

COMPUTER & INFORMATION SCIENCE & ENGINEERING

CISE NEWS

summer 2012

www.cise.ufl.edu



A SEASON OF CHANGE

CHAIRMAN'S MESSAGE



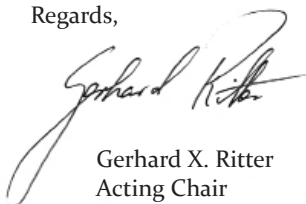
The early years of the 21st Century have been a season of change for the Department. In the Fall of 2001 I stepped down from my seven year stint as Chair of CISE in order to pursue my research interests. My successor, Professor Sartaj Sahni, chaired the Department for 10 years until the end of June 2011 and I was called out of retirement to serve as Acting Chair starting July 1, 2011.

Since moving from UF's Department of Mathematics to CISE in 1985, I have witnessed a steady increase in the number and quality of CISE faculty and staff. Associated with this increase has been an increase in external research funding and the Department's reputation. But like the year's seasons, things change. The turmoil and confusion that arose in connection with the recent budget cuts to the Florida University

System made the 2011-2012 academic year the most tempestuous that I have experienced since joining UF's faculty in 1971. The CISE Department became a focal point of several controversial proposals for cutting the budget within the College of Engineering. The proposals ranged from distributing most of CISE's faculty to three different departments within the College of Engineering while reducing the remnants of the Department to a mostly undergraduate teaching department, to complete elimination of the Department by absorbing it into the Electrical and Computer Engineering Department. These radical proposals became global news items and have greatly marred the national image of the Department. With a final disposition of an across-the-board budget cut for all departments in the College, the Department was also forced to absorb the additional loss of two faculty positions which will be transferred to other departments within the College. With this additional cut the Department is reducing the number of faculty for the first time in its history. Nevertheless, I am happy to say that we survived as an intact computer science and engineering department. This is in no small way due to the strong support from our alumni, industry partners, computer science professional organizations, friends, faculty, staff, and students. A big thank you to all!

This will be my only Chair's Message as Acting Chair. I am stepping down from the Chair's position effective June 30, 2012. Professor Paul Gader has graciously accepted the request to serve as interim chair starting July 1, 2012. Having known Dr. Gader for 30 years, I am happy to say that the leadership of the Department is in very capable hands. I believe that the strength of a department originates in its people. These include the faculty, staff, students, alumni, and industrial partners. For me it was a pleasure getting reacquainted with all of these groups. The commitment and professionalism of our staff has been amazing. The quality of our student body is outstanding as can be ascertained from this newsletter, and the support from alumni and industrial partners has been instrumental in helping us to cope with the current budget cuts. In regard to budget cuts to computer science, politicians and administrators need to be informed that according to governmental labor statistics, in this year alone there will be more than 140,000 jobs in computer science and fewer than 60,000 college graduates prepared to fill them. Luckily, our student enrollments are increasing in both the graduate and undergraduate categories. This should lessen the anxiety of our industrial partners when considering the future pool of highly trained IT workers. I remain optimistic about CISE's future and urge all to support Professor Gader in the difficult task of steering the Department towards a brighter tomorrow. ▶

Regards,



Gerhard X. Ritter
Acting Chair

FACULTY NEWS

JORG PETERS / Professor / Was invited to speak at three conferences: Computational Manifolds and Applications, IMPA, in Rio de Janeiro, Brazil in October 2011, Applied Harmonic Analysis and Multiscale Computing (AHAMC), in Edmonton, Canada, in July 2011, and the Institute for Mathematics and its Applications (IMA) Annual Program Year Workshop: Computing in Image Processing, Computer Graphics, Virtual Surgery and Sports, in March 2011. He organized two professional meetings: the SIAM Geometric Design conference, held in Florida, in October 2011, and the Dagstuhl Workshop on Geometric Design in Germany, in May 2011.

PRABHAT MISHRA / Associate Professor / Was named associate editor of the following three journals: the ACM Transactions of Design Automation of Electronic Systems, the IEEE Design & Test of Computers, and the Springer Journal of Electronic Testing. He served as guest editor of IEEE Transactions on Computers in 2011. He received a \$35,000 grant from Intel for the project "Efficient Techniques for Post-Silicon Validation and Debug".

BABA VEMURI / Professor / Was a charter member of the Neurotechnology (NOIT) study section, and a member of the External Advisory Board for the Neuroimaging Center for Harvard Medical School. He was also invited to speak at the IEEE Engineering in Medicine and Biology Grand Challenges in Biomedical Imaging in Bethesda, Maryland in March 2012. He also spoke as a distinguished lecturer in the Colloquium Series at the Department of Electrical Engineering at the University of California, Riverside later in March.

SUMI HELAL / Professor / Finished his book, *Mobile Platforms & Development Environments*. The book, coauthored by Dr. Reja Bose and Mr. Wendong Li, is available in stores in print and electronic formats. He has also been named Finland Distinguished Professor (FiDiPro). The Distinguished Professorship involves collaborative research with the European EIT ICT Labs through the Finland node and Aalto University.

PAUL FISHWICK / Professor / Was invited to two colloquium talks in March 2012 at the University of Texas and the University of Georgia on "Building Digital Worlds: Explorations in Computer Modeling & Simulation."

BENJAMIN LOK / Associate Professor / Was the program chair of the IEEE VR 2011 Conference and the keynote speaker at the 8th International Symposium on Visual Computing in Las Vegas, NV 2011. He was awarded two grants as a Co-PI; one from SAMSHA, "Cooperative Agreement for a Prescriber's Clinical Support System for the Appropriate Use of Opioids in the Treatment of Pain and Opioid-related Addiction," and one from NIH, "A Mixed Reality Conscious for Learning to Manage Variability."

BEVERLY SANDERS / Associate Professor / Was invited to attend the Microsoft Research Faculty Summit, in Redmond, WA, USA, July 16-17, 2012. The 2012 Microsoft Research Faculty Summit unites academic researchers, educators, Microsoft researchers, product group engineers, and architects to explore new opportunities and challenges in computer science research.

GERHARD RITTER / Professor Emeritus / Was invited to give two week-long lecture series in Mexico. The lectures concerned research results in hyperspectral image segmentation, associative memories, and lattice based dendritic computation. The first week-long lecture series was at the Engineering Research and Advanced Studies Center (CINVESTAV) near Guadalajara, while the second week-long series was at the National Institute for Astrophysics, Optics and Electronics, near Puebla, Mexico. Dr. Ritter's title on the cover page of Springer Verlag's "Journal of Mathematical Imaging and Vision" has been changed in August 2011 from Editor-in-Chief to Founding Editor.

BARR LECTURE SERIES BRINGS RENOWNED RESEARCHERS TO CISE

The 2011-2012 Barr Systems Distinguished Lecture Series brought three well-known scholars to the CISE department.



The first Barr speaker was Professor David Nicol, Professor of Computer and Electrical Engineering and Director of the Information Trust Institute at the University of Illinois, Urbana-Champaign. He showed a large crowd of attendees how to accelerate simulation of complex models by introspectively exploiting the uncertainties inherent in the very model being simulated.

The second speaker was Dr. Zvi Galil, the John P. Imlay Jr. Dean of the College of Computing at the Georgia Institute of Technology. Dr. Zvi gave a talk that was both visionary and documentary suggesting radical reforms required to support and evolve Computing in the 21st Century. He documented the Georgia Tech Model and its history, broadly materialized in the creation of one of the earliest Colleges of Computing in the nation.



Finally, the third speaker was Dr. Marilyn Wolf, Professor and Rhesa "Ray" S. Farmer, Jr. Distinguished Chair in Embedded Computing Systems at Georgia Tech. Dr. Wolf presented her recent work addressing Challenges in Cyber-Physical Systems and showing the need for science syntheses, especially between computer science and control theory.

The CISE Department continues to be grateful to Tony Barr, the founder of Barr Systems, Inc., for his great support and for funding the distinguished lecture series for so many years. He certainly deserves the highest recognition for helping so much to create a rich and thought-stimulating culture at the CISE Department. ▶

USING VIRTUAL AND MIXED REALITY TO TRAIN FUTURE HEALTH CARE PROFESSIONALS



Have you ever had a bad experience when visiting a doctor? If so, researchers in the Virtual Experiences Research Group (VERG) are working on realistic, interactive simulations with virtual humans to train health care providers. VERG researchers are developing new interfaces between humans and virtual humans to simulate and practice interpersonal skills. The group's research focuses on three main areas that are helping health students and professionals excel in patient care: training, affect and mixed reality.

One of the main concerns in health care is that providers possess adequate interpersonal skills. This however, is a challenge for medical education, as training is many times very technical, and students don't get the proper amount of exposure to the challenges involved in a doctor-patient interview. To address this issue, and offer students the ability to practice these interpersonal skills, VERG has been working for nine years in the development of virtual patients that can engage in meaningful and accurate simulated consultations. These virtual patients incorporate computer-generated graphics combined with language recognition and speech, and they go a long way in the training of medical hopefuls. Students can interview the virtual patients in the same way that they would in a real clinic, and are able to exercise the important skills necessary to elucidate a certain condition.

The research carried out in the group not only allows students to practice interviewing patients with different medical conditions, but it also offers experiences with virtual patients that have different personality traits. A health care provider needs to be able to deal with many types of patients.

Sometimes they will be confrontational, sometimes it will be difficult to get necessary information from them; sometimes they will not even speak the same language! Recent studies carried out by VERG students are showing that these traits do not go unnoticed by medical students. In fact, students learn to adapt to the personality of the patient in order to gather the necessary information to form the diagnosis. Also, the group found that students show racial bias towards virtual patients in the same way that they show bias to real people. This is especially critical in health care, where all patients should be given consistent treatment regardless of race or gender, but many times it is not the case. Virtual patients provide a great platform for the training against such biases.

Mixed Reality is the idea of combining virtual and real environments. Virtual patients created by VERG are presented in mixed reality in a way that students not only talk to the virtual human, but can also perform examinations and have the patients follow commands such as "follow my finger." Research in the group has found that students treat the virtual humans more realistically when they come in life-size and with human features, such as physical legs and body movements. The group has started to investigate the idea of using these mixed reality virtual humans to replace real people in team-training situations, when many times it is difficult to get all parties involved in an exercise at the same moment.

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DATA SCIENCE RESEARCH IN THE BIG DATA ERA

Dr. Daisy Zhe Wang joined the CISE department as an assistant professor in Fall 2011. She obtained her Ph.D. degree from the EECS Department at the University of California, Berkeley in 2011 and her Bachelor's degree from the ECE Department at the University of Toronto in 2005. At Berkeley, she was a member of the Database Group, and a member of the AMP/RAD Lab. Her Ph.D. thesis research focused on data management systems that support scalable, declarative, on-line data analysis based on Probabilistic Graphical Models. She has collaborated with IBM Research at Almaden, AT&T Research, Yahoo! Research, and Intel Research on probabilistic information management. She also has industry experience at Google Inc. and IBM Toronto Lab.

Dr. Wang's current research interest lies in large-scale data management, data mining and data analysis using technologies from Database Management Systems (DBMS's), Statistical Machine Learning (SML), and Information Visualization. Such research in a Big Data era is called Data Science, which is a profession (Data Scientists are the highest in-demand jobs in IT industry), a research agenda (BigData NSF/NIH, Darpa, DoE 2012 calls), and a sport (numerous commercial and academic competitions including Kaggle)! The goal of Data Science research is to build systems and algorithms to extract knowledge, find patterns, generate insights and predictions from diverse data for various applications and visualize the results.

The research challenges in Data Science research include:

- Terabytes, even petabytes of data are generated each day;
- Almost every discipline are facing big data analysis problems, including medical sciences, life sciences, bioinformatics, law school, civil engineering and government;
- Data comes in different forms, such as free text, structured data, audio/video, images;
- Analysis tasks performed over the data are becoming more sophisticated;
- High performance computing platforms are advancing fast (e.g., cloud computing, multi-core machines, GPU, mobile-computing);
- Communication and feedback needs to be established between machine, algorithms and people.

Currently, Dr. Wang and her students are working on a web-scale automatic knowledge base construction system that contains three interrelated components: (1) MADden is a knowledge extraction system applying statistical text analysis (e.g., information extraction) methods over DBMS and MPP frameworks, such as Greenplum; (2) ProbKB performs probabilistic reasoning over the extracted knowledge to derive facts that do not exist in the text data; and (3) CAMEL leverages human intelligence to reduce the uncertainty resulting from both information extraction and probabilistic reasoning. By harnessing the information of all the entities and rela-



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Over the past nine years, VERG has established itself as a top research facility in the Computer and Information Science and Engineering (CISE) Department at the University of Florida with several dozens of articles published at international journals and conferences. The group's accomplishments are in large part due to very successful collaborations with medical researchers and other computer science labs.

Medical collaborators include Juan Cendan from the University of Central Florida, Scott Lind from Drexel University, Sem Lampotang and Adam Wendling from the University of Florida and Casey White from the University of Virginia. Collaborators from other computer science research labs include Kyle Johnsen from the University of Georgia and John Quarles from the University of Texas San Antonio, both of whom are VERG alumni. Funding for the group comes from the National Science Foundation (NSF), the National Institute of Health (NIH) and the Substance Abuse and

Mental Health Services Administration (SAMSHA).

The group is directed by Benjamin Lok, an associate professor at CISE. Lok is a leading researcher in the areas of Human-Computer Interaction, Virtual Reality and Virtual Humans. VERG currently has 7 Ph.D. students and 3 MS students. Recently, Regis Kopper (Ph.D. Virginia Tech '11) joined the group as a post-doctoral associate, bringing in expertise in 3D user interfaces and experimental methods.

If you want to learn more about how VERG is helping to improve doctor conversations, keep up with the research at

<http://www.virtualpatientsgroup.com>. ►

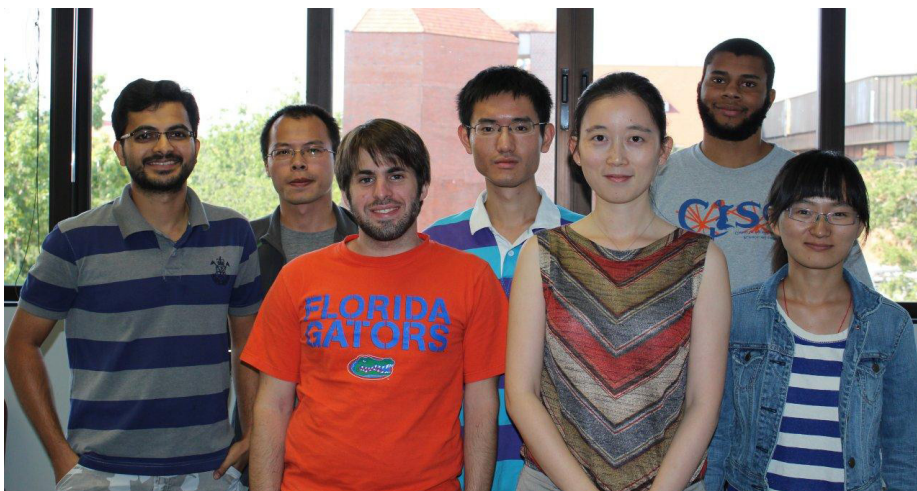
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tionships on the web and beyond, such a knowledge base can improve search engines by enabling semantic search in addition to the keyword search.

Dr. Wang and her students are also collaborating with IT companies and other departments on various Data Science Research projects:

- Greenplum/EMC: Query-Driven Statistical Text Analysis in an MPP framework
- Survey Monkey: A Machine-Learning Approach to Representative Survey Generation
- College of Law: E-Discovery over Legal Documents
- College of Medicine: Text Analysis over Electronic Medical Records to Predict Post-Surgery Complications
- University of Hong Kong: Scalable Visual Data Analysis

As a final note, Dr. Wang and her students invite self-motivated and hard-working undergraduate and graduate students to exercise their analytical and system building skills and join us to work on fun Data Science research problems! Data Science rocks! ►



The Data Science Research Lab, Summer 2012.
From left to right: Clint P. George, Kun Li, Sean Goldberg, Yang Chen, Professor Daisy Zhe Wang, Christian Grant, Shuang Lin.

STUDENT TRAVEL AWARDS

AWARDED IN THE SUMMER SEMESTER 2011

WANG, WEIXUN: "Cache Reconfiguration and Partitioning for Energy Optimization in Real-Time Multi-Core Systems," IEEE/ACM Design Automation Conference, San Diego, CA, Jun. 5-10, 2011.

AY, FERHAT: "A Novel Framework for Large Scale Metabolic Network," ACM Conference on Bioinformatics, Computational Biology and Biomedicine, Chicago, IL, Aug. 1-3, 2011.

GULSOY, GUNHAN: "RINQ: Reference-based Indexing for Network Queries," International Conference on Intelligent Systems for Molecular Biology, Vienna, Austria, Jul. 12-21, 2011.

HAJIMIRI, HADI: "Synergistic Integration of Dynamic Cache Reconfiguration and Code Compression in Embedded Systems," IEEE International Green Computing Conference, Orlando, FL, Jul. 25-28, 2011.

SHEN, YILIN: "Exploiting the Robustness on Power-Law Networks," International Computing and Combinatorics Conference, Dallas, TX, Aug. 14-16, 2011.

AWARDED IN THE FALL SEMESTER 2011

NGUYEN, NAM(*): "Overlapping Communities in Dynamic Networks: Their Detection and How They can Help Mobile Applications," ACM MOBICOM International Conference, Las Vegas, NV, Sep. 19-23, 2011.

TARIFI, MOHAMAD: "Learning Hierarchical Sparse Representations using Interactive Dictionary Learning and Dimension Reduction," Brain Inspired Cognitive Architectures, Virginia, Nov. 4-6, 2011.

CHEN, CHAO: "A Device-Centric Approach to a Safer Internet of Things," ACM International Conference on Ubiquitous Computing, Beijing, China, Sep. 17-21, 2011.

MIRZARGAR, MAHSA: "Quasi Interpolation with Voronoi Splines," IEEE Visualization International Conference, Providence, RI, Oct. 23-28, 2011.

CHEN, TING: "Mixture of Segmenters with Discrim-

inative Spatial Regularization and Sparse Weight Selection," and "Automatic Alignment of Brain MR Scout Scans using Data-adaptive Multi-structural Model," International Conference on Medical Image Computing and Computer Assisted Intervention, Toronto, Canada, Sep. 18-22, 2011.

DINH, THANG: "Finding Community Structure with Performance Guarantees in Scale-free Networks," and "Overlapping Community Structures and Their Protection on Social Networks," IEEE International Conference on Social Computing, Boston, MA, Oct. 9-11, 2011.

BASU, KANAD: "Efficient Combination of Trace and Scan Signals for Post Silicon Validation and Debug," IEEE International Test Conference, Anaheim, CA, Sep. 18-23, 2011.

CHEN, JIANMIN: "Tree Structured Analysis on GPU Power Study," IEEE International Conference on Computer Design, Amherst, MA, Oct. 10-12, 2011.

BANDYOPADHYAY, SHIBDAS: "Sorting Large Multi-field Records on a GPU," IEEE International Conference on Parallel and Distributed Systems, Tainan, Taiwan, Dec. 7-9, 2011.

LI, JUNJIE: "Strassen's Matrix Multiplication on GPUs," IEEE International Conference on Parallel and Distributed Systems, Tainan, Taiwan, Dec. 7-9, 2011.

MOGHADDAM, SAEED: "Multi-dimensional Modeling and Analysis of Wireless Users Online Activity and Mobility: A Neural-network Map Approach," ACM International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems, Miami, FL, Nov. 1-4, 2011.

EZZEL, ZACHARY: "Linking Simulation and Visualization Construction through Interactions with an Ontology Visualization," Winter Simulation Conference, Phoenix, AZ, Dec. 11-14, 2011.

CHAPMAN, BILL: "Parallel Processing Techniques for the Processing of Synthetic Aperture Radar Data on GPUs," IEEE Symposium on Signal Processing and Information Technology, Bilbao, Spain, Dec. 14-17, 2011.

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* Denotes College of Engineering Travel Award

UF PROGRAMMING TEAM RISES TO THE CHALLENGE



Victory is sweet: Captain, Joe Thuemler, Alex Anderson, Jason Fisher at the SER 2011 Competition.

ACM/ICPC SOUTHEAST USA PROGRAMMING CONTEST (SER 2011): UF TAKES THIRD PLACE

On October 22, the Programming Team represented UF at the Southeast USA Programming Contest (SER 2011), a regional round of the ACM International Collegiate Programming Competition (ICPC). The ACM's ICPC describes itself as "the oldest, largest, and most prestigious programming contest in the world." It has several rounds, each feeding into the next:

- Local Contests – "Universities choose teams or hold local contests. Selection takes place from a field of over 300,000 students in computing disciplines worldwide."
- Regional Contests – last year (2010), "24,915 contestants competed on 8,305 teams from 2,070 universities from 88 countries on six continents at over 250 sites."
- World Finals - this year 105 teams were invited to compete.

This year the three top teams each solved seven of the ten problems: UF's best team ranked third with GA Tech and UCF finishing first and second, respectively (as ties are broken by the total number of penalty points accumulated [= time to solve + 20 * number of incorrect solutions submitted]). Our other teams finished 10th, 13th, and 23rd.

An analysis of contest results since 2001 shows that UCF and GA Tech were clearly dominant at the beginning of that period. Since team coach Dave Small began taking our team to the SER, they have either outright won, or tied with the first place team in number of problems solved four out of the five years, and UF's Programming Team is now regarded as one of the region's heavy-weights.

The SER 2011 problem set can be found here:
<http://vanb.org/ser2011/SER%202011%20Problem%20Set.pdf> ►

IEEEEXTREME 5.0: UF TAKES FIRST IN NORTH AMERICA/13TH IN THE WORLD

On October 29, the Programming Team competed in the IEEEExtreme 5.0 (2011), "a global challenge in which teams of IEEE student members – supported by an IEEE Student Branch, advised and proctored by an IEEE Member, compete in a 24-hour time span against each other to solve a set of programming problems." It is a new contest (in its fifth year) conducted over the internet with only a single round of competition.

Out of more than 1500 teams worldwide and 227 teams from the USA, our best team--starring Joe Thuemler, Jason Fisher, and Cheran Wu--finished:

- 1st in North America (1st in the USA and region R03 for the second year in a row)
- 13th in the world

Of the nine teams UF fielded this year, seven were from our programming team. Our other teams ranked:

- * USA: 5th, 7th, 9th, 52nd, 57th, and 100th
- * World: 38th, 43rd, 54th, 178th, 191st, and 331st

UF's Programming Team competed in two programming competitions in October, and have continued to climb in the rankings, both nationally and internationally.



The UF Programming Team, at SER 2011. Front row left-to-right: Captain, Joe Thuemler, Alex Anderson, Jason Fisher, Alex Guthrie, Steve Harris, Rod Salazar. Back row, left-to-right: Chris Dudley, Walter Cornell, Zach Ziebarth, TJ Boyd, Cheran Wu, Uttam Thakore.

GATORS @ INFO TECH, INC.



A snapshot of some of the Gators who work at Info Tech here in Gainesville.

**GATORS LOOK-
ING TO STAY IN
TOWN AFTER
GRADUATING
FIND A CHAL-
LENGING WORK
ENVIRONMENT
IN A RELAXED
CORPORATE
CULTURE AT
INFO TECH.**

When the co-founders of your Gainesville-based company are former UF professors, you know the ties to UF will run deep. That's the case at Info Tech, Inc. a software development and consulting firm with a 35-year history in Hogtown.

Info Tech's primary business is developing applications for infrastructure construction management that are designed for departments of transportation and government agencies. The company also runs successful Internet bidding services for all types of industries and provides IT services. There are more than 40,000 users of Info Tech-developed software worldwide. Of Info Tech's 240 employees, about 50 are UF graduates and more than 20 are CISE graduates. Gators looking to stay in town after graduating find a challenging work environment in a relaxed corporate culture at Info Tech.

Due to Info Tech's varied product lines and clients, there are opportunities on different teams for using all kinds of tools. Cutting edge challenges in cloud applications, data encryption and secure transactions are day-to-day work for Info

Tech programmers. Those seeking a large, structured team with a client-led development schedule might work on a product suite built for C# for Microsoft's MVC.Net, or C++ in native Windows, while those seeking a smaller, more agile group might work with the bidding services team using Ruby on Rails or Perl. We even have some client/server PowerBuilder applications that are still supported and enhanced. A select few might end up on Info Tech's own incubator team which develops early-stage product and service ideas using a wider variety of languages and technologies including mobile and big data. However, no matter what team an employee is on, Info Tech's relaxed dress code and flexible schedule policy make it a comfortable place to work.

"I came to Info Tech intending to stay here for a year while my wife finished her Ph.D., after which I'd look for a permanent job," said Charles Engelke, CISE alumnus and Info Tech's Chief Technology Officer. "It's nearly 25 years later, and I am so glad I found Info Tech and built my career here. It has been exciting, challenging and rewarding."

Beyond hiring graduates, Info Tech's ties to UF are numerous. The company participates in the GatorNest experiential learning program run by the Center for Entrepreneurship and Innovation at the Warrington College of Business Administration, and the Integrated Product and Process Design program through the College of Engineering.

For many UF graduates, the best part of being in Gainesville is being close to the heart of the Gator Nation. On football season Fridays, there is an awful lot of orange and blue in the hallways, and opportunities abound to enjoy other UF sports, arts and culture. Gainesville's abundant ecological gems are another laurel in this small city which is making headlines regularly for its rapidly expanding innovation areas.

"We are lucky to live and work in this great city during an exciting time of innovation and expansion," said Dr. James T. McClave, President of Info Tech. "Info Tech is proud to be a part of Gainesville's high-tech community." ►

CONGRATULATIONS 2011-2012 GRADUATES

DOCTOR OF PHILOSOPHY IN COMPUTER ENGINEERING

FERHAT AY/Dissertation Title: *A Comparative Study on Biological Networks: Alignment and Structural Properties*/Advisor: **T. Kahveci**

KARTHIK SUND. GURUMOORTHY/Dissertation Title: *A Schrodinger wave mechanics formalism for the eikonal problem and its associated gradient density computation*/Advisor: **A. Banerjee**

MAHENDRA KUMAR/Dissertation Title: *Steganography And Steganalysis Of Joint Picture Expert Group (JPEG) Images*/Advisor: **R. Newman**

DANIEL A. NIETEN/Dissertation Title: *An Unsupervised Learning Approach for Automatic Detection of Metaphors*/Advisor: **P. Fishwick**

WEIXUN WANG/Dissertation Title: *Energy-Aware Scheduling and Dynamic Reconfiguration in Real-Time Embedded Systems*/Advisor: **P. Mishra**

WENJIE YUAN/Dissertation Title: *iNav: A Spatial Model Supporting Route Planning in Indoor Space*/Advisor: **M. Schneider**

SENIHA ESEN YUKSEL/Dissertation Title: *Context-Based Classification via Data-Dependent Mixtures of Logistic and Hidden Markov Model Classifiers*/Advisor: **P. Gader**

NIRMALYA BANDYOPADHYAY/Dissertation Title: *Integrating pathways and gene expressions*/Advisor: **T. Kahveci**

LIXIA CHEN/Dissertation Title: *Statistical Approximations of Database Queries with Confidence Intervals*/Advisor: **A. Dobra**

TING CHEN/Dissertation Title: *Groupwise Analysis of Neuroimaging Data*/Advisor: **B. Vemuri**

RYAN CLOSE/Dissertation Title: *End-member and Proportion Estimation Using Physics-Based Macroscopic and Microscopic Mixture Models*/Advisor: **P. Gader**

MEIZHU LIU/Dissertation Title: *Total Bregman Divergence, a Robust Divergence Measure, and Its Applications*/Advisor: **B. Vemuri**

SUNGWOOK MOON/Dissertation Title: *Mobile Encounters: Pattern Analysis and Profile Based Mobile Networking Testbeds*/Advisor: **A. Helmy**

S M SHAHED NEJHUM/Dissertation Title: *Online Adaptive Appearance Models for Robust Visual Tracking*/Advisor: **J. Ho**

BRENT ROSSEN/Dissertation Title: *Design and Evaluation of Human-Centered Approaches to Robust Conversational Modeling for Virtual Human Interpersonal Skills Education*/Advisor: **B. Lok**

GANESH VISWANATHAN/Dissertation Title: *Big Cube: A User-Centric Modeling Paradigm with Multidimensional Data Types and Operations for Supporting Complex Spatial Objects in Data Warehouses*/Advisor: **M. Schneider**

YING XUAN/Dissertation Title: *Discrete Optimization for Network Security and Reliability*/Advisor: **M. Thai**

JIANMIN CHEN/Dissertation Title: *Multithread Scheduling, Synchronization, and Power Analysis on General-Purpose Graphics Processing Unit*/Advisor: **J. Peir**

GUANG CHENG/Dissertation Title: *Algorithms for Tracking on the Manifold of Symmetric Positive Definite Matrices*/Advisor: **B. Vemuri**

HUAFENG JIN/Dissertation Title: *Java Memory Model-Aware Model Checking*/Advisor: **B. Sanders**

TAO LI/Dissertation Title: *Efficient Statistical Measurement Methods in Wired and Wireless Systems*/Advisor: **S. Chen**

TANIA MISHRA/Dissertation Title: *TCAM-Based Low Power Routers and Packet Classifiers*/Advisor: **S. Sahni**

XIAOKE QIN/Dissertation Title: *System-Level Validation of Multicore Architectures*/Advisor: **P. Misrha**

XUELIAN XIAO/Dissertation Title: *Meta-Rule Enhanced Interoperation of Rules and Processes for Achieving Dynamic Inter-Organizational Collaboration*/Advisor: **S. Su**

YOUNG YEO/Dissertation Title: *Accurate Rendering of Curved Higher-Order Surfaces on the GPU*/Advisor: **J. Peters**

MASTER OF ENGINEERING IN COMPUTER ENGINEERING

Rex Lewis Robinson
Jared B Allen
Justin T Currey
Jeffrey T Depree
Morgan Bauer
Priyanka Patel

MASTER OF SCIENCE IN COMPUTER ENGINEERING

Purnashree Bhattacharya
Kundan Kumar Das
Hinal Subhash Gala
Xiaoyang Gao
Gurmanik Singh Grover
Huafeng Jin
Divya Ramesh Kamath
Rohit Manokaran
Nadia Nusrat
Ankush Sharma
Karthik Mohan Subramanian
Jipeng Tan
Arun Kumar Umayi Kalyanar
Yogesh Veeraraghavan
Amit Verma
Ganesh Viswanathan
Weixun Wang
Ke Xue
Suchitra Yellapantula
Amrita Adusumilli
Akhil Agarwal
Sarthak Aggarwal
Malvika Agrawal
Nirmalya Bandyopadhyay
Sourabh Prakash Bansod
Pushkar Basappa
Nimish Batra
Pradeep Rao Boinapally

MASTER OF SCIENCE IN COMPUTER ENGINEERING

(con't)

Abhijith Chandrashekar
Jianmin Chen
Tao Chen
Zhendong Chen
Chandra Shekar Cherukuri
Dushyanth S Chickabasapa
Sudip Debnath
Neelkamal Doppalapudi
Neeraj Krishnan Ganapathy
Shivankit Garg
Upanita Goswami
Nishanth Singh Gurung
Sindhu Vigasini Jambunathan
Ravindranath Jampani
Amisha Khera
Pranay Kothari
Sourabh Kulkarni
Kunal Kumar
Aswin Kuppusami
Vaibhav Mahani
Shaun J Mcdowell
Mallory A Mcmanamon
Abhijit B Mhatre
Seyyedeh Mahsa Mirzargar
Sakshi Mody
Vidhyaa Muralidharan
S M Shahed Neijhum
Amrisha P Paigude
Carlo Joseph Pascoe
Divya Raghavan
Sathish Ramasubramanian
Karthik Narayan Ravikumar
Atul Rawat
Debarshi Roy
Shrey Sangal
Parag Saoji
Saurabh Saxena
Digvijay S Shaktawat
Hemant Sharma
Sarvesh Singh
Sreenidhi Sreesha
Ajay Vijayanarasimha
Qijing Yu
Mohit Agrawal
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STUDENT SPOTLIGHT:

Society of Women Engineers President,
Sarvenaz Laussermair

CISE CAREER DEVELOPMENT WORKSHOP

The 10th Biannual Career Development Workshop hosted many changes this spring. On January 23rd, the CISE staff and student volunteers from ASCIE and ACM welcomed more companies than ever before to a new venue: the Grand Ballroom in the J. Wayne Reitz Union.



Student volunteers from ASCIE, Nahush Chaturvedi (L) and Joir-dan Gumbs (R)

“The larger facility is a great addition to this event. The quality and preparedness of the students was very high!”

- recruiter at the CDW

There were more than 60 representatives from 15 different organizations: Harris Corporation, Bloomberg, McKesson, MicroStrategy, Microsoft, The Home Depot, Raymond James, Interactive Intelligence, Innovative Scheduling, Infinite Energy, Inc, Disney, Amazon, the University of Central Florida, Ultimate Software and Totuit. The change in venue had a positive impact on both students and company representatives, enabling more companies and students to flex their networking muscles. There was a record-breaking number of more than 530 students that came to the CDW, excited and well-prepared with resumes in hand for recruiters. Several of the companies remarked not only on the quality of the students they interacted with, but of the support from the CISE student volunteers in setting up and tearing down the company's booths. ▶

This was the first year the CDW was held in the Grand Ballroom in the Reitz Union, and we received lots of positive feedback from companies and students



Students take a break to enjoy pizza before going back to talk to recruiters about summer internships and jobs after graduating from UF



We sat down with CISE Student, Sarvenaz Laussermair, to ask her about her experiences as the president of the student organization, the Society of Women Engineers. Check them out @ swe.eng.ufl.edu

CISE: Describe your role in SWE.

Sarvenaz: As President of SWE, I work with and through about 20 committee chairs and the other members of the SWE executive board in bi-weekly meetings to further the goals of SWE.

CISE: What are some of the goals of SWE?

Sarvenaz: The primary goal is to help women in engineering achieve and aspire. We aim to attract women to the field of engineering early in college and focus on retention through having weekly events, socials, and industry networking opportunities. We are also working on increasing the membership, and have doubled it to about 120 since I became president.

CISE: What do you see for the future for SWE?

Sarvenaz: I'd like to work on increasing our visibility on campus through events like 'Mr. Engineer Pageant,' a male pageant and networking with other student groups. I'd also like to focus more on member leadership development, and give our members more exposure to industry, as well as higher participation in national conferences.

CISE: Do you feel supported by the CISE Department?

Sarvenaz: YES! Very much so.

CISE: What made you choose CISE?

Sarvenaz: Both my parents are computer scientists. Also, I had a lot of support in my early classes through the tutoring center here in the Department.

CISE: Tell us more about your experiences with CISE.

Sarvenaz: They've definitely been positive: I've really bonded with the undergrad advisors, Todd and Paul. They really made me feel welcome with their Freshmen Orientation Events. I also love the CDW: that's where I got my internship with American Express.

CISE: What are your plans for the future?

Sarvenaz: I am considering the 4-in-1 track, to pursue my Master's degree at UF. I see myself going out west after graduation, maybe in the California region. ▶

STAFF NEWS

NEW STAFF MEMBERS

Dawn V. Smith, Office Manager

Joined CISE as the new Office Manager in November of last year. She processes payroll, completes visa applications and leads the office Administrative staff. Dawn comes to us from UF's Central HR Office with over six years of human resource related experience. She enjoys spending time with her family, walking nature trails and reading.



Jennifer Jackson, Chair's Secretary



Jennifer was promoted to be the Chair's Secretary in November. Before being promoted, she served in CISE Student Services for almost a year. She received her BSBA in Business Management from UF in 2008, and enjoys entertaining friends, being active, cooking and reading.

Zac Bielling, Fiscal Officer

Zac has been the Department's Fiscal Officer since December 2011. He oversees fiscal processes and works with other CISE staff members in handling a wide variety of the Department's day-to-day financial matters. Zac is active in his community, and enjoys Gator football and NASCAR racing.



Addison Laurent, UNIX Systems Administrator

Addison was awarded his Bachelors in Textile Chemistry/Polymer Engineering from Clemson University. After leaving Clemson behind, he attempted to start his own ISP, and accidentally fell into IT, where he remains today, wrangling UNIX daemons, grepping wayward files, and searching for defunct processes.



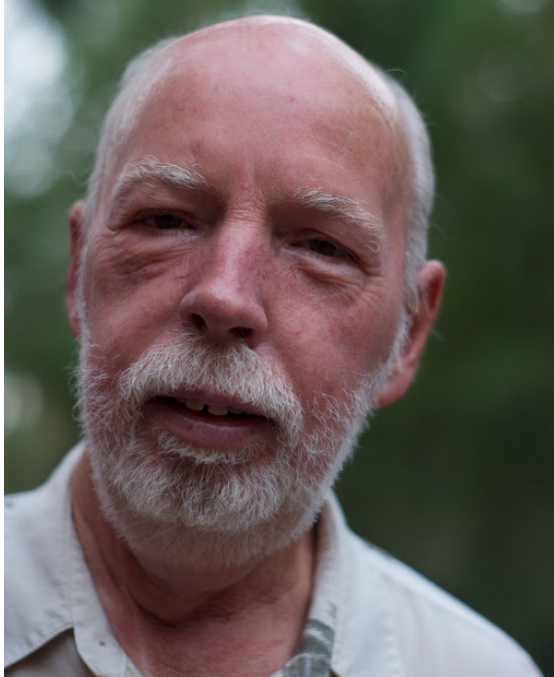
Kristina Sapp, Senior Secretary



Kristina joined CISE in December as a Senior Secretary. She works with Graduate Admissions, processing applications for prospective Masters and PhD students. She worked for the Office of Admissions for a year processing Freshman & Transfer applications. She enjoys spending time with her family, friends & going to the beach.

STAFF SPOTLIGHT

JOHN BOWERS, Graduate Academic Advisor



John Bowers has been with CISE in his current position since 1992. As one of CISE's academic advisors, John is involved in everything from recruiting graduate students for admission to degree certification. For 20 years, no CISE employee has been more in tune with our graduate students. Over 1,500 graduate students have graduated in the years that John has been guiding students through the CISE graduate program.

John has worked for the University of Florida since 1978. In all, 24 of his 29 years of service have involved working directly with students. He lives in Gainesville and is a proud UF alumnus, having received a BA in Political Science in 1990. His hobbies include gardening, cooking and reading. He enjoys good movies and good times with friends. John will retire from UF in 2013, after 30 years of service, and we appreciate his dedicated service in CISE.

Introducing: CISE Postdoctoral Researchers

▶▶▶ Regis Kopper



Dr. Kopper is working with Dr. Benjamin Lok on an NIH-funded project to create virtual reality experiences using virtual humans to train allied health care students on how to diagnose a variety of critical, yet difficult to simulate, neurological conditions.

Dr. Kopper works on creating simulations, developing novel interaction techniques, conducting large user studies to determine efficacy, and leading the curricular integration of these simulations at the University of Florida and the University of Central Florida.

▶▶▶ Jose Nieves Vazquez



Dr. Nieves Vazquez' goal is to work with Dr. Ritter in the project "New Paradigms for Dynamic Learning in Lattice Neural Networks (LNNs)". The idea is to establish methods and techniques for dynamic learning algorithms in LLNs.

The objective is not only to establish novel learning rules, but also to prove that these methods are as good or better than the current neural network methodologies in a variety of applications. Currently, he is working with Dr. Ritter to develop an algorithm for clustering applications.

▶▶▶ Yun Sick Sung



Dr. Yun Sick Sung is a postdoctoral fellow at the Mobile and Pervasive Computing Library at CISE. His research interests include human-robot interactions, programming by demonstration, pervasive computing and machine learning. He is currently working alongside Dr. Sumi Helal on smart house simulations in virtual spaces. He is specialized in analyzing collected data using programming by demonstration.



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ALUMNI NEWS

Are you a CISE alumnus? Have you made the news lately? Awards, start-ups, significant appointments? If you would like your news to be considered for publication in the future CISE newsletters, please email it to us at newsletter@cise.ufl.edu. Be sure to provide us with your name, your most recent degree from CISE and the year in which you received it. We would like to hear from you!

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