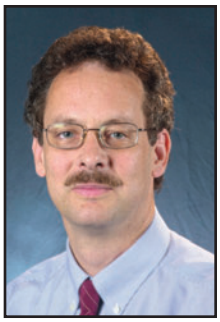
News & Notes

Fall 2008 ◆ Issue Forty-two

CompSci @ Carolina



Dear Friends,

It has been a busy and exciting fall, to say the least, here in the UNC Department of Computer Science. In addition to our usual fall semester routine of welcoming new graduate and undergraduate students, resuming a full schedule of classes after the summer break and just getting back into the swing of an academic year, we were also busy settling into a new building! The Frederick P. Brooks, Jr. Computer Science Building opened for business over the summer and was officially dedicated on October 24. We were pleased that so many of you were able to join us for the celebration.

The opening of the Brooks Computer Science Building gives the department the space we have long needed to expand, both in personnel and in research. Not only has the 30,000-square-foot building provided us with a new state-of-the-art graphics simulation center, an updated Office of the Future research space, and a new computer security research area, among other things, but it has also allowed us to repurpose some of the space in Sitterson Hall to accommodate growing areas of research, including robotics, medical image processing and bioinformatics.

The department also gained some classroom space in the new building, including the Stephen F. Weiss Seminar Room, honoring our former chairman. The room is the ideal size for many of our popular freshman seminar courses, and acknowleges Steve's passion for teaching.

I would like to personally thank all of you who helped make the Brooks Building a reality through your generosity. If you haven't yet had a chance to look around, please be sure to stop by when you're in the area.

Jan F. Prins

Surrounded by eight of his nine grandchildren, Fred Brooks, along with Department Chair Jan Prins, Chancellor Holden Thorp and Board of Trustees Chair Roger Perry, cuts the ribbon signaling the official dedication of the building that bears his name.

In this issue

Tar Heel Reader Explodes in Popularity

When Professor Gary Bishop imagined Tar Heel Reader, the virtual library for older beginning readers with disabilities, he dreamed big. He hoped that by the end of the first year, he'd have 1500 books available online. But there are few resources for older readers at the kindergarten reading level, and the concept became so popular that in less than six months, the online library has nearly 1600 books, with about 100 more added each week.

Free registration at the site allows users to read and to create books which are nearly all very short, illustrated page sequences for kindergarten-level readers. Creation is simple: search Flickr® for images of a desired subject—say, turtles or baseball. The search will turn up hundreds of photos; selecting one creates a new page for the book. Write a word or simple sentence in the text area under the photo and move on to the next page. Save it, and it becomes the newest book available on Tar Heel Reader. At the moment the work is completed, it is available to thousands of young readers. The books can be read out loud by a computer.

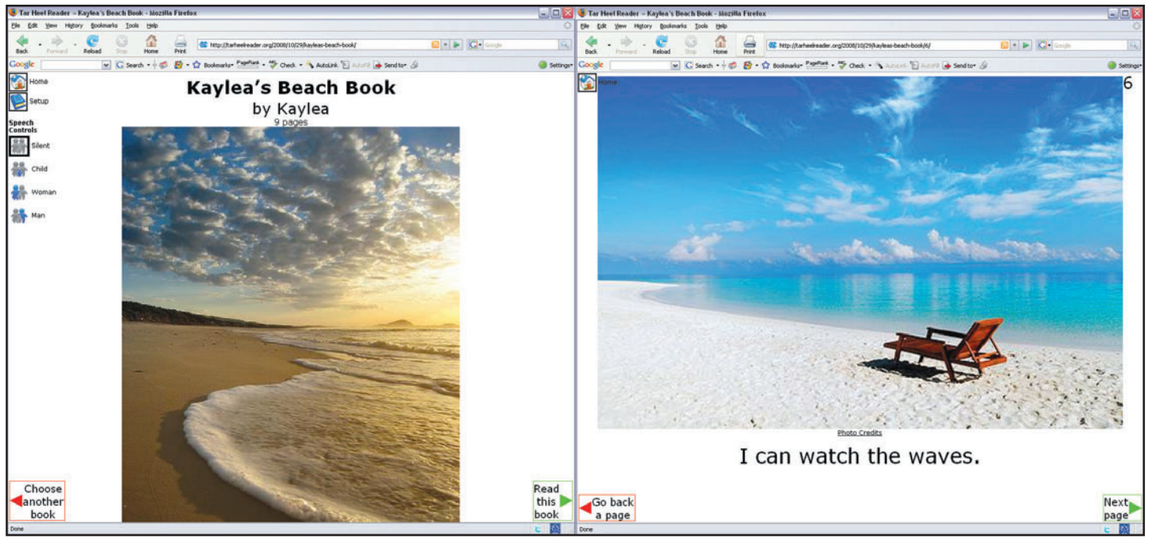
It has changed the way some children learn, Bishop points out. "I've gotten reports about some kid who didn't like to read, didn't read at all and now reads thirty minutes at school and another thirty minutes at home. Now that's worth something!"

Though Tar Heel Reader was originally designed for children with motor impairments, it's also used by a community of parents and teachers of children with autism. "If you have a kid who's only interested in blue trains, you can make a book that pictures only blue trains to help him learn reading."

Bishop gets a lot of feedback from teachers, and their requests have prompted him to add more features, such as Spanish speech, and he'd like to develop a similar program for create-your-own-adventure books, in which readers choose options to make the story. He's delighted that currently there are books written in German, French, Spanish, Japanese and Hebrew, and that books have been read in 59 countries worldwide.

Bishop prefers that readers and teachers generate the books. He collaborates with Dr. Karen Erickson, director of the Center for Literacy and Disability Studies, who, like Bishop, is one of UNC's Faculty Engaged Scholars. She is helping to devise a system for educators to review the books and to keep the best ones the most visible on the opening pages. She also reported to Bishop, after returning from an assistive technology conference, that more than twenty of the sessions included Tar Heel Reader. That's worth something indeed.

Check out Tar Heel Reader at tarheelreader.org.



At tarheelreader.org, registered users can create online books like the one shown above. The books are designed to require only a couple of computer keys, switches or a touch screen to advance to the next page. Readers can also choose to read the book on their own or to have a computerized voice read the book out loud. The site is run using the open source publishing application Wordpress.

Fabian Monrose brings systems-oriented approach to computer security group

Dr. Fabian Monrose first used a computer at age 16 when he entered Barry University in Miami, Florida. The introduction lit a fire in him that launched his career. "My excitement was driven by my curiosity to learn how computers worked, coupled with the immediate gratification of visualizing results from programming exercises—at least, when the programs worked," he says. That early excitement propelled him to complete a Ph.D. at New York University in 1999, with a specialty in computer security.

"My exposure to security started when I was challenged by the question: Can two people who never met before communicate privately in a public setting where anyone can listen in on what information they exchanged to establish their secure channel?" Recently he has been examining the extent to which we can learn information about the content of messages sent over encrypted channels just by observing characteristics of the transmission itself.

Monrose joined the UNC Department of Computer Science in July 2008, after working in the Secure Systems group at Bell Labs and as Associate Professor at Johns Hopkins University. In addition to traffic classification, his research interests include network and computer security, user authentication (primarily biometrics) and applied cryptography and privacy.

Over the years, he worked in collaboration with Mike Reiter at a distance, so it was an easy decision to join the Department's Computer Security Group and work with Reiter merely across the hall. "Our work is complementary," Monrose explains. "I'll bring a more systems-oriented research agenda, with a focus on empirical analysis of large-scale security events." With funding from both NSF and Department of Homeland Security (DHS), Monrose and Reiter are working on several collaborative projects. "For instance, recently we have been developing techniques that allow data publishers to evaluate how well a given data anonymization approach works for their network traffic. Sound techniques for anonymizing network data remain a top priority for DHS, particularly as it pertains to data sharing for cyber-security research."

Monrose, a native of St. Lucia, was pleased to move to Chapel Hill with his wife and young twin daughters. "It was clear from the outside the great collegiality in this Department. And the opportunity to build a top-notch security research group was very appealing."

The future is bright for MegaWatt Solar

The sun is shining on MegaWatt Solar, a Hillsborough, NC-based manufacturer of solar power-generating solutions with roots in the department of computer science. Dr. Russell Taylor was enlisted by three partners, all involved in energy issues, who were forming a business to anticipate and solve problems for power companies. Daniel Gregory is a power-systems engineer; Dr. J. Christopher Clemons is a UNC astrophysicist; and Dr. Charles Evans is a UNC physicist.

"Usually, when power companies want to work with universities, they go to electrical engineering to get the next increment of development," explains Taylor. "This team wanted to form a consulting group of scientists, and they needed someone who knew computers to run systems and make models." So Taylor became a cofounder of MegaWatt Solar, which has just installed its first commercial solar power-generating site. Work in the early days, in 2006, was almost like a scout project—if the scouts had seed money and were extremely clever. "We bought a passive heat sink and solar cells on eBay," says Taylor. "Then we went to the Solotube store and bought a reflector, and some 80-20 Tinker Toy-like things to build the trusses. It was like 'Four Guys Solar Company.' We made our own first version by hand to prove our concept, and then rented a truck to drive it to Hillsborough, where we'd rented some space at Dimmock's Mill."

The first version proved the concept, but didn't do everything they'd hoped for. The beta version got the group much closer to their goal of "making something that was robust, inexpensive and effective." After identifying a cheap mirror surface that met their needs, they bought professional material and hired engineers to design and build units with 4'x8' mirrors on "trees." Investment money came in 2007 from Scatec, a Norwegian firm that invests in and advises renewable energy companies.

In October, MegaWatt Solar—now with 16 employees—completed the mechanical construction of a field of solar collectors in Caswell County in conjunction with Piedmont Electric Membership Corporation. The collectors concentrate solar radiation by a factor of 20 onto solar cell receivers. It's anticipated that the solar plant will generate 50 kW of electricity, enough for about 15 houses, when it is commissioned in December 2009.

As VP of Systems, Taylor still has work to do in making the field of collectors work as a power plant—writing code and coordinating communication protocols—but he sees an end to it. "My intention is to hand it off to production engineers, maybe in another year, then we'll go on to the next thing."

UNC technology enables Morphormics to partner with robotic radiosurgery maker to improve prostate cancer treatment

Technology developed at UNC has enabled medical software developer Morphormics Inc. to apply its medical image analysis software to products made by Accuray Inc., a leader in robotic radiosurgery devices.

Morphormics' "autocontouring" technology will be integrated into Accuray's CyberKnife Robotic Radiosurgery System. The combination will improve radiation treatment of prostate cancer by increasing treatment efficacy and lowering potential side effects.

Morphormics' technology allows radiation oncologists to make three-dimensional anatomical maps of the prostate and nearby organs. The maps allow physicians to keep radiation beams focused on cancer tumors while avoiding other organs, such as the bladder and rectum, which could be harmed by radiation exposure.

Traditionally, clinicians use CT scans and MRIs to "contour" or draw out by hand a patient's anatomy on up to 50 individual images. The process can be challenging and time consuming because of the difficulty involved in trying to translate 50 related two-dimensional images into a 3-D anatomical representation. The poor contrast of CT images also makes it difficult to distinguish the boundaries of the respective organs.

"Morphormics' method of extracting the objects in 3-D is much quicker and more accurate," said Professor Stephen Pizer, the company's vice president of science, Kenan Professor of Computer Science and Radiation Oncology at UNC, and member of the Lineberger Comprehensive Cancer Center. Pizer founded Morphormics along with Edward Chaney, Ph.D., professor of radiation oncology in the School of Medicine and Lineberger member, and Sarang Joshi, a former UNC associate professor of radiation oncology, now at the University of Utah.

Methods employed in the software were developed by faculty, graduate students and staff of the UNC departments of computer science and radiation oncology, together with members of several other departments in the College of Arts and Sciences and the schools of medicine and public health. Morphormics' team of professional software development engineers is now advancing this work even further.

"We are excited to have Accuray as our first customer and look forward to partnering with them to achieve FDA approval and bring our autocontouring technology to clinical use," Pizer said. "As a computer scientist who has focused for decades on treatment and diagnosis using medical image processing, I am excited that our advances will now significantly help patients battle their prostate cancer."

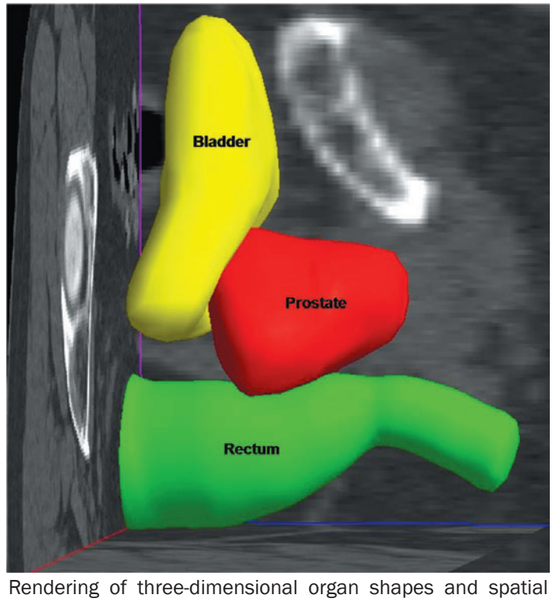
"We looked at a number of companies and believe Morphormics offers the best technology to help our customers improve their productivity and patient outcomes," said Euan S. Thomson, Ph.D., Accuray's president and CEO. "In keeping with Accuray's mission to provide clinically relevant technologies, this endeavor is another example of our commitment to improving clinicians' ability to treat prostate cancer."

According to Thomson, the CyberKnife system is the world's only robotic radiosurgery system designed to treat tumors anywhere in the body non-invasively. To date, it has been used to treat more than 50,000 patients and more than 140 systems have been installed in leading hospitals in the Americas, Europe and Asia, he said.

Morphormics and Accuray demonstrated Morphormics' prostate cancer autocontouring technology during the 50th American Society for Therapeutic Radiology and Oncology annual meeting, held in Boston in September 2008.

For more information about Morphormics, visit www.morphormics.com.

For more information about Accuray and the CyberKnife System, go to www.accuray.com.



Rendering of three-dimensional organ shapes and spatial positioning.

NEW FACULTY APPOINTMENTS

Fabian Monrose is an Associate Professor and part of the department's computer security research group. You can read more about Fabian on page 3.

Tessa Nicholas is a full-time Lecturer teaching in both Computer Science and in the Dept. of English. She received her BA in English/Sociology at Hobart and William Smith College, MFA in Creative Writing/Poetry at the University of Illinois at Urbana-Champaign and her PhD in English at UNC-Chapel Hill. She has worked for our department for a number of years as Jeannie Walsh's TA for the class she is now teaching - COMP 380.

NEW STAFF APPOINTMENTS

Yun Fan is a research engineer working with Michael Reiter. Yun joined the department in September. She previously worked in the Department of Biology and the Gene Therapy Center at UNC.

Courtney Ferriter joined the department in October as Administrative Support to Faculty. Courtney had been working as a Tar Heel Temp in the department since August. She received her BA in English from UNC in May 2008.

Wayne Greene joined the Computer Services staff in May 2008 as a Systems Analyst. Wayne has worked for the University for 20 years, most recently doing systems administration with his time split between the Department of Orthodontics and the School of Dentistry.

Dorothy Thorpe-Turner joined the department as Faculty Support Manager in October 2008. Dorothy joined us from UNC Hospitals where she worked for the past 5 years.

VISITING RESEARCHERS

Enrique Dunn is a visiting postdoctoral researcher working with the 3D Computer Vision Group. He received his Ph.D. in 2006 in Electronics and Telecommunications from the CICESE Research Center.

Arnold Irschara is a postdoctoral research associate working with Jan Michael Frahm and Marc Pollefeys. He is a Ph.D. Candidate at the Institute for Computer Graphics and Vision, Graz University of Technology.

Seon-Joo Kim is a postdoctoral research associate working with Jan Michael Frahm and Marc Pollefeys. He defended his dissertation in August here at UNC.

Julina Stefa is a Research Scholar visiting Michael Reiter. She is here to conduct research on implementing scalable edge services. She is presently a graduate computer science student at the Sapienza University of Rome, conducting research in distributed systems.

Fu Che (James) Wu is here as a Visiting Researcher working with Anselmo Lastra. James finished his Ph.D. at National Taiwan University in Computer Graphics and Computer Vision and is working closely on many research projects with Anselmo.

THANKS AND FAREWELL

Kim Jones, faculty support for the medical imaging and display analysis group, left the department in April 2008 to begin working for the Sponsored Programs Office in the UNC School of Medicine as a Proposal/Contracts Administrator.

After 23 1/2 years of Service to UNC-Chapel Hill, **Madelyn Mann** left the Department of Computer Science due to health issues.

Whitney Vaughan, administrative support to faculty, left the department in August to continue pursuing her Master's degree in writing at Johns Hopkins University. She is also working as an administrative coordinator for the Breast Cancer Research Center at JHU. (*wvaugha3@jhmi.edu*)

CONGRATULATIONS

FACULTY AND STAFF

Katrina Coble was a recipient of the 2008 Chancellor's Award for Excellence in Human Services. Katrina was honored for her many contributions to our department as staff and business manager, to the university and state through her association with the North Carolina Society of Research Administrators, and to the American Red Cross through her development and management of the Carolina Blood Drive.

Bil Hays was named manager of the merged Communications and Hardware subgroups of Computer Services.

Kevin Jeffay was named Gillian Cell Distinguished Professor, effective July 1, 2008. He was also the recipient of the 2008 undergraduate teaching award.

Svetlana Lazebnik and **Diane Pozefsky** were the recipients of the 2007-2008 Computer Science Student Association teaching award.

GRADUATE STUDENTS

Sasa Junuzovic received a National Sciences and Engineering Research Council of Canada (NSERC) Postgraduate Scholarship, which is the Canadian equivalent of the NSF fellowship. Sasa is also a Microsoft Research Fellow. His research is on distributed collaboration.

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JOHN HALTON AWARDED DOCTOR OF SCIENCE FROM CAMBRIDGE UNIVERSITY

The University of Cambridge has recognized the contribution made by the published research of Professor John H. Halton by awarding him the degree of Doctor of Science.

The Doctor of Science degree is a higher doctorate and one of the highest academic recognitions any researcher of science can reap. It is awarded on the basis of a collection of published works which make a distinct and original contribution to the advancement of science or learning.

Halton's principal area of research encompasses all theoretical aspects of the Monte Carlo method. He has also done research on various aspects of combinatorial and probabilistic algorithms, including a fast probabilistic algorithm for the Traveling Salesman Problem, numerical analysis, graph theory, statistical tests, large scale scientific computation, and the theory of lubrication. Halton holds a B.A. and an M.A. in Mathematics and Physics from Cambridge in 1953 and 1957, respectively, and a D.Phil. from Oxford in 1960. He joined UNC-Chapel Hill as professor of computer science in 1984.

Images from the Brooks Building Dedication

October 24, 2008

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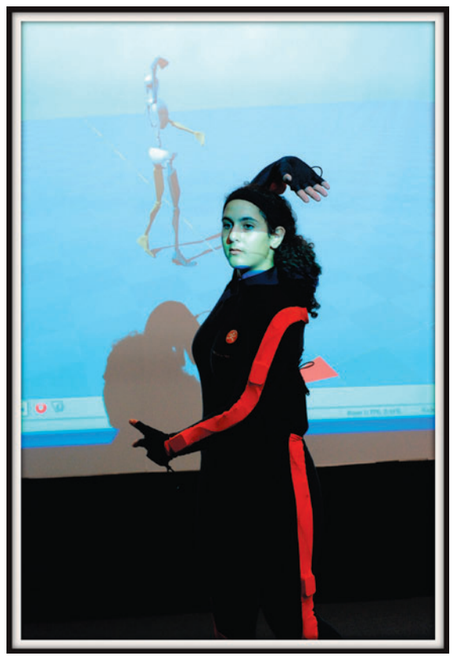

© Steve Exum Photography

Xiang Zhang was lead author on the paper "FastANOVA: an Efficient Algorithm for Genome-Wide Association Study," which was selected for the Best Paper award at the ACM SIGKDD conference in 2008. **Fei Zou** and **Wei Wang** were the co-authors on the paper. Xiang also won a best student paper award at ICDE 2008 earlier this year.

Tabitha Peck was lead author on the paper "Evaluation of Reorientation Techniques for Walking in Large Virtual Environments," which received an honorable mention in the best paper competition at IEEE Virtual Environments 2008. **Mary Whitton** and **Henry Fuchs** were co-authors on the paper. Tabitha was also the recipient of a Link Foundation Fellowship for 2008-2009.

The paper "D-Plan: Efficient Collision-Free Path Computation for Part Removal and Disassembly," by graduate students **Liangjun Zhang** and **Xin Huang**, former postdoctoral researcher **Young Kim**, and professor **Dinesh Manocha**, received the best paper award at the CAD 2008 conference.

May 2008 PhD Recipients

Robert Elijah Broadhurst. *Compact Appearance in Object Populations Using Quantile Function Based Distribution Families.* Advisor: Stephen Pizer.

Bradley Charles Davis. *Medical Image Analysis via Frechet Means of Diffeomorphisms.* Advisor: Sarang C. Joshi. Committee Chair: Stephen Pizer.

Yuanxin (Leo) Liu. *Computation of Delaunay and higher order triangulations, with applications to splines.* Advisor: Jack Snoeyink.

May 2008 MS Recipients

Jameson Miller, Kyle Jesse Moore, Ryan Schubert, Jennifer Marie Staab, Miranda Steed, Jeffrey David Feasel, David Yishon Feng, David Robert Gallup, Vishal Gupta, David Sean Curtis, Björn Bernhard Brandenburg.

August 2008 PhD Recipients

Aaron David Block. *Adaptive Multiprocessor Real-Time Systems.* Advisor: James Anderson.

Peter J. Parente. *Clique: Perceptually-based, task-oriented auditory display for GUI Applications.* Advisor: Gary Bishop.

Xueyi Wang. *Exploring RNA and Protein 3D structures By Geometric Algorithms.* Advisor: Jack Snoeyink.

August 2008 MS Recipients

Brian Sanderson Clipp, Sashi Kumar Penta, Christopher M. Vanderknyff, David Wayne Williams.

Miranda Steed was named the 2008 Teaching Assistant of the Year.

UNDERGRADUATE STUDENTS

Brian Jenkins was the recipient of the Dunham Scholarship for 2008-2009.

May 2008 BS Recipients

Robert Trent Cherry, John Giles Foushee, Chen-ping Fu, Eli Bryan Holder, Benjamin David Johnson, Shih Ku, Steven Liddle, Jason Bradley Overbey, James Ryan Scotton, Margaret Louise Sorber*, David Bradley Talton, Paul Andrew Tamburello, Dustin Tsang, Tao Xie**, Lynda Liwen Yang**.

**With Honors **With Highest Honors*

GRANTS & CONTRACTS

Collaborative Research: CT-L: CLEANSE: Cross-Layer Large-Scale Efficient Analysis of Network Activities to SEcure the Internet. PI: Michael Reiter. Co-PI: Fabian Monrose. National Science Foundation.

CRI: IAD Integrated Projector-Camera Modules for the Capture and Creation of Wide-Area Immersive Experiences. PI: Henry Fuchs. Co-PIs: Anselmo Lastra, Dinesh Manocha, Frederick P. Brooks, Jr., Gary Bishop, Gregory Welch, Herman Towles, Jack Snoeyink, Jan Prins, Jan-Michael Frahm, Ketan Mayer-Patel, Leonard McMillan, Marc Pollefeys, Mary Whitton, Ming Lin, Russell Taylor, Svetlana Lazebnik. National Science Foundation.

CSR-EHCS (EHS), SM: Formal Foundations of Real-time Systems Analysis: Principles and Potential Pitfalls. PI: Sanjoy Baruah. Co-PI: James Anderson. National Science Foundation.

DURIP: High-Performance Many-Core Clusters for Modeling and Simulation. PI: Ming Lin. Co-PIs: Dinesh Manocha, James Anderson. US Army Research Office.

EHCS(EHS), TM: Real-Time Synchronization on Multicore Platforms. PI: James Anderson. Co-PI: Sanjoy Baruah. National Science Foundation.

Experiential Technologies for Urban Warfare and Disaster Response. PI: Dinesh Manocha. Co-PI: Ming Lin. US Army Research Office.

Future Analyst Workspace (A-Desk). PI: Henry Fuchs. Co-PIs: Andrei State, Gregory Welch, Herman Towles. US Air Force Office of Scientific Research.

HCC-Small: Collaborative Mixed-Initiative Access Control. PI: Prasun Dewan. National Science Foundation.

III-Core: Discovering and Exploring Patterns in Subspaces. PI: Wei Wang. Co-PIs: Jan Prins, Leonard McMillan. National Science Foundation.

Visual Navigation for Humanoid Robot. PI: Jan-Michael Frahm. Honda Research Institute USA, Inc.

IN MEMORIAM

Our friend and former colleague **Chester Stephen** passed away on 8 November 2008.

Chester joined the department in July 2001 as an electronics technician and worked here until his health began to fail, in January 2008. During his time in the department, Chester earned the reputation of being a dependable coworker, maintaining much of the office equipment and providing support to allow those of us who relied upon that equipment to do our jobs more efficiently. A quiet and private man, he was always quick with a wave and a smile.

Prior to joining the department, Chester worked for materials management at UNC, and had 20 years of experience as an electronics technician for Digital Equipment Corporation and LabCorp.

He is survived by his wife, Beverly, two children, Isaiah and Imani, and many other relatives and friends.

M.S. AND PH.D. ALUMNI

Geoff Frank (PhD 1979) did a poster presentation at the Behavior Modeling and Simulation (BRIMS) Conference this year entitled "Bias Inoculation Advanced Simulation (BIAS) Training." Last year, he presented a poster. At last year's Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC) he co-authored four papers on ontologies, competency models, and simulation-based training system architectures. He has been active with the ISO/IEC JTC1 Learning Technology Standards Committee work on competency models and with the IEEE Simulation Interoperability Standards Organization considering interface standards for SCORM and simulations.

His research holy grail continues to be a killer application for functional programming languages (like parallel implementations of XSLT). His day job is applying competency models to define assessment methods for simulation-based training. His research interests include trying to model the vicissitudes of emotion in learning and applying that understanding to improving computer-based training. (*gaf@rti.org*)

J. Michael Fitzpatrick (MS 1982) was elected a fellow of the SPIE in 2008 for his work in the field of medical image processing. (*jmf@eecsmail.vuse.vanderbilt.edu*)

After 16 years with IBM Research and 10 years with IBM Software Group, **Lee R. Nackman** (PhD 1982) has left IBM to try something new. He originally intended to take a year off to catch up on various odd jobs around the house, do some reading and programming, and relax. But after three months, when Professor Steve Pizer (Lee's Ph.D. adviser) called with an opportunity to help get product development going at Chapel Hill-based startup Morphormics, Lee jumped at the chance and is now consulting for Morphormics as its acting VP of Product Development. (You can read more about the work being done at Morphormics on page 4.) On the home front, Lee and his wife, Ava, continue to enjoy living in Chapel Hill. Ava is an amateur genealogist, Rachel (23), works in New York City for a private art collector, Sam (20) is a junior studying Mechanical Engineering at Vanderbilt, and Joel (16) is a junior in high school at Durham Academy. They'd love to see any of their fellow "older" graduate students who may be in the area. (*ava@nackman.com*, *lee@nackman.com*)

Doug Walker (MS 1985) is now Senior Software Engineer at Emergent Game Technologies in Chapel Hill. (*doug@walkerfamily.name*)

Tom Palmer (MS 1987) was recently promoted to Director, Strategic Technology Services at USi (now owned by AT&T). (*tom.palmer@usi.net*)

Pamela (Johnson) Bremer (MS 1991) has been living in Switzerland since 1995. While she has not been doing much with computers since leaving Silicon Graphics in 1999 to have her three daughters, ages 6, 7 and 9, she decided to fill an educational need in her area by starting a bilingual (English/German) school in 2003. Obersee Bilingual School offers education and care to children ages 3 months through primary school and currently occupies 14,000 sq ft of space and employs almost 40 people. They serve 180 children and their families. Pam reports that this has been quite an undertaking in which she has had to become fluent in German and learn how to run a school successfully while fitting into the cultural, business, employment and educational practices of a foreign country. (*p.bremer@obersee-bilingualschool.ch*)

After 20 years in the US, **Jaideep Mirchandani** (MS 1992) moved to Chennai, India, to set up and run the India business unit of Relativity Technologies, a Raleigh-based company specializing in application modernization products, analysis tools built on a set of parsers. While the move has had its road bumps, overall it has been a refreshing change and challenge, with the biggest professional challenge being retaining high quality talent. Customer expectations are mostly akin - though not identical - to those in the U.S. Jaideep is also in touch with Rajaraman Krishnan, a 1991 computer science alumnus. If you are visiting Chennai or Bangalore, please send Jaideep an email. (*jmirchandani@gmail.com*)

Michael Bradshaw (MS 1993) has been recently promoted to Vice President of IBM's Supply Chain Transformation & IT organization, responsible for global business transformation and associated IT strategy & operations. The business scope is for IBM's customer fulfillment, manufacturing, procurement, and logistics functions across all of their

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Ben Lok (PhD 2002) talks with senior research associate Herman Towles and graduate student Tyler Johnson at the Brooks Building Dedication in October.

hardware, software and services offerings. While Michael runs a global team and mission, he continues to be based out of New Jersey with extensive travel to all of IBM's operations locations within the US and abroad. (*mbradsha@us.ibm.com*)

Rob Wheeler (MS 1995) recently began a new job as a robotics researcher at Willow Garage in Menlo Park, Calif. (*rob_wheeler@yahoo.com*)

Mark Olano (PhD 1998) was recently promoted to associate professor with tenure in the computer science and electrical engineering department at the University of Maryland, Baltimore County. (*olano@umbc.edu*)

Bill Mark (PhD 1999) has taken a job as the manager of Intel's advanced graphics research group in Santa Clara, Calif. (*billmark@billmark.com*)

Ramesh Raskar (PhD 2002) has a started a group called 'Camera Culture' at MIT Media Lab, where he started as an associate professor in February 2008. (*rameshraskar@yahoo.com*, *http://raskar.info*)

Mark Lindsey (MS 2003) lives in Raleigh and works for ECG, a small carrier-VoIP consulting firm (www.e-c-group.com). He spends his time designing and troubleshooting telephone carrier's VoIP networks and also teaches two courses on IP Networking and VoIP several times a year. (*mark@lindsey.name*)

Bill Baxter (PhD 2004) published the paper "Rigid Shape Interpolation Using Normal Equations," by William Baxter, Pascal Barla, Ken-ichi Anjyo, in Proc. NPAR2008, The 6th International Symposium on Non-Photorealistic Animation and Rendering (NPAR 2008, pp.59-64, Annecy, France, June 9-11 2008). (*wbaxter@gmail.com*)

Miranda Steed (MS 2008) is working as a Game Developer at Electrotank, Inc. (*miranda.steed@gmail.com*)

Joshua Stough (PhD 2008) is a visiting assistant professor at Claremont McKenna College in Claremont, Calif., one of the 5 Claremont Colleges. (*jstough@cmc.edu*)

Xueyi (Frank) Wang (PhD 2008) was named assistant professor, a tenure-track position, in the mathematics and computer science department at Northwest Nazarene University in Nampa, Idaho. He also had a faculty offer from Concordia College at Moorhead, Minn., and offers for a staff position at Microsoft and a postdoctoral position in Duke Biochemistry. Teaching was one of his priorities as he made the decision about his career. (*xwang@nnu.edu*)

UNDERGRADUATE ALUMNI

Lawrence Bercini (BSMSci 1977) has added another professional certification: Certified Data Management Professional (CDMP). (*lbercini@transunion.com*)

Mark Hutchinson (BSMSci 1981) attended the CORE conference in San Luis Obispo, Calif., in August 2008. The conference was sponsored by Experts-Exchange.com and attended by moderators, administrators, and select experts (his status) for helping improve the site. Mark has also been working with Dr. Will Mackin (PhD UNC 2004) to render his West Indies seabird survey data and his island predator data on Google Earth. The seabird data will be available at: wicbirds.net. This view of his data will help wildlife and conservation scientists channel their efforts to the most endangered islands. (*Aikimark@aol.com*)

Sam Brodkin (BSMSci 1997) is working as a Java J2EE Architect at Gemeentelijke Belastingdienst Den Haag (Local Tax office of The Hague). He and his wife also welcomed a new daughter earlier this year (see Family Matters). (*sam@brodkin.com*)

John Greeson (BSMSci. 1997) is currently a database administrator at SAS Institute Inc. in Cary, NC. He and his wife, Nicole (UNC BSPH 1997), recently added to their family, which you can read about in Family Matters. (*johngreeson@gmail.com*)

Ian Yuan (BSMSci 2001) started first year residency in Anesthesiology at Hospital of University of Pennsylvania this fall. (*dhooppi@gmail.com*)

Mike Trinh (BSCS 2002) recently joined Google Inc. as associate litigation counsel. (*mike@miketrinh.net*)

FAMILY MATTERS

Mark Lindsey (MS 2003) and his wife, Hayden Stack (UNC MA 2004), welcomed a son, Oren, in November 2007. The family lives in Raleigh. (*mark@lindsey.name*)

Sam Brodkin (BSMSci 1997) and his wife, Suzan, welcomed daughter Vivian Joan on 19 February 2008. Vivian joins big sister, Nell. The family resides in Rotterdam, The Netherlands. (*sam@brodkin.com*)

Research Engineer **Kurtis Keller** and his wife, Joni, welcomed son Cale Spero Keller on 18 March 2008. Cale joins big brother Karston. (*keller@cs.unc.edu*)

Hua Yang (PhD 2008) and his wife welcomed Michael Kai Yang on 26 March 2008.

Marc Pollefeys, Associate Professor, and his wife, Monika, welcomed daughter Zofia on 1 April 2008. (*marc@cs.unc.edu*)

Sung-eui Yoon (PhD 2005) and his wife, Dawoon, welcomed their first child, a daughter named TaeYoung, on 9 April 2008. (*sungeui@gmail.com*)

Aron Helser (MS 1998) and **Alexandra Bokinsky** (PhD 2003) welcomed daughter Elizabeth Aline Bokinsky on 2 May 2008. (*helser@3rdtech.com*)

Brian Cornell (PhD 2007) and **Christina Villarruel** (MS 2008) were married on 24 May 2008 in Plymouth, Mich. The couple now resides in Los Altos, Calif. (*brian@cs.unc.edu*)

Jameson Lopp (BSCS 2007) married Kathryn Gouzoules (UNC BSBIO 2008) on 7 June 2008. The couple resides in Durham, NC. (*jameson.lopp@gmail.com*)

Wei-Chao Chen (PhD 2002) and his wife, Rachel, welcomed a daughter, Pin-Hsuan, on 9 June 2008.

John Greeson (BSMSci 1997) and his wife, Nicole (UNC BSPH 1997), became the parents of twins on 22 July 2008 at Duke University Hospital. Michael Thomas and Mia Rose joined big sister Brooke Anne, age 2. (*johngreeson@gmail.com*)

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Anderson, J., V. Bud, and U. Devi. "An EDF-based Restricted-Migration Scheduling Algorithm for Multiprocessor Soft Real-Time Systems," *Real-Time Systems*, 38(2), 85-131, February 2008.

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Lauterbach, C., M. Garland, S. Sengupta, D. Luebke, and D. Manocha. "Fast BVH Construction on GPUs," UNC-Chapel Hill, 2008. (Technical Report)

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News&Notes

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Dr. and Mrs. Brooks were joined by Dr. Brooks' former assistants at the Brooks Building Dedication. Pictured from left to right, back row: Darlene Freedman, Fred Brooks, Nancy Brooks, Lib Moore Jones; front row: Audrey Rabalais, Fay Ward.