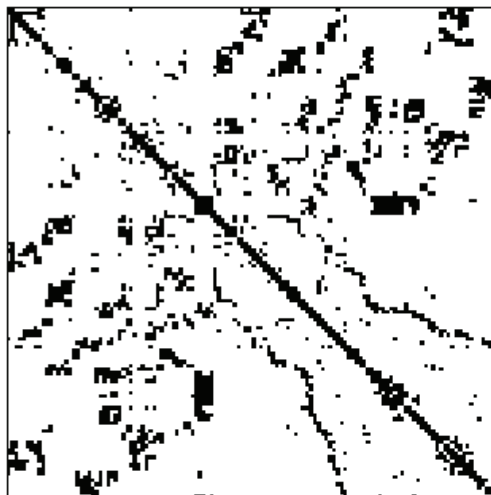


Figure 2: sparse matrix that simulates a Comanche helicopter viewed as a graph with nodes and edges.

with a healthy stock portfolio, or wonder if there's any way to cut smog pollution, then you've indirectly used the fruits of the labor of sparse matrix algorithm developers. Our work is under-the-hood. You don't see a sparse matrix splashed on the side of your car, but it's there all the same.

An example sparse matrix in Figure 1 represents the 3-D structure of the Comanche helicopter, whose graph is also shown. Not surprisingly, the graph in Figure 2 (with nodes representing rows and columns of the matrix, and edges between the nodes representing the non-zeros in the matrix) looks just like the helicopter. The helicopter wouldn't fly if the sparse matrix problem behind it couldn't be solved.

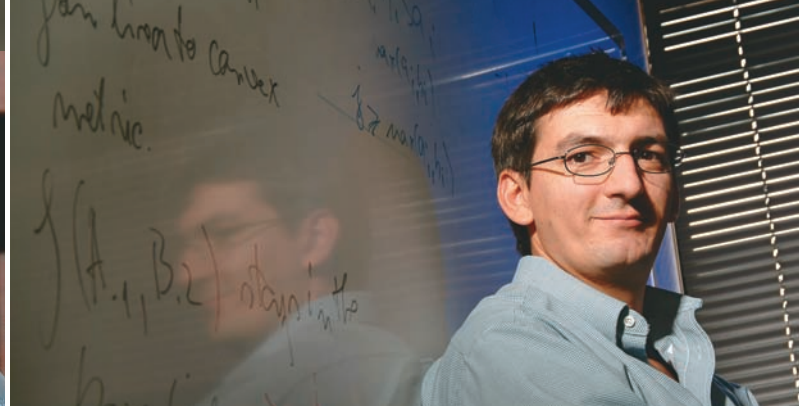
Solving a million-by-million sparse matrix can be done on a PC in minutes (depending on how sparse it is), but treating the matrix as a dense array would take about 8,000 GB of main memory and about five years of computing time on the same PC.

Davis' work spans the whole spectrum of sparse matrix methods, from theory and algorithms to data structures, prototypes and commercially available code. His code appears in MATLAB as $x=A \setminus b$, and is used by many other commercial and open-source packages such as Mathematica, NASTRAN, IBM's PowerSpice circuit simulator, and the Xyce circuit simulator developed by Sandia National Labs.

He recently wrote a book published in 2006 by the Society of Industrial and Applied Mathematics (SIAM), entitled "Direct Methods for Sparse Linear Systems," which is one of SIAM's top-10 best sellers.



Chris Jermaine



Alin Dobra



Subi Arumugam

Jermaine, Arumugam, Pol and Dobra win SIGMOD 2007 Best Paper Award

CISE professors Chris Jermaine, Alin Dobra, CISE graduate student Subi Arumugam and CISE doctoral alum Abhijit Pol (not pictured; now at Yahoo!) were co-recipients of the Association of Computer Machinery, Special Interest Group on Management of Data (ACM SIGMOD) 2007 best paper award for their research article entitled “Scalable Approximate Query Processing with the DBO Engine”.

SIGMOD is one of the most selective and widely read venues for publication in the database research area. SIGMOD receives hundreds of research submissions each year, and typically less than 15 percent of the articles are selected for presentation at the conference.

Their paper describes the query processing engine of a prototype database engine being developed at UF, called DBO or Database-Online. The goal of the National Science Foundation-sponsored DBO project is to build a database engine that can answer analytic or statistical queries over terabyte-sized data archives

just as fast as any popular commercial or public license database engine such as Oracle or Postgres.

The key benefit of using DBO is that not only does it compute exact answers quickly, but it also uses statistical methods to always provide the user with a guess as to what the final answer to the query will be, even very early during query execution.

For example, imagine that a user wishes to compute the total sales of a certain product by a company, broken down by the company’s various divisions. After a very short time, DBO may report a current estimate of \$8.45 million for one of the divisions, with a 95 percent chance that the true value is between \$8.41 million and \$8.49 million. Since DBO may be able to provide this estimate after only a few minutes of query processing when running the query to completion may take hours, it can result in a huge time savings for the user in the case where having two digits of accuracy is enough.

“The data stored in a data warehouse are typically riddled with errors due to the data collection, integration, and cleaning process,” Jermaine said. “So it probably does not make any sense to spend hours trying to compute a few extra decimal points of an answer that cannot be trusted past the first few digits anyway.”

Manuel Bermudez, associate professor, served as Program Committee co-Chair at the 5th annual Latin American and Caribbean Consortium of Engineering Institutions (LACCEI) conference held in Tampico, Mexico from May 29 to June 1, 2007. Bermudez was also appointed as the Program Committee co-Chair at the 33rd annual Centro Latinoamericano de Educacion en Informatica (CLEI) conference held in San Jose, Costa Rica from October 9-12, 2007.

Shigang Chen, assistant professor, has received a \$100,000 grant for his proposal entitled "New Technologies for Real-Time Wireless Mesh Networks with Transportation Applications." from the National Science Foundation's Division of Computer and Network Systems.

Timothy Davis, professor, has received a \$22,000 grant for his proposal "Sequential and Parallel Direct Methods for Sparse Matrices Arising in Circuit Simulation Problems" from the Sandia National Laboratories. Davis also gave an invited plenary talk on Direct Methods for Sparse Linear Systems: The MATLAB Sparse Backslash at the Society for Industrial and Applied Mathematics (SIAM) 2006 annual meeting from July 10-16, 2006. Davis was promoted from Associate Professor to full Professor status.

Paul Fishwick, professor, was appointed as the General co-Chair (with Benjamin Lok) for the GAMEON Conference held in Gainesville from September 10-12, 2007. He has also received a \$26,399 award for research entitled "Comparative Analysis of Fire Intensity between Circular and Elliptical Shaped Airframes Using NFP 403 Agent Application" from Applied Research Associates. Fishwick (co-PI) and Elinore Fresh (co-PI) were also awarded with a \$625,000 grant from the United States Army entitled "A Model Immersive Cultural Learning Environment." He was appointed to the editorial board of the International Journal of Visual Languages and Computing (JVLC) in March 2007, by Elsevier North Holland, and to the editorial board of the International Journal of Arts and Technology (IJART) in June 2007 by the InderScience Publishers.

Paul Gader, professor, has been awarded multiple grant awards during the Fall 2007 term. The U.S. Army awarded him with a \$432,763 grant for a project entitled "Feature Based Methods for Landmine Detection with Ground Penetrating Radar Add-on." The National Science Foundation awarded Gader with a \$370,000 award entitled "Collaborative Research: EXP-LA Optimized Multi-algorithm

Systems for Detecting Explosive Objects Using Robust Clustering and Choquet Integration." He has also received an \$110,800 grant award for "Development of Analysis Methods for Response Spectra Measured during the Inspection of Widgets" from the Sandia National Laboratories.

Joachim Hammer, associate professor, has received a \$269,263 contract from the National Science Foundation's division of Information and Intelligent Systems for the project "The Morpheus Data Transformation Management System."

Abdelsalam Helal, professor, has received a \$67,062 award for his project entitled "An Implementation of the SODA Architecture using ATLAS" by IBM Corporation. Helal has also received a research contract for \$100,000 for research entitled, "Programmable Sensor Framework for Ubiquitous Robotic Companion" from the Electronics and Telecommunications Research Institute. Helal and co-PI colleagues were awarded a \$1.2 million grant from the National Institute of Health to conduct research on the use of smart homes as health platforms for diabetic and obese individuals. He has also given a number of keynote speeches, including one at the 5th International Conference on Smart Homes and Health Telematics held in Nara, Japan from June 21-23, 2007. In July 2007, he gave a keynote speech at the 31st Annual IEEE International Computer Software and Applications Conference. In September 2007, Helal gave a keynote speech at the 3rd IET International Conference on Intelligent Environments in Ulm, Germany.

Ahmed Helmy, associate professor, was appointed as the IEEE INFOCOM Global Internet (GI) workshop co-Chair to be held on May 2008 in Phoenix, Ariz. Helmy was also appointed for the second straight year as the ACM SIGMOBILE general workshop coordination Chair for all the ACM MobiCom, MobiHoc, MobiSys and SenSys conferences for 2008. Helmy received an invitation to serve as a keynote speaker at the ACM MOBICOM Crowded workshop held on September 2007 in Montreal, Canada.

Jeffrey Ho, assistant professor, has received a \$77,566 grant award for his research entitled, "Real-Time Multi-view Face Detectors" by Honda R&D Americas, Inc.

Benjamin Lok, assistant professor, was awarded two different grants from the National Science Foundation's division of Information

and Intelligence Systems, one entitled "REU Supplement: CAREER: Studying Diversity Issues with Immersive Virtual Humans" and the other for "CAREER: Studying Diversity Issues with Immersive Virtual Humans." The grants are worth \$12,000 and \$72,731 respectively. Lok also served as the general co-Chair with professor Fishwick at the GAMEON conference in Gainesville from September 10-12, 2007.

Prabhat Mishra, assistant professor, has received an unrestricted \$40,000 grant for his work entitled "Use of System C Transaction Level Modeling as Golden Reference Model for Design & Validation of SoCs," from Intel Corp.

Jorg Peters, professor, has received a \$60,000 award with co-PI, professor Juan Cendan of MD Surgery Unit, for their proposal entitled "Toolkit for Illustration of procedures in surgery (TIPS)" from the UF Division of Sponsored Research. Peters and Cendan also received a \$384,181 project award for their project entitled "Preserving a Hands-On Knowledge Base of Essential but Rare Surgical Procedures" from the National Institutes of Health (NIBIB - Biomed Imaging and Bioeng) as well as an individual \$258,000 award from the National Science Foundation's Division of Computing & Communication Foundations for their work entitled "High-Quality Shape Design and Surface Representation."

Anand Rangarajan, associate professor, has received a \$22,937 project award entitled "Hippocampal Shapes Recovery and Analysis in Epileptics" from the National Institute of Health. The award is part of a \$951,723 grant award in conjunction with Baba Vemuri, Stephan Eisenschenk, and Stephen Blackband.

Sanjay Ranka, professor, has received \$128,573 matching funds award for his work entitled "MRI: Acquisition of CASTOR: A High-Performance Communication and Storage Backbone for Data-Intensive Scientific and Engineering Computing" from UF's Division of Sponsored Research.

Marcus Schneider, assistant professor, was appointed as Program Chair for the 15th ACM International Symposium on Advances in Geographic Information Systems held this November (for more info: <http://www.cise.ufl.edu/dept/acmgis2007/>).

Meera Sitharam, associate professor, has received a \$548,662 grant with co-PIs Mavis Agbandje McKenna of Molecular Biology and with Miklos Bona of the Mathematics Depart-

new faculty

ment for their work entitled "Multiscale Macromolecular Assembly Pathways via Algebraic Combinatorics" from the National Science Foundation's division of Mathematical Science, and from the National Institute of General Medical Science, a division of the National Institute of Health. Sitharam also received a \$60,000 project award for the project entitled "Algorithmics for Geometry Constraints Solving" by Solid Works.

Alper Ungor, assistant professor, has received an award for his project entitled "Smoothing meshes with high-order nodes to fix boundary elements" from Sandia National Laboratories in the amount of \$13,421.

Baba Vemuri, professor, served as Program Chair of the 11th International Conference on Computer Vision (ICCV) held in Rio De Janeiro, Brazil from October 16-19 2007.

Joseph Wilson, assistant professor, has received a \$109,463 grant award from the U.S. Army for his work entitled "DO 0002: Software Algorithm Improvements for Landmine Detection Systems Delivery." Wilson, et al, have received a \$385,000 grant for their project entitled "IPPD 2007-2008 - Attraction Queue Measurement" from the Walt Disney World Company.

Ye Xia, assistant professor, has received a \$60,000 contract from Electronics and Telecommunications Research Institute for the project "Optimization-based Algorithm to Peer-to-Peer Massive Content Distribution."

Professor Sanjay Ranka named fellow of AAAS he was elected a fellow of The American Association for the Advancement of Science for distinguished contributions to the theory and practice of parallel and distributed computing. The AAAS, is an international non-profit organization dedicated to advancing science around the world by serving as an educator, leader, spokesperson and professional association. Founded in 1848, AAAS serves some 262 affiliated societies and academies of science, serving 10 million individuals. Election as a Fellow of AAAS is an honor bestowed upon members by their peers. Fellows are recognized for meritorious efforts to advance science or its applications. In 2006, the AAAS Council elected 449 members as Fellows of AAAS. These individuals were recognized for their contributions to science and technology at the Fellows Forum to be held on February 17, 2007 during the AAAS Annual Meeting in San Francisco.

*Alireza Entezari, Ph.D.
Assistant Professor*



Alireza Entezari received his doctorate in computing science from Simon Fraser University in Canada earlier this year, in addition to winning a post-doctoral fellowship from Canada's National Sciences and Engineering Research Council. He joined the University of Florida this fall as an assistant professor.

In his dissertation, he established a set of box splines for interpolation and approximation of smooth functions sampled on optimal sampling lattices. His main research interests are on sampling theory, multivariate splines, multidimensional signal processing, reconstruction and approximation of functions with particular applications in visualization and computer graphics. During his undergraduate studies, he worked for various firms developing software for digital medical imaging and online video distribution.

student organizations

Jacqueline Mullings

Phi Sigma Rho A Sorority for Women in Engineering

Phi Sigma Rho is the only social sorority at the University of Florida specifically for women in engineering. After being on campus for only a few years, Phi Sigma Rho has already built up a strong membership.

As the sorority is comprised of only women majoring in engineering and engineering technology, we understand that academics come first, and as such we hold several study sessions each semester.

Due to our demanding schedules as engineers, we also understand the limited amount of time available to devote to the sorority. As a result, we provide sisters with an ample amount of socials at convenient times. We are also involved in

many service projects including Habitat for Humanity, the Great Air-Potato Round-Up, and GatorTrax tutoring. We are also involved in long-term service projects such as The American Cancer Society's Relay for Life, and volunteering with the Girl Scouts of America, for whom we host Girl Scout Engineering Day.

We have several sorority events that are open to non-sisters. If you have any questions contact our Recruitment Chair, Clarissa Carr, at clcarrdi@ufl.edu. For more information you can also visit our website at <http://grove.ufl.edu/~phirho>. We have an informal rush in both the fall and the spring semesters for any interested ladies.

Jacqueline Mullings is a student in the CISE department majoring in Computer Software Engineering. She is the Vice President of Service Activities for Phi Sigma Rho.



From left to right: Josh Hartman, Kevin Andrews, Dmitri Dranishnikov, Kevin McLeod, John Iacona, Alexandra Mirtcheva, Tim Smith, Brianna Satinoff, Miorel Palii, Warren Moore, Adam Vaughn, Shaun McDowell, Dave Small.

UF Programming Team Headed to World Finals

For the first time in school history, one of UF's teams, Vehicle of Puzzle, consisting on Josh Hartman, Miorel Palii and Brianna Satinoff, won the regional contest of The Association for Computing Machinery International Collegiate Programming Contest and is guaranteed a spot in the World Finals to be held in Alberta, Canada.

The first phase of the competition consists of the regional contests, from which 90 top teams are selected to advance to the World Finals. UF competed in the Southeast Regional Contest on October 13, a competition that included 31 universities/colleges and 75 teams.

In addition to Puzzle, UF had four other teams participate in the competition. They are: Harmonious Grains of Wheat (Kevin Andrews, Alexandra Mirtcheva, Adam Vaughn), Taser Bros (John Iacona, Shaun McDowell, Kevin McLeod) and Triple Espresso (Dmitri Dranishnikov, Warren Moore, Tim Smith).

This year UF was able to place three of their teams in the top 10. Vehicle of Puzzle won the competition decisively; as they were able solve all ten problems with an hour and a half to spare. By comparison, the second and third place teams, from Georgia Tech and Central Florida, both solved eight out of 10 problems. Triple Espresso placed fifth (solving six out of 10) and the Taser Bros placed ninth (solving five out of 10).

Warren Moore

The Association of Computing Machinery (ACM) Fall Lineup

The student chapter of the ACM has been busy this fall. Presentations by the likes of Harris Corporation, Texas Instruments, Disney Parks and Resorts IT, and the Florida Interactive Entertainment Academy have had an average attendance of over 30 students. By far, the top attended meeting was Disney's interactive "Day in the Life of a Disney Developer," to be followed up with a day-long visit to Orlando Florida to give 25 CISE students an inside look at the operation of Disney Parks and Resorts information technology systems.

The ACM's activities will continue in the spring with a series of lectures by UF professors on their areas of research. Also in the spring, ACM will host the annual High School Programming Competition, with support from Lockheed Martin. This event is an excellent opportunity for students in northern Florida to see what the CISE department and UF have to offer. A number of HSPC participants have gone on to be successful members of UF's own programming team.

Interested students may e-mail ACM student chapter president Warren Moore (warrenm@ufl.edu) to be added to the ACM listserv, where all chapter events are announced.

ASCIE

The Association of Graduate Students in Computer and Information Science and Engineering has already held several events throughout this semester. For their first event, ASCIE welcomed incoming graduate students to the Department with information sessions covering academic advice from current graduate students and information about life in Gainesville. Following the orientation, new students were further welcomed with an ice cream social and a CISE T-shirt.

ASCIE organized several seminars for this semester, including an internship seminar held on September 24. At this seminar, students with internships this past summer discussed their experiences and answered questions on how to get an internship. ASCIE assisted VMware and Ultimate Software in hosting information sessions on campus. Both companies discussed career and internship opportunities available to CISE students. A seminar for doctoral students that focused on getting a job in academia was held on October 18.

CISE Career Development Workshop

This semester, the CISE department and ASCIE held its first Career Development Workshop. The goal was to bring together students and industry representatives, and the event certainly achieved its initiatives, as well over 300 students attended the event. The Career Development Workshop was held on October 23 in the Touchdown Terrace located inside Ben Hill Griffin Stadium.

This event allowed our graduate and undergraduate students nearing their graduation to meet potential employers, provide their resumes and discover potential career opportunities.

The companies that attended and sponsored the event were:

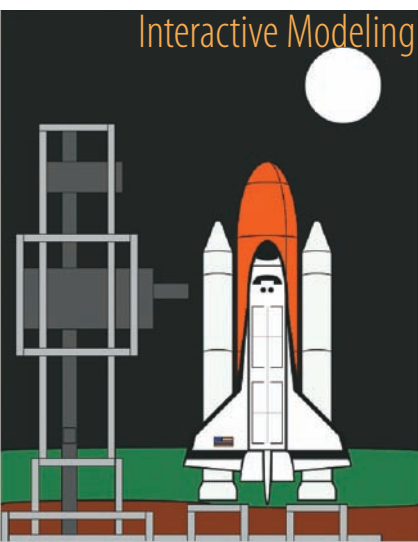
352 Media	Innovative Scheduling
Artificial Studios Inc.	Lockheed Martin
Barr Systems	McKesson Corporation
Bright House Networks	Morgan-Stanley
Cisco Systems	Raytheon
Citrix Systems	Sage Software
Florida Interactive Entertainment Academy	Symantec Corporation

ASCIE plans to host the CISE Career Workshop again in the future and believes it will grow in popularity quickly. More information can be found at the event website at: <http://www.cise.ufl.edu/>

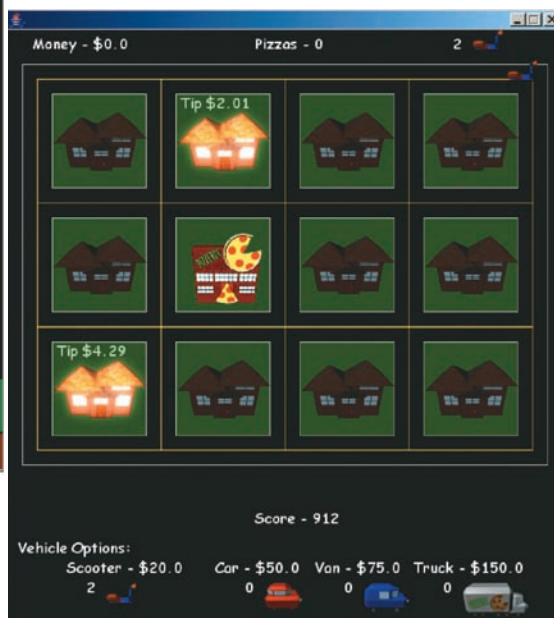


ASCIE Career Development Workshop Organizers and Volunteers get together after the success of the workshop. Ganesan Ranachandran, Koushik Kalyanaraman, Raazia Mahzar, Thames Harrison, Piyush Goswami, Alina Zare, Mohsen Ali, Kenneth Watford, Andres Mendez-Vazquez and Florin Rusu.

student projects



Interactive Modeling and Animation



STUDENTS IN PROFESSOR Rong Zhang's Interactive Modeling and Animation course learned how to write programs to generate images and animation in a fun way with fundamentals of computer programming being taught in a visual context. Students learned various techniques to generate different visual patterns and created drawings such as a space shuttle, cartoon characters and an underwater scene.

Students also designed interactive games by adding responses to user input. The ideas for those games came from real world problems, or simpler versions of commercial video games. For example, one project developed an interactive game mimicking the activity of pizza delivery. The player had to pick up the pizzas from the pizzeria, and then navigate a vehicle through the streets to deliver the pizza as quickly as possible. The player received a reward that was determined by the time period between the request and the actual delivery. If a customer could not get a pizza within a reasonable time, a penalty was given to the player.

new staff

staff spotlight



Dan Eicher

Dan Eicher, *Senior Systems Administrator*
Eicher joined the CISE Department in May 2007 as the senior systems administrator. Eicher is responsible for the network and system administration of the Department's servers and infrastructure. Eicher is a native of Indiana and graduated from Purdue University in 1993 with a Bachelor of Science degree in Computer Technology.



Crystal McJunkin

Crystal McJunkin, *Senior Services Secretary*
McJunkin joined the CISE staff in September after graduating from the University of Florida with a Bachelor of Arts degree in English Literature. As the secretary and receptionist at the CISE Student Services Center, she works closely with the advising staff and assists undergraduate and graduate students with their academic inquiries.



Terry Moore

Terry Moore, *Grants Specialist*
Moore joined the CISE staff in September as a grants specialist. She is responsible of working with the faculty members to assemble grant proposals as well as compiling budgets and managing the Department's grants' database. Moore holds an MBA from Troy University and a Bachelor of Science in Journalism from Georgia Southern University.



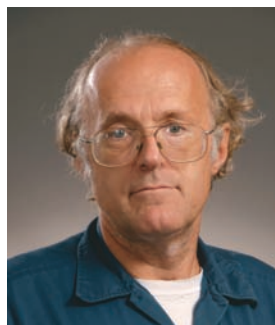
Paul Rocha

Paul Rocha, *Undergraduate Advisor*
Rocha joined the CISE staff in June as an undergraduate academic advisor in the Student Services Center. He moved to Gainesville from Norman, Okla. where he received his Bachelor of Arts degree in History in 1996 from the University of Oklahoma.



Nathanael Schuman

Nathanael Schuman, *IT Specialist*
Schuman joined the CISE team in September as an IT specialist. He graduated from the University of Florida in spring of 2007 with a Bachelor of Science degree in Computer Science. Schuman's primary responsibilities include maintaining and developing web applications, as well as managing and renovating the Department's website.



Paul Bennett

Paul Bennett, *Computer Repair Technician*

Paul Bennett has been with the CISE Department in his current position since 1985. This represents close to one half of a career that has seen electronics and computing evolve from vacuum tubes and slide rules to integrated circuits and high speed computing. As the computer repair technician, Paul has been involved in the Department's move from Weil Hall to the current CISE building and has done several network and computer renovations from the initial serial networking to the present day fiber infrastructure, computer terminals and dot matrix printers to the Department's workstation and laser printer environment.

While his job title is Computer Repair Technician, his actual responsibilities cover a wide range of duties including asset management, inventory control and serving as the CISE Building Emergency Coordinator. As Building Emergency Coordinator for the CISE Department, Paul is on call in the event of a disaster or threatened storm, as he is required to take steps necessary to mitigate damages and then evaluate the structure and contents in order to submit reports to the University.

As a Computer Technician, he is responsible for the maintenance of the computer and networking equipment, as well as installing new equipment and changing configurations as needed.

Bennett graduated from Florida Junior College at Jacksonville (now Florida Community College) in 1970 with an Associate of Science degree. During his service in the Air Force, he completed numerous technical schooling programs as well as the correspondence course for the Tactical Air Command NCO Leadership School.

At MacDill Air Force Base, he wrote and instructed an F-16 Communications/Navigation equipment course. Since then he has taken medical first responder, basic fire ground skills, farm and industrial emergency medical and incident command courses. He has also taken emergency communications and Skywarn courses.

Bennett's hobbies include amateur radio, plastic model building, photography, electronics, reading, writing, gardening and model railroading.

Gators at Intel Corporation

Gene Matter, Senior Principal Engineer at Intel. (Class of 78'). He is the current chair of the CISE Industry Advisory Board and member of the College of Engineering Dean's Advisory Board. He joined Intel in 1988.

Intel was founded in 1968

and has become the world's largest semiconductor manufacturer and microprocessor supplier. Intel has worldwide operations employing over 94,000 people with over 50 percent in the United States as of December 2006.

Intel employs approximately 340 UF graduates and hired 45 graduates or interns in 2006, placing the UF among the top 5 schools for new hires at Intel. Intel is a member of the Chemical, Electrical and Computer, and Computer and Information Sciences and Engineering Advisory Boards as well as the Dean's Board of Advisors for the College of Engineering.



Dani Napier is Intel's Campus Recruiter for the University of Florida.

Intel and UF have numerous collaborations with visiting researchers, equipment grants, and funded research grants. In 2003 Intel provided a \$2 million endowment for the Charles E. Young Electrical Engineering department chair. Dr Young was a member of Intel's Board of Directors and is a past President of UF. In sponsored university research

committees, Intel is funding several research proposals for 1-3 years in the areas of architecture, communications, system software, device physics and applications research.

Intel has major sites world wide several of which feature significant amount of UF graduates, most notably Portland Ore., Chandler Ariz., Folsom and Santa Clara, Calif. and Rio Rancho, N.M. Portland is home to Intel's Corporate Technology Group and Digital Enterprise Group. Some notable Gators include Kim Christmas, who is both a diffusion process engineer and the president of Portland Gator Club. There are 950 Gator alumni in Portland area, 150 alumni that are active with the club, and about half the active alumni work at Intel.

Padma Apparao is a Senior Researcher in the Intel's Systems Technology Lab and graduate in CISE. Her work has focused on chip multiprocessor platforms for data center applications. Harnessing the power of core level and thread level parallelism is at the forefront of both university and industry research. Other areas of focus include Virtualization, Security and Manageability functions.

There are a vast amount of opportunities for Computer and Information Science Engineers at Intel. They range from multi-core, multi-processor research to product development, and information technology and systems software development. Gators at Intel have made significant contributions and we look forward to many years of collaboration with UF.

For more information regarding our programs with the University of Florida and jobs at Intel please see: <http://www.intel.com/jobs/usa/students/campus/school.htm?grp=26>

For more on Intel's University Research Grant Programs please see: <http://techresearch.intel.com/articles/None/1440.htm>



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