

# Computer & Information Science & Engineering

## Professor wins Florida Blue Key Distinguished Faculty Award



Professor Paul Fishwick was one of four University of Florida faculty to win the 2008 Florida Blue Key Distinguished Faculty Award based on exceptional achievements in teaching and research. Fishwick is professor and

director of the Digital Arts and Sciences Programs in CISE, and is an active international researcher in dynamic modeling, simulation, and aesthetic computing. Founded in 1923, Florida Blue Key is the most prestigious leadership honorary in the State of Florida and sponsors the nation's largest Homecoming celebration and student run pep rally, Gator Growl.

## Researchers receive Best Paper Award at the Virtual Reality 2008 Conference



UF CISE graduate student Aaron Kotranza and collaborators assistant professor Benjamin Lok, Adeline Deladisma and Scott Lind (Medical College of Georgia) and

Carla Pugh (Northwestern University) received the Best Paper Award for their work titled, "Virtual Human + Tangible Interface = Mixed Reality Human: A Pilot Study with a Virtual Breast Exam Patient" at the IEEE Virtual Reality 2008 Conference. The conference was held in Reno, NV on March 8th-14th. The IEEE Virtual Reality conference is the virtual reality field's most prestigious and selective conference.

Kotranza's paper proposed, developed, and evaluated the first mixed reality human. A mixed reality human is a virtual human that has an embodied physical form with haptics and touch sensors. In his implementation, Kotranza integrated a virtual human, a physical breast simulator used in medical education, and a full-body mannequin to create an interactive mixed reality patient. The mixed reality patient enabled the medical student to practice the high-anxiety situation of talking to, and comforting, the mixed reality patient while performing a breast examination. End-user evaluation of the interface highlighted that providing a physical interface for virtual human interaction significantly elevated students' use of empathy and interpersonal touch. These findings demonstrate the significant communication skills education potential of integrating mixed reality humans into interpersonal scenario training.

Their paper was one of five presented by the Virtual Experiences Research Group at IEEE Virtual Reality 2008 and the co-located IEEE User Interfaces conference. Other presenters include graduate students John Quarles (two papers), Kyle Johnsen, and Andrew Raij. For more information on this and other work, please visit: [www.cise.ufl.edu/research/vegrou](http://www.cise.ufl.edu/research/vegrou)

## Researchers receive the Best Paper Award at the International Conference of Computational Systems Biology



CISE Ph.D. student Ferhat Ay, his supervisor assistant professor Tamer Kahveci and their collaborator assistant professor Valerie de-Crecy Lagard (UF - Dept of Microbiology and Cell Science) received the Best Paper Award for their research paper titled "Consistent Alignment of Metabolic Pathways without Abstraction" at the International Conference of Computational Systems Biology (CSB) 2008. The CSB Conference was held at Stanford University on August 26 - 29, 2008. CSB is one of the most prestigious conferences in the field of Bioinformatics.

In their paper, they developed a fast and accurate algorithm for the metabolic pathway alignment problem. Metabolic pathways show complex network of reactions that transform chemical compounds. The reactions are catalyzed by biomolecules, called enzymes. Accurately aligning pathways is critical for many applications. For example, it can provide clues in drug target identification by making a comparative analysis of different organisms or improve the accuracy in phylogeny analysis.

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**Arunava Banerjee**, assistant professor, received a \$132,877 grant from Sandia National Laboratories for a project entitled "Classification Of Widgets Based on Response Spectra Measured Using Resonant Ultrasound Spectroscopy".

**Manuel E. Bermúdez**, associate professor, was a keynote speaker in the National Symposium on Accreditation in the Universidad Nacional de Costa Rica held on August 13. He gave a talk on "Accreditation Processes: The ABET Perspective." Bermudez was awarded the title of Honorary Doctorate by the Universidad Particular de Chiclayo in Chiclayo, Perú, April 21, 2008. He was also appointed Chairman of the Committee of Latin American and Caribbean Consortium of Engineering Institutions Conference, to be held in San Cristóbal, Venezuela, June 2-5, 2009.

**Shigang Chen**, associate professor, will serve as technical program committee co-chair for Computer and Network Security Symposium, ACM International Wireless Communications and Mobile Computing Conference, to be held in Berlin, June 23-26, 2009. Chen will also serve as technical program committee co-chair for the 17th IEEE International Workshop on Quality of Service, to be held in Charleston, South Carolina, USA in July 2009. Chen received a \$95,532 award from the UF division sponsor for a project entitled "Smart Street Network: Transforming a City's Transportation Infrastructure into a High-Speed Communication Infrastructure."

**Timothy Davis**, professor, has been appointed as an associate editor of the ACM Transactions on Mathematical Software.

**Ahmed Helmy**, associate professor, received \$352,000 from the National Science Foundation for a project entitled "Interest-Aware Delivery for Future Mobile Social Networks: A TRACE-driven Approach."

**Christopher Jermaine**, associate professor, received \$900,000 from the National Science Foundation for a project entitled "III-COR-Medium: Design and Implementation of the DBO Database System." Jermaine was also awarded an Alfred P. Sloan Fellowship for \$50,000.

**Tamer Kahveci**, assistant professor, received \$300,000 from the National Science Foundation for a project entitled "Biological network as a Communication Model for Entities With Complex Interactions." In addition, Kahveci was awarded \$52,800 from the UF division sponsor for "Identification of repeats in genomes in the presence of transposing."

**Benjamin Lok**, assistant professor, received \$580,000 from the National Science Institute for a project "HCC-Medium: Mixed Reality Virtual Humans for Training."

**Prabhat Mishra**, assistant professor, was elected as a senior member of IEEE (Institute of Electrical and Electronics Engineers, Inc.). He was appointed as the publications chair for IEEE International High Level Design Validation and Test Workshop, 2008 and the track chair for the Synthesis and Verification, International Conference on VLSI Design, to be held in 2009. In addition, he was appointed as guest editor for the International Journal of Parallel Programming. Mishra received \$40,000 grant from the Intel Corp. for a project entitled: "TLM-based Design and Validation of SoCs."

**Jorg Peters**, professor, gave an invited talk at the seventh international conference on mathematical methods for curves and surfaces June 26th – July 1st, 2008 in Tonsberg, Norway.

**Sartaj K. Sahni**, chair & distinguished professor, chaired the technical program committee of the International Symposium on Parallel Architectures, Algorithms, and Networks that was held in Australia May 7-9, 2008 and co-chaired the International Conference on Contemporary Computing held in India, August 6-8, 2008. He was the keynote speaker at the International Symposium on Advances in Computer and Sensor Networks, China and the International Conference on Contemporary Computing, India.

**Markus Schneider**, associate professor, was appointed program co-chair of the 16th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, held in Irvine, CA, from November 5-7, 2008. He was appointed as treasurer of ACM SIGSPATIAL. Schneider initiated and co-founded a new ACM Special Interest Group (SIG) called ACM SIGSPATIAL (<http://www.sigspatial.org/>). ACM SIGSPATIAL addresses issues related to the acquisition, management, and processing of spatially-related information with a focus on algorithmic, geometric, and visual considerations. The scope includes, but is not limited to, Geographic Information Systems (GIS). Schneider was awarded a \$449,754 grant from the National Science Foundation for his project entitled "III-COR: Modeling and Querying Moving Objects in Unconstrained Environment."

**My Thai**, assistant professor, received a \$150,000 from the National Science Founda-

tion for her project "SGER: A New Approach for Identifying DoS Attackers Based on Group Testing Technique."

**Alper Ungor**, assistant professor, was awarded a \$125,175 from the National Science Foundation for his project "Optimal Triangulations for Scientific Computing".

**Baba Vemuri**, professor, has been appointed as program chair for the Indian Conference on Computer Vision, Graphics & Image Processing to be held in Bubhneswar, India, Dec. 16-19 2008. In addition, Vemuri was appointed as area chair for the International Conference on Medical Image Computing and Computer Aided Intervention held in New York, September 6-10, 2008. He was also the area chair for the IEEE Conference on Computer Vision and Pattern Recognition held in Anchorage, AK, June 24-28, 2008.

**Ye Xia**, assistant professor, received \$90,000 from The Electronics and Telecommunications Research Institute for his project "Optimization-Based Algorithms for Universal Swarming in Peer-to-Peer Media Streaming."

## Retired CISE Professor Ralph Gordon Selfridge Passes Away

By Manuel Bermúdez



Retired CISE professor Ralph Gordon Selfridge passed away Sunday August 31, 2008. He was 81. He is survived by his wife, Betty Rush-ton, brother Oliver Selfridge, sister Jennifer Macleod,

10 step children, 17 grandchildren, and three great-grand children.

He was born in London, England in 1927 and sailed from Liverpool the day the first bombs hit London in 1939. He earned his BS degree from the Massachusetts Institute of Technology, his Master's degree from Cornell University, and his Doctorate degree in mathematics from the University of Oregon.

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# staff news

## New Staff



**Beth Nahlik,**  
*undergraduate  
adviser*

Nahlik joined the CISE staff in May as an undergraduate academic adviser in the student services center. She comes to Gainesville

from Florida State University where she served as an adviser at the Center for Leadership and Civic Education and received her M.S. degree in higher education. Having grown up in Missouri she is a Midwesterner at heart, receiving her BS in education a degree in Vocational Family & Consumer Sciences from the University of Central Missouri. Nahlik's main responsibilities include undergraduate advising and overseeing the CISE Academic Tutoring Center.



**Hunza Rehman,**  
*grants specialist*

Rehman joined the CISE staff in April as a grants specialist. She is responsible for working with faculty members to assemble grant proposals as well as compiling

budgets and managing the department grant database. Rehman has a B.S. in accounting from the University of Central Florida.



**Pamela Morris,**  
*senior secretary*

Morris joined the CISE staff as the secretary to the department chair in April. She helps organize the Career Development Workshop, colloquium series

and, faculty evaluations. Morris was a teacher

for nine years. She earned her undergraduate degree at the University of South Florida and a master's in Gifted Education from the University of Northern Colorado. She is an artist in her spare time, working mainly with oil paint, pen & ink, and some pencil. You can see some of her art at [www.pamelamorrisart.com](http://www.pamelamorrisart.com). She thinks one of the best perks working at the university is having access to the massive library. Pam takes advantage of this by reading as much as she can about what she finds interesting and sharing it. She's written 12 Featured Articles on Wikipedia, including *To Kill a Mockingbird*, *Draining and development of the Everglades*, *Birmingham campaign*, *Stone-wall riots*, and most recently, *Harvey Milk*. If you stop by her office and ask about these topics, be prepared for a long conversation.



**Keri H. Taylor,**  
*office assistant*

Taylor joined the CISE staff in August as an office assistant. She is responsible for hiring, time approval, payroll transactions, graduate student appointments

and other human resource duties. Keri has a bachelor's and master's degree from UF and is co-publisher of the magazine, "North Florida School Days." Her outside interests include watching spectator sports (especially the Gators and Tampa Bay Buccaneers), riding motorcycles and playing with her Chocolate Labs.



**Alex Thompson,**  
*IT specialist*

Thompson joined the CISE staff in June as an IT Specialist. He holds a B.S. in Computer Science from the University of Florida. Thompson's primary responsibilities

are the maintenance and development of the web site, web applications, and the department's server resources.



**Gary Hamlin,**  
*coordinator of admin-  
istrative services*

Hamlin joined CISE in July 2008. His prior experience with UF involved 18 months in the contract and grant department working on NIH

projects. Hamlin has a bachelor degree in chemical engineering and an MBA degree from Wayne State University. Hamlin will oversee the fiscal and administrative affairs of the CISE department.

## Staff Spotlight



**Wendi Decker-  
Miller**  
*program assistant*

Wendi Decker-Miller came to CISE from the School of Forest Resources and Conservation in January 2007. Initially the senior

secretary to the Department Chair, Decker-Miller received a promotion in October 2007 to program assistant in the CISE Student Services section of the CISE department. There she guides applicants through the application and admission process. One of the most important lessons she learned during her first season in this position was how to communicate with international applicants. English is the second language for many of the applicants, so Decker-Miller is trying different forms of communication with the students. She started a blog called *Confessions of a Graduate Admissions Assistant* (<http://gradadmissions.blogspot.com/>) and created a Facebook account. The blog and Facebook accounts have different ways to spread information. Since many of the applicants have the same questions, she is able to blog about those questions as a way of reaching out to the students on a personal level. She has already received positive feedback from the applicants.

A Pennsylvania native, Decker-Miller feels more at home in the south since she grew

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## Processing and Mining Data Driven Applications — Professor Sanjay Ranka

Data driven research has become an important avenue for novel discoveries in a number of scientific, engineering and medical and government applications. Many applications in high-energy physics, astronomy and bioinformatics generate gigabytes to terabytes of data per day. My group seeks to exploit the rich interdependence between theory and practice of computer science to develop novel processing and mining methods to support these data-driven applications.

Grid-based architectures are pervasive for developing data intensive and geographically distributed E-science applications such as high-energy physics, chemistry and astronomy. Most grids have resources that change and are differentially available to a given user or application based on administrative policies. With support from a NSF ITR grant, we developed a framework called SPHINX that can administrate grid policies and schedule complex and data intensive E-science workflows in an adaptive environment. The novelty lies in use of effective monitoring of resources and job execution tracking for scheduling decisions. The SPHINX middleware was successfully demonstrated at supercomputing conferences.

Workflows in these applications also require schedulable connectivity with known future characteristics on new generation of networks. For example, large file transfer may need guaranteed total turnaround time and rate of progress. Given the long duration of many requests, the network resources available may change before it is completed. My group is developing a framework for conducting advance reservations and admission control for bandwidth

allocation, large-file transfers, and other network services. Many of the algorithms we developed were tested on experimental networks such as UltraScience Net. Energy consumption has become a critical issue for grid-based systems as they can consume tens to hundreds of megawatts. We are developing novel algorithms and software that reduce energy requirements of complex workflows while still meeting their overall execution time requirements. These methods use Dynamic Voltage Scaling and can be applied to a wide variety parallel, distributed and grid based computing environments.

Modeling and analyzing large amounts of high-dimensional data is very important for knowledge discovery and effective understanding of data-intensive applications. We developed a novel technique called conditional anomaly detection based on the observation that it is often possible for a human expert to partition data attributes into environmental and indicator attributes, where environmental attributes are never directly indicative of an anomaly. For example, consider the application of online anomaly detection to syndromic surveillance, where the goal is to detect a disease outbreak at the earliest possible instant. Imagine that we monitor two variables: *maxdailytemp* and *numfever*. *Maxdailytemp* tells us the maximum outside temperature on a given day, and *numfever* tells us how many people were admitted to a hospital emergency room complaining of a high fever. For this application, an anomaly in *maxdailytemp* (for example a really cold day in June) may itself not be indicative of an outbreak. Also, a large number of patients checking

in a hospital with fever in November may be expected and not interesting. However, a large number of patients with fever in June may be an anomaly of interest. Our algorithm can detect these types of conditional anomalies and was shown to have significantly superior accuracy (based on fraction of false positives) over existing unsupervised anomaly methods. Accuracy is very important as in most realistic scenarios as a human being must investigate candidate anomalies reported by an automatic system. This naturally limits the number of candidate anomalies a detection methodology should usefully produce.

In a joint NSF project with ARM center at University of Florida, we are developing methods for understanding the temporal resistance trends for different strains of bacterial organisms based on the amount of antibiotic used at a given hospital. We have developed Bayesian learning algorithms for inferring the temporal trends of different strains of bacterial organisms present in cultures taken at the hospital. Application of our methods on tracking changes in the rates of antibiotic resistance in Escherichia coli and Staphylococcus aureus show our methods can derive meaningful temporal antibiotic resistance patterns specific to a given hospital. We believe that a better understanding of antibiotic use and its relationship to resistance patterns specific to a given hospital can lead to significant reduction in health care costs.

My group is also developing novel data mining methods for analyzing Cytogenic Genomic Hybridization and microarray data for cancer detection. Using

the spatial correlations that are present in CGH data, we developed novel data mining methods useful in understanding the genetic aberrations for a given cancer type. Due to large number of genes or features in microarray data, classification algorithms that use all the features are prone to overfitting and have low prediction accuracy. One way to avoid this problem is to select a relevant subset of features. We have developed a new feature selection method called Biological Pathway based Feature Selection using signaling and gene regulatory pathways so that the selected genes or features have low interactions with each other on these pathways. Experimental results on breast cancer data show that our methods automatically find genes that are known to be biologically meaningful in predicting cancer. (see Figure 1).

*Research carried out in this article was conducted in collaboration with a number of graduate students (Nirmalya Bandyopadhyay, Laukik Chitnis, Jang-uk In, Eunsung Jung, Yan Li, Jun Liu, Kannan Rajah, Manas Somaiya, Xiuyao Song, and Mingxi Wu) and faculty in CISE (Chris Jermaine, Tamer Kahveci, Sartaj Sahni, and Ye Xia), Physics (Paul Avery and Richard Cavanaugh), Surgery (Michael Baudis and Steve Goodison) and Pharmacy (John Gums).*

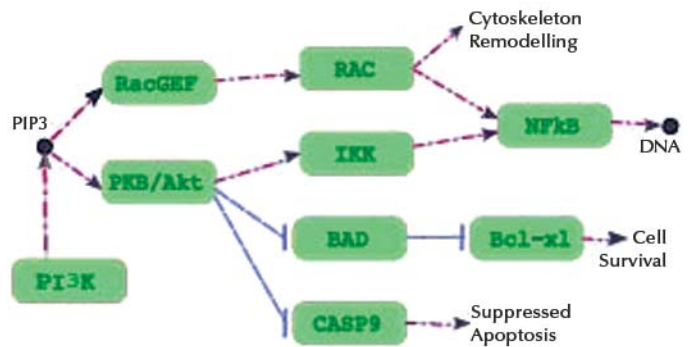


Figure 1: Part of Pancreatic Cancer Pathway adapted from KEGG showing regulatory relationships among genes. The green rectangles represent genes. The purple pointed arrows and blue blunt arrows represent activation and inhibition relationships respectively. Choosing genes that are not closely related can lead to better feature selection.

## Sphere packing for Optimal Sampling — Professor Alireza Entezari

Sphere packing problem aims to answer the long-standing question in discrete geometry: how to pack the space, as densely as possible, with infinite number of identical spheres. Sphere packing, despite its simple description, has various applications in science and engineering such as sampling, quantization, numerical integration, and design of error-correcting codes to name a few.

The problem of packing spheres in 3-D has its roots in the 16th century when the English mathematician Thomas Harriot posed a challenge of finding the most efficient way to pack cannon-balls on a battleship. Later on, Johannes Kepler studied this problem and concluded that the densest packing may happen in sheets of 2-D hexagonally packed spheres laid on top of each other. This alternate sheet arrangement of spheres where each hexagonal sheet fills in the dimples of the hexagonal sheet below it, is called Hexagonal Close Packing (HCP). In 1611 Kepler conjectured that the HCP packing, produces the optimal packing of 3-D spheres in a book entitled “The Six-Cornered Snowflake”.

The Kepler conjecture remained one of the big challenges even though it received a lot of attention from mathematicians like Gauss. David Hilbert included a generalized form of Kepler’s conjecture in his famous list of problems at the turn of the century. It was only in 1998 that Thomas Hales announced he completed a (computer-aided) proof and believes the Kepler conjecture to be true.

In 3-D space, another packing structure called Face Centered Cubic lattice achieves the same optimal packing efficiency that HCP does. However, the

FCC pattern has an advantage that the points in this pattern form a point group. In fact the FCC lattice can also be viewed as sheets of hexagonally packed spheres (see Figure 1).

Sampling and reconstruction (i.e., interpolation or approximation) of functions are ubiquitous in various computational and engineering applications. While the Cartesian lattice is widely used as the sampling lattice is image processing, computer graphics and scientific visualization, it has poor properties in terms of sampling efficiency. It has been demonstrated the information that is captured in a 2-D Cartesian image, can be matched on a hexagonally sampled image with about 14 percent fewer samples. Similarly, a 3-D MRI brain scan on the Cartesian lattice has information that can be captured with about 30 percent fewer samples, should the Body Centered Cubic lattice be used as the sampling pattern. On the other hand, given the same number of samples the hexagonal image or the BCC sampled MRI data capture more information and produce higher fidelity imaging. The reason for these attractive sampling properties is that the hexagonal lattice and the BCC lattice are dual lattices to the densest sphere packing lattices (i.e., 2-D hexagonal lattice and 3-D FCC lattice).

Even though these optimal lattices show attractive properties in terms of sampling, reconstruction of data on these lattices is an inherently difficult task and subject to current research. In scientific visualization and image processing, the state-of-the-art reconstruction or interpolation algorithms rely on a tensor-product (separable) extension of one dimensional reconstruction “filters” to 2-D or 3-D.



The tensor-product approach does not apply to optimal lattices since the hexagonal and the BCC lattice are not separable structures (e.g., hexagonal lattice can not be thought of as columns and rows, unlike the 2-D Cartesian lattice).

Our research focuses on developing truly multi-variate reconstruction algorithms that pave the way

for widespread employment of these optimal lattices. Recently we have demonstrated reconstruction of data on the BCC lattice leads to visualization algorithms offering higher fidelity images and are much more computationally efficient (see Figure 2).

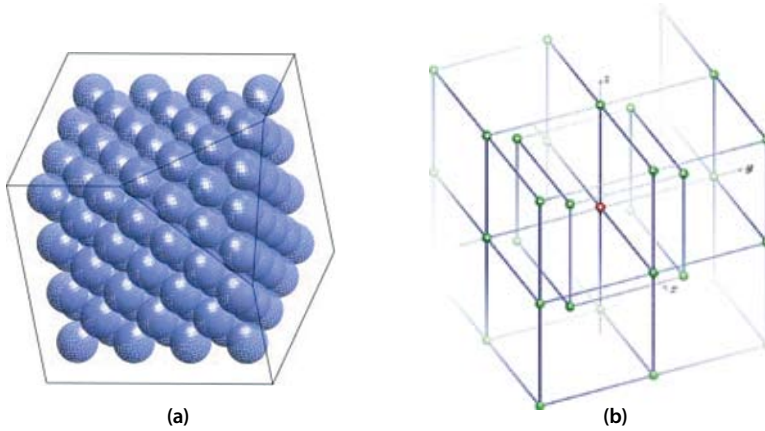


Figure 1: (a) The Face Centered Cubic Packing with a cut-away view shows the hexagonal arrangement of spheres from the diagonal viewpoint of the cube. (b) The dual lattice: Body Centered Cubic Lattice.



Figure 2: Visualizations of carp fish dataset. The optimal sampling improves the accuracy of imaging with the same number of samples. This is evident by the better reconstruction of the tail fins and ribs in the image rendered from the optimally sampled dataset. The optimally sampled image was rendered twice as fast as the Cartesian sampled dataset. These images are reconstructed by C2, fourth-order methods.

# student awards

**Mingsong Chen**, Ph.D. student received DAC Young Student Support Program Award from ACM/IEEE Design Automation Conference.

**Aaron Kotranza**, Ph.D. student, received the Best Paper Award for a work titled, "Virtual Human + Tangible Interface = Mixed Reality Human: A Pilot Study with a Virtual Breast Exam Patient" at the IEEE Virtual Reality 2008 Conference held in Reno, NV from March 8-14.

**Ferhat Ay**, Ph.D. student, received the Best Paper Award for their research paper titled "Consistent Alignment of Metabolic Pathways without Abstraction" at the International Conference of Computational Systems Biology held in San Francisco, August 26-29, 2008. Ay also received a \$1,500 Alec Courtelis Scholarship for outstanding leadership, involvement and contributions to the University of Florida and its surrounding community. He has also been invited to the 14th Annual International Student Academic Awards Ceremony for an Outstanding Achievement Award.

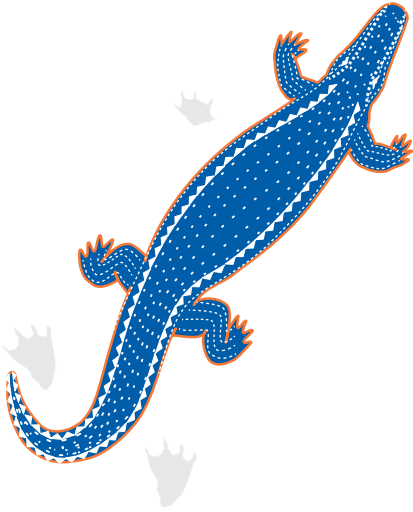
## Student Travel Awards

- **Bolton, Jeremy**: "Random Set Model for Context-Based Classification," *IEEE World Congress on Computational Intelligence*, Hong Kong, June 1-6, 2008. (<http://www.wcci2008.org/>)
- **Zhang, Liang**: "Achieving Global End-to-End Maxmin in Multihop Wireless Networks," *International Conference on Distributed Computing Systems*, Beijing, June 17 - 20, 2008. (<http://www.engin.umd.umich.edu/icdcs/>)
- **Kumar, Ritwik**: "Beyond the Lambertian Assumption: A generative model for Apparent BRDF field for Faces using Anti-Symmetric Tensor Splines" and "Multi-Fiber Reconstruction from DW-MRI using a Continuous Mixture of von Mises-Fisher Distributions", *IEEE Computer Society Conference on Computer Vision and Pattern Recognition and IEEE Computer Society Workshop on Mathematical Methods in Biomedical Image Analysis*, Anchorage, June 24-28, 2008. (<http://vision.eecs.ucf.edu/>)
- **Nejhum, S M Shahed**: "Visual Tracking with Histograms and Articulating Blocks," *IEEE Computer Society Conference on Computer Vision and Pattern Recognition*, Anchorage, June 24-28, 2008. (<http://vision.eecs.ucf.edu/>)
- **Wang, Shao-Cheng**: "BEWARE: Background Traffic-Aware Rate Adaptation for IEEE 802.11," *IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks*, Newport Beach, Calif., June 23-27, 2008. (<http://wowmom08.ics.uci.edu/>)
- **Ay, Ferhat(\*)**: "Consistent Alignment of Metabolic Pathways without Abstraction," *The 7th International Conference on Computational Systems Bioinformatics*, Stanford, Calif., August 26-29, 2008. (<http://csb2008.org/>)
- **Rossen, Brent**: "Virtual Humans Elicit Skin-Tone Bias Consistent with Real-World Skin-Tone Biases," *The 8th International Conference on Intelligent Virtual Agents*, Tokyo, September 1-3, 2008. (<http://research.nii.ac.jp/~iva2008/>)
- **Jian, Ying**: "Can CSMA/CA networks be made fair?," *ACM International Conference on Mobile Computing and Networking*, San Francisco, Calif., September 14-19, 2008. (<http://www.sigmobile.org/mobicom/2008/>)
- **Shin, Incheol**: "New Approximation for Minimum-Weight Routing Backbone in Wireless Sensor Network," *International Conference on Wireless Algorithms, Systems and Applications*, Dallas, October 26-28, 2008. (<http://www.wasaconf.org/wasa2008/index.html>)
- **Kim, Minho**: "Box Spline Reconstruction On The Face-Centered Cubic Lattice," *IEEE Visualization Conference*, Columbus, Ohio, Oct. 19-24, 2008. (<http://vis.computer.org/VisWeek2008/vis/>)

\* Denotes College of Engineering Travel Award



# Gators at Disney Parks



Walt Disney Theme Parks & Resorts is one of four major business segments of The Walt Disney Co. Consisting of 11 theme parks, more than 40 resorts, eight vacation club properties, 2 cruise ships, two water parks, 99 holes of golf, and a world-class sports complex, it is one of the most diverse business units in the world. On campuses, voyages, and tours around the world, more than 137,000 cast, crew, and imagineers share the same goal: to immerse guests in fantastic experiences, rich storytelling, and magical memories. Hundreds of Florida Gators play a critical role in making all that happen. For example, take Frank Farro and Chuck Rivas.

Farro and Rivas were close friends and roommates during their years in Gainesville. They graduated in 1995 with bachelor's of science degrees in computer engineering. They both interviewed with Disney at the same and took jobs in the information technology division, and after all these years they both credit their UF education with making it possible to have dream jobs.

Rivas is a staff engineer and developed Disney's online reservation system. He remembers visiting the Magic Kingdom at 14, meeting new people from around the world and thinking how special Disney was. "My time in Gainesville was full of great education, great friends and very fond memories," Rivas said. "Go Gators!"

Farro leads the new technology research & development team where new concepts and products are identified and tested to see which ones will help make the magic for the next generation of Disney guests. In high school, he was selected as a Walt Disney Dreamer and Doer. Today, he is the Disney liaison to the University of Florida IPPD program and has spoken at several UF Engineering and recruiting events. "I vividly remember how amazing it was to embark on my new life after graduation," Farro said. "Now I like to help students prepare for their own successful transitions."

# Career Development Workshop



*"We love UF, and will definitely be joining you for future events!" "We were slammed!" "Pleasantly surprised by the huge turnout!"* These are just a sampling of the comments by employers from the third semi-annual career development workshop. It was September 22 at the Touchdown Terrace, and considered a great success by employers and students. More than 500 graduate and undergraduate students participated, interviewing with industry representatives who were eager to get their names out to potential employees. Employers were apparently very pleased; one of the most common remarks from industry representatives was the preparation of our students at the UF CISE department was beyond compare. Students appeared to be well-prepared for the workforce,

for interviewing, for introducing themselves, and representing the University. Although students came to find positions at companies very willing to have them, we cannot deny that they also came for the door prizes. Some very lucky students were able to walk away with an iPod, a Wii system, and computer speakers, among other prizes. They did not seem to turn down the hors d'oeuvres either. Since the workshop was so clearly successful, another one will be held on January 15, 2009. We did have some constructive comments for making the spring workshop even more of a success: we will educate the students beforehand what each company does, and be able to direct students more efficiently to the companies who are looking for specific students. We would also love to have more undergraduate students participate.

The participating companies this year were: Walt Disney World, McKesson, American Express, Lockheed Martin, VMware, Inc., FL Interactive Entertainment Academy, Infinite Energy, Inc., Ultimate Software, 352 Media Group, Symantec Corp., Harris Corporation, The Nielsen Co.

You can find more information about the January career development workshop at [www.cise.ufl.edu/careerworkshop/](http://www.cise.ufl.edu/careerworkshop/). We'd love to have you there!

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The fundamental benefit of the algorithm in this paper lies in the innovative graph model which is able to capture all types of different interactions in between different types of nodes such as reactions, enzymes and compounds. The core part of the algorithm makes use of this model to combine the pairwise similarities of entities with the topological similarity of the query pathways. Their solution avoids the abstraction of the pathway, which is commonly used in the literature to simplify the problem at the expense of the loss in the information content. Their solution also enforces consistency in the alignment which accurately captures

the biological context of the alignment process. One of the most striking aspects of their method is that it is able to identify the alternative entities and even alternative paths in milliseconds which could take biologists weeks to do in the lab. These findings are very useful for the applications such as drug design and metabolic reconstruction. Ferhat Ay said "The performance of our algorithm is quite impressive. Especially the results being very well consistent with biological experiments are promising in the sense that our method can be used for practical purposes."

For more information and source code of this algorithm please visit: [www.cise.ufl.edu/~fay/publications/CSB2008.html](http://www.cise.ufl.edu/~fay/publications/CSB2008.html)

# UF Programming Team Takes Second Place at the Southeast Regionals



(left-to-right) Curtis Gray, Danial Afzal, Adam Vaughn, Miorel Palii, Paul Draper, Dmitri Dranishnikov, Nicholas James, Joshua Hartman, John Iacona, Shaun McDowell, Kenny Sanders, Dave Small, (not pictured: Rex Robinson)

Each year, the Association for Computing Machinery holds the International Collegiate Programming Contest (ICPC), which is conducted in two phases: first are the regional contests, from which ninety top teams are selected to advance to the second phase: World Finals. On October 25th, UF again competed in the Southeast Regional (SER) Contest: 32 universities/colleges from Florida, Georgia, Alabama, South Carolina, and Mississippi registered 72 teams—we fielded four: Vehicle of Puzzle, Transportation of Conundrum, Wildcard, and Pew Pew, I'm the HLC.

The four teams and their coach, Dave Small, traveled to Melbourne, FL the evening before the competition. The next morning, after a big breakfast, the teams headed to the FIT campus. Following a practice round and lunch, the teams settled in for a grueling five hour problem-solving marathon.

The second place finishers, Vehicle of Puzzle, were: Miorel Palii, Danial Afzal, and Dmitri Dranishnikov.

Each team, which consists of three students, is provided a workspace with a single computer, pens, paper and a set of ten programming challenges.

In addition to allocating the problems amongst the members and effectively sharing time on their computer, to be successful, a team must also quickly size up the problem set and attack the problems in an order that will minimize solution times.

While teams are ranked by how many problems they solve, ties are broken in favor of the team who spent the least amount of time developing their solutions.

Whenever a team submits a correct solution, a balloon--whose color indicates the problem solved--is brought to their work area. The sight of an opponent's growing balloon bouquet can serve to inspire a renewed sense of competition or utterly demoralize, it can also provide a clue as to which problems are more easily solved, as teams typically tackle the hardest problems last. One hour before the end of the contest, the balloons stop coming, to ensure that there is an air of suspense as to who shall be declared the victor, until the post banquet awards ceremony.

While only the winner of the SER contest is guaranteed a spot in the World Finals (to be held next April in Stockholm, Sweden) we are hoping Vehicle of Puzzle will be invited to fill a wildcard slot.

## Retired CISE Professor Ralph Gordon Selfridge Passes Away continued from page 2

He worked on the design team for the Sidewinder missile at the China Lake Naval Ordnance Test Station in California. He taught at Miami of Ohio University from 1959-1961, where he programmed and operated the IBM 700 computer.

Selfridge came to UF in 1961. He was a professor of Mathematics and Computer Science until he retired in 2002. For a time, he was director of the UF Computing Center (the predecessor of the North-East Regional Data Center, NERDC). His legendary class in numerical methods challenged "or terrified" many good students. He was a life-long proponent of mathematical rigor in computing, particularly in APL.

From the early 60s to the 80s he was a cave diver in the springs and sinkholes of north Florida. He became an aircraft pilot in 1948 and logged more than 5,000 hours in the air, flying his beloved Cessna 210 for more than forty years.

He was a long-time member of the American Civil Liberties Union, and acted as the Chief Negotiator for the United Faculty of Florida. He was the president of the Gainesville Pilots' Association in 1987. He was active with the Gainesville Little Theater, and played one part with the Hippodrome State Theater.

## Staff Spotlight continued from page 3

up on a U.S. Army base in Alabama. She holds two Bachelor degrees in Fine Arts - In Theater and Print Journalism from Troy State University. During her free time, Decker-Miller says she enjoys photography, shopping for unusual objects in antique, thrift and consignment stores with her husband, Mike. In addition, Decker-Miller has a passion for making jewelry. Earlier in 2008, her home was broken into twice leaving her family feeling violated and sad. As a way to turn a horrible event into something positive, Decker-Miller opened an online store, "The Two Thieves", where she features her unique handmade creations (<http://thetwothieves.blogspot.com/>).



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