computer science
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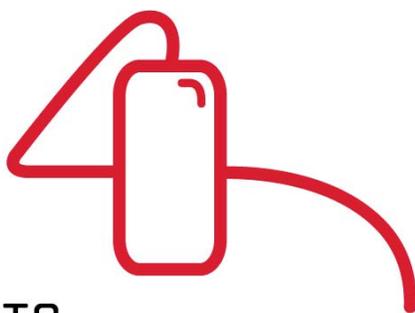
nc state
computer science
celebrating 40 years

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On the front cover: The Computer Science department will celebrate its 40th anniversary this year with a variety of events.

From the Department Head

This is a historic year for the NC State Department of Computer Science from many perspectives. Our faculty and students have achieved great results, our graduate program enrollment and PhD production have reached record levels, research projects and funding continue to increase, and industry demand for our undergraduates has increased significantly. The crowning achievement is the fact that in 2007 we officially celebrate our 40th year as a computer science department. This issue of *Connected* highlights success stories from the past year and provides an overview of our 40th Year celebration plans.

Our Senior Design Center program, under the direction of Dr. Bob Fornaro and Margaret Heil, has developed a strong reputation. Last summer a multidisciplinary project team from NC State won the top prize in the IEEE Computer Society International Design Competition (CSIDC) 2006 World Finals. Not only were they the first team from a U.S. university to win this prestigious competition, but no other university in the world has won the competition in consecutive years.

During 2006–2007, faculty and students received many prestigious awards and accolades: Dr. Donald Bitzer was inducted into the Consumer Electronics Hall of Fame. Drs. Frank Mueller, Harry Perros and Laurie Williams received IBM Faculty Awards. Dr. Annie Antón was appointed to serve on the Department of Homeland Security's Data Privacy and Integrity Advisory Committee. Dr. Michael Young was named editor-in-chief of the *Journal of Game Development.* In June 2007, the Virtual Computing Lab was awarded the Computerworld Honors Program Laureate Medal for technical innovation, and in September it was the finalist in the "Servers and Virtualization" category of the Infrastructure Management World Best Practices.

The graduate program continues to grow. In 2006–07, we conferred a record 18 PhD degrees, and the pipeline continues to grow. We received a record 1,030 applications for admission to the graduate program and expect the PhD enrollment to approach 150 and the overall graduate program enrollment to reach 430 for Fall 2007.

Our facilities now house over 40 research centers, teaching and research labs, and groups. Recent additions: the Center for Open Software Engineering (COSE), directed by Dr. Laurie Williams; the Digital Games Research Center (DGRC), directed by Dr. Michael Young; and the Center for Visualization and Analytics (CVA), directed by Theresa-Marie Rhyne and housed within the Renaissance Computing Institute (RENCI) Engagement Facility at NC State.

In the 2006–2007 academic year, we received about $4M in new research funding. Overall research expenditures exceeded $7.5M. Our active research grants exceed $22M, ranking us in the Top 20 for sponsored research funding among CS departments in colleges of engineering.

The department ranks in the top ten in the nation in bachelor's degrees awarded, in faculty size, and in undergraduate enrollment, and in the top 20 in graduate enrollment among computer science programs in colleges of engineering. Our alumni population has grown to over 5,000. Industry demand for our students has never been higher; average starting salaries for our graduates is well over $50,000.

The needs of the university, its colleges, and our department are great. To address critical needs, we are very proud that within our own department several new endowments were launched during the year to aid students, faculty, and programs.

Corporate partnerships continue to be a strength for the department. Over 60 companies are now partnering with the department, providing support and engagement, which has a very real impact on the quality and focus of the research and educational experience.

This fall, we celebrate 40 years of academic leadership in Computer Science at NC State University. There is something for everyone: a student-led hands-on "Geek-a-thon," a silent auction, a speakers series and a special technical symposium. Join us in celebrating this very special milestone.

As I complete my first full year as department head, I feel very fortunate to lead such a wonderful group of people who work so hard to make a difference in this world. Your involvement and support is greatly appreciated.

Sincerely,

CSC Project Team Wins International Competition Again

For the second year in a row, an NC State Computer Science Senior Design Center project team won the **IEEE Computer Society's International Design Competition (CSIDC).**

Congratulations to multidisciplinary Senior Design Center project team members **Hunter Davis** (CSC), **Eric Helms** (CSC/PY), **Josiah Gore** (CSC), and **Blake Lucas** (CSC/EE/CPE) for taking the $20,000 top prize in the **CSIDC 2006 World Finals** held in Washington, DC on June 30–July 2, 2006.

The theme of the competition was "Preserving, Protecting and Enhancing the Environment." The NC State team's project application, *SunRay,* uses ray-tracing combined with a numerical model of solar radiation to calculate UV exposure for any 3D graphics image. This image can be of a plant, animal or human form.

The *SunRay* system collects real-time atmospheric data from a USDA-maintained sensor network as input to model calculations. Depletion of stratospheric ozone has created the potential for increased levels of dangerous UV radiation to strike the surface of the earth. *SunRay* is a research tool that provides detailed, simulated solar exposure data that is accurate and easy for a scientist to use. The goal of the tool is to assist the scientific community so that it can more effectively provide a convincing rationale to encourage the need for policy changes oriented toward protecting the environment.

> **NC State is the only university to have won this prestigious competition, and the only university worldwide to have won in consecutive years**

The students also won the **Microsoft Software Engineering Award** ($2,000) for the project that exemplified "the best use of good software engineering principles to the design and testing of their prototype."

NC State mentors for this project were Dr. Robert Fornaro and Ms. Margaret Heil (director and associate director of the Computer Science Senior Design Center). Mr. John Streicher (National

From left: Dr. Bob Fornaro, Blake Lucas, Josiah Gore, John Streicher, Eric Helms, Hunter Davis and Margaret Heil.

Oceanic and Atmospheric Administration) also served as a mentor to the team. This is the second time in the past three years that one of the Senior Design Center project teams competing in the CSIDC has been selected as one of the top 10 in the world. The 2005 team won first place with *NEAT: Networks for Endangered Animal Tracking, and the* 2003 team placed third in the world with their *Diet Download* project. ▲

Distributed Computing— Storage, Processing Power in Numbers

In her office on Centennial Campus, **Dr. Xiaosong Ma** constantly hears the "whine of progress." It comes from researchers complaining about the difficulty of processing enormous amounts of experiment data, but it is the sound that drives the assistant professor of computer science. "They are always coming here with their problems," the soft-spoken Ma says with a chuckle. "But their problems give me new areas to research." Computational science and data mining are becoming more complex in research, making processing and analyzing the data more difficult, says Ma, who holds a joint faculty position at NC State and Oak Ridge National Laboratory (ORNL). Applications that used to generate data consuming gigabytes of storage now take up terabytes and soon will require petabytes (1 million gigabytes)—simply too much

Distributed Computing (continued)

information for personal computers to handle. Using CAREER awards from the National Science Foundation and the Department of Energy, Ma is devising ways to tie dozens of computers together to handle the job.

Because more than half of the disk space on most personal computers usually sits idle, a giant cache of available space could be created by linking workstations in a particular department or building, Ma says. Together with assistant professor **Vincent Freeh** and scientists at ORNL, she has developed Project FreeLoader to borrow 50 gigabytes or so of unused storage from each computer to create a single "scratch space" where data sets from computer simulations could be held temporarily.

But storing the data is only half the battle. Professors tell Ma they also need the ability to analyze it but don't have anywhere near the needed computing power. Once again, there is power in numbers. Ma and Freeh are working on back-ground computing systems that can process large projects on a network of computers while users continue to work on their individual desktops. The system monitors processing usage on each machine and automatically slows the background program when a user requires more speed for his or her work.

Ma also borrowed a page from multimedia producers to speed downloads and retrieve lost data quickly. Different pieces, or "stripes," of data are sent simultaneously to the linked computers from an archival system and are made available for processing before the download is complete. Only a portion of the data is cached, which saves storage space and simplifies data recovery if a computer in the network crashes, Ma said.

"Scientists need to do science, not computer science," she says. "We can help them do that." ▲

Adapted from the Fall 2006 issue of RESULTS magazine.

Martin Scholarship Endowed, Facility Dedicated

On April 13, 2007 the NC State Department of Computer Science officially dedicated EBII Room 2336 as the **Donald Martin Computer Science Teaching Lab,** in memory of former department head, **Dr. Donald C. Martin.**

This is the first space named for an individual within the Computer Science wing of EBII.

During the dedication ceremony, current department head **Dr. Mladen Vouk** spoke of Dr. Martin's legacy and contributions to the department and then unveiled the permanent plaque honoring Martin that is inside the room.

Special guests in attendance included Martin's widow, **Mrs. Doris Martin;** members of the **Strategic Advisory Board;** student **John Stille,** the first recipient of the **Donald and Doris Martin Scholarship Award;** alumnus **Jim Faulkner,** whose generous support allowed for an early launch of the scholarship award; and **Joyce Hatch,** recent retiree and former director of Advising for the department. Many other faculty and staff were in attendance, many of whom shared reflections and humorous stories about their memories of Dr. Martin.

A reception in the **Progress Energy Conference Room** followed the dedication and unveiling activities.

It was a very memorable and touching tribute to a man who meant so much to our department.

Mrs. Doris Martin shares time with inaugural scholarship recipient, John Stille.

Martin served as department head for the Department of Computer Science from 1974 until 1986, providing critical leadership during the formative years of the department. While not the first department head, he is widely regarded as the "father of NC State Computer Science" since he was instrumental in laying the foundations of the department we know today.

Upon his death, Mrs. Martin established two scholarship endowments honoring her late husband, the **Donald C. and Doris J. Martin Scholarship in Computer Science** and the **Donald C. Martin Scholarship in Chemical Engineering.** ▲

Engineer Creates First Academic Playstation 3 Computing Cluster

Dr. Frank Mueller releases the power of the Playstation 3 for science and education.

We've all seen the commercials for the blade servers touting the plug-in ease with the ability to organize data for an entire company. But at what price? At North Carolina State University, **Dr. Frank Mueller** imagined using the power of the new Sony Playstation 3 (PS3) to create a high-powered computing environment for a fraction of the cost.

Mueller, an associate professor of computer science, has built a supercomputing cluster capable of both high-performance computing and running the latest in computer gaming. His cluster of eight Sony PS3 machines—the first such academic cluster in the world—packs the power of a small supercomputer; but at a total cost of about $5,000, it costs less than some desktop computers that have only a fraction of the computing power.

"Clusters are not new to the computing world," says Mueller. "Places like Google, the stock market, automotive design companies and scientists use clusters, but this is the first academic computing cluster built from Playstation 3s."

Mueller's PS3 cluster was realized after he spent a few hours one day in early January driving from store to store to purchase the eight machines for his cluster. When he had collected all eight, he returned to his lab at NC State and set to work building a supercomputing cluster.

"Scientific computing is just number crunching, which the PS3s are very good at given, the Cell processor and deploying them in a cluster," says Mueller. "Right now one limitation is the 512 megabyte RAM memory constraint, but it might be possible to retrofit more RAM. We just haven't cracked the case and explored that option yet." Another problem lies in limited speed for double-precision calculations required by scientific applications, but announcements for the next-generation Cell processor address this issue.

"In the computing world there is a list of the top 500 fastest computers," says Mueller. Currently the fastest is BlueGene/L, a supercomputer with over 130,000 processors at Lawrence Livermore National Laboratory. The PS3 cluster at NC State does not break into the top 500, but Mueller estimates that with approximately 10,000 PS3 machines anyone could create the fastest computer in the world—albeit with limited by single precision capabilities and networking constraints.

The Sony PS3 allows the Linux operating system to be installed, and IBM designed the programming environment for programming the Cell processor (including eight vectorization units), which combined tremendous computing power within a single PS3. According to Mueller, each PS3 unit contains six operational special-purpose cores for number crunching and one general-purpose core that is two-way multithreaded in his configuration; so the eight machines clustered have 64 logical processors, providing plenty of number-crunching ability in addition to running the latest games.

Dr. Frank Mueller and the Sony Playstation 3 supercomputing cluster

"January 3 is the 'birth date' of this cluster," says Mueller. "Of course, here at NC State we will use it for educational purposes and for research. We are working with scientists to determine the needs and how our cluster can be used to their benefit. Our Computer Science faculty is already using the cluster to teach classes in operating systems—with parallel systems, compilers and gaming likely to follow." ▲

Clusters are not new to the computing world... but this is the first academic computing cluster built from Playstation 3s.

CSC Launches Center for Open Software Engineering

North Carolina is making a bold move toward establishing itself as the center of competency for the science of open source software engineering.

In June the Department of Computer Science launched its **Center for Open Software Engineering (COSE,** pronounced "cozy") to study the engineering of open source software. Open source software engineering is an area of information technology that already has radically altered the way we develop, market, and service software and the way the software industry collaborates in the 21st century. Open source software products play a critical role in the nation's economy and in supporting the nation's infrastructure. NC State is fortuitously situated in the midst of open source giants **Red Hat** and **IBM** and is poised to take a leadership position in open source software engineering.

"The development and use of open source software is growing rapidly around the world," said **Tom Rabon,** executive vice president for Corporate Affairs at Red Hat, Inc. and a member of the COSE Advisory Board. ".. NC State is positioning itself to become one of the preeminent locations for open source competency. We are pleased to support the creation of the center."

"The evolution and mainstreaming of open source software depends on continued examination and study by developers, researchers and students," said **Bob Sutor,** IBM's vice president of Open Source and Standards. "As a longtime supporter of open standards and open source technologies, IBM commends NC State's efforts to drive innovation in this important area ...."

Located in state-of-the-art teaching and research facilities on Centennial Campus, the COSE will be directed by **Dr. Laurie Williams,** associate professor in Computer Science. Williams is a leading software engineering researcher, known for her work in agile software development, reliability, testing, and security, and is a former IBM employee. Seven other faculty in the department will lead developments in research and teaching of open source software engineering. Industrial partnerships have already been established with ABB, IBM and Red Hat. The COSE is actively seeking additional industrial affiliates interested in the engineering and adoption of open source software.

"We are thrilled to start the Center for Open Software Engineering and are excited about the potential of establishing a center of competency around the technical aspects of open source software development and adoption. We are fortunate to be able to collaborate with the giants in the domain," said Williams. "The long-term vision of the center is to ... lead the state-of-the-art research and education in open source software development."

For more information about the activities of the Center for Open Software Engineering, visit the center's website or contact Dr. Laurie Williams.

COSE Website: http://research.csc.ncsu.edu/cose/index.php

Initiatives

The COSE will initiate a series of efforts designed to deepen the understanding of the technical aspects of open source software development, enhance the quality of open source software engineering education, and improve the exchange of information between researchers, educators, and open source practitioners in North Carolina and across the nation.

- Establish a series of invited talks by local and national leaders in the research, development and adoption of open source software. The series will commence in **Fall 2007** and be open to the public.

- Unification of a research group that studies open source software development comprehensively throughout the software development lifecycle, collaborating with open source practitioners.

- Development of freely available educational resources related to open source software engineering.

- Creation of a portal for research results related to open source software engineering.

- Creation of a Web community where educators can collaborate on choosing open source software that may be suitable for enhancement by students in a class. Educators can also contribute additional projects that might be suitable for providing an open source experience for beginning students.

Renaissance Computing Institute at NC State Opens

The **Renaissance Computing Institute (RENCI)** Engagement Center at NC State University celebrated its official grand opening on Friday, March 23, 2007 with an open house showcasing its technologies and early collaborations with NC State researchers.

Founded in 2004 as a major collaboration among Duke University, NC State University, the University of North Carolina at Chapel Hill, and the state of North Carolina, RENCI brings together researchers from all disciplines to address the state's most challenging multidisciplinary problems. By applying technological expertise and world-class computing, networking, visualization and data resources to these issues, RENCI strives to create a collaborative 21st century, problem-solving environment that will spur economic growth and lead to the next generation of transformative discoveries.

With the opening of RENCI at NC State, faculty and staff on the NC State campus now have access to RENCI resources, staff and collaborators and have the opportunity to contribute to these

The RENCI at NC State visualization wall (14 feet by 8 feet) .

ongoing research projects. Members of the NC State community also will take the lead on new multidisciplinary research efforts that utilize RENCI's visualization, computing and data resources and leverage the campus expertise in agriculture, environmental sciences, physics, engineering,

Department Confers Record Number of PhD Degrees

In May 2007, 120 degrees were conferred by the NC State Department of Computer Science. The Spring 2007 graduating class included 8 PhDs, 47 MS degrees, and 65 BS degrees, expanding the department's alumni base to approximately 5,200.

Including the Fall 2006 class, **the department graduated a record 18 PhDs for the 2006–07 academic year,** ranking the department among the leaders in the nation in computer science Ph.D. production.

The strength of the economy and job market for Computer Science graduates was evident; the vast majority of the undergraduates walked off the stage with both a diploma and employment plans firmly in-hand. ▲

WICS Celebrates Diversity

WiCS, with the support of the Computer Science department and Super ePartner, **Cisco Systems,** organized an event to Celebrate Gender Diversity in Computer Science on April 11 in the EBII atrium.

The event celebrated the tremendous gender diversity among the faculty and students in our department. At the same time, they hoped to raise the awareness level of this challenge among the entire Computer Science community and come up with fresh ideas to encourage diversity.

Attendees who filled out a questionnaire were eligible to enter a raffle held at the end of the event. A few lucky winners received prizes, such as an iPod.

For more information on WiCS, visit http://students.engr.ncsu.edu/wics/.

Computer Science Department Launches Digital Games Research Center

The science of games is about to get more serious in North Carolina. In May the Department of Computer Science launched its **Digital Games Research Center (DGRC)** to study an area of information technology that holds the promise to change the way we learn, play, collaborate and work in the 21st century.

This new departmental center has a multidisciplinary nature that focuses on the investigation of the scientific, design, social and educational challenges of design and construction of games and game technologies. In addition to Computer Science faculty, the Center's faculty include colleagues from the colleges of Education, Engineering, Design, and Humanities and Social Sciences who collaborate on a wide range of research and educational initiatives that focus on new modes of interaction in digital game environments.

> **Our goal is to transform the science of game development, enabling the creation of new interactive systems that use games in fundamentally new ways.**

"Game and simulation development has matured into a serious profession that demands knowledge of a broad spectrum of disciplines," said **Juan Benito,** creative director of **Destineer Studios** and a member of the DGRC Advisory Board.

The DGRC will initiate a series of efforts designed to deepen the understanding of the arts and sciences of game development, enhance the quality of games-related education, and improve the exchange of information between researchers, educators and game development practitioners in North Carolina and across the nation.

The first of these efforts will be to establish the **North Carolina Serious Games Initiative,** a state-wide collaborative effort bringing together academics and educators from North Carolina's colleges and universities to explore the use of games technologies for applications in areas beyond entertainment. The DGRC hosted a one-day workshop, *Collaboration in the North Carolina*

Serious Games Space, held on NC State's Centennial Campus during the summer of 2007. This one-day workshop provided a forum in which industry leaders could interact with leading scholars and students as they discussed ongoing research and development in the use of games in education, training, visualization and many other areas.

The DGRC is located in the Engineering Building II on Centennial Campus—a state-of-the-art teaching and research facility—and directed by **Professors R. Michael Young** (Computer Science) and **Timothy Buie** (Industrial Design). Young is the editor-in-chief of the *Journal of Game Development* and is known for his work on the integration of artificial intelligence research with computer games. Buie has worked as an award-winning art director, supervising the development of eight game titles produced by North Carolina game studios and has exhibited his work at SIGGRAPH, E3 and galleries nationwide. He teaches graduate and undergraduate courses on game design as well as 3D and 2D graphics, modeling and animation.

The Digital Games Research Center is unique in many ways. North Carolina is home to a cluster of game companies ranging from serious game development studios like Destineer and Virtual Heroes to game engine providers like Emergent Game Technologies and Vicious Cycle to leading game makers such as Electronic Arts, Epic Games and Red Storm Entertainment. NC State Department of Computer Science faculty have more than eight years experience in research on games and 3D environments and teach a range of classes to both undergraduates and graduate students in the area of games and games technologies.

"We are thrilled to start the Digital Games Research Center and are excited to see the compelling research it will foster," said Young. "Our goal is to transform the science of game development, enabling the creation of new interactive systems that use games in fundamentally new ways."

For more information about the activities of the Digital Games Research Center, visit the center's website (http://dgrc.ncsu.edu) or R. Michael Young and Timothy Buie.

Computer Science Department Celebrates 40th Anniversary in 2007

Don Martin, seated at early 1960s analog computer, later became department head

In Fall 2007 we celebrate 40 years of academic leadership in Computer Science at NC State University. From humble beginnings in Harrelson Hall in the fall of 1967 to the recent transition into EBII—our modern, new high-tech state-of-the-art teaching and research facility on Centennial Campus—the NC State Department of Computer Science has been a leader in the production of computer science talent and technology. In recognition of this milestone event in the life of our department, several celebratory events and activities are planned, including the following:

The **Fidelity Investments "Leadership in Technology" Executive Speakers Series** – in September we launch a new and exciting executive speakers series, made possible by a generous grant from Fidelity Investments. The talks will take place monthly throughout the academic year and feature such noted technology leaders as **Steve Scullen** (President of Fidelity eBusiness, a division of Fidelity Investments), **Matthew Szulik** (CEO of Red Hat), **Frank Plastina** (CEO of Tekelec), and many more. For specific dates, times and locations of the talks, see www.csc.ncsu.edu/corporate_relations/fi_lit.php.

Geek-a-thon – a student-led volunteer effort the weekend of October 5–7 to refurbish donated PCs to give to needy middle school families. This event is conducted in partnership with **Centennial Campus Middle School,** which will host the event in their cafeteria. Primary sponsors of the event include the **NC Chapter of the Society for Information Management, Cisco Systems, The Pantry/Kangaroo and Raleigh Chapter of Information Systems Security Association.** To volunteer or donate a PC, please send email to geek-a-thon@lists.ncsu.edu.

40th Year Technical Symposium – a day-long celebration of our past and a look toward the future of computing. This star-studded event on October 25 features university dignitaries, corporate panel discussions and keynotes from the likes of **Dr. Dorothy Strickland, Dr. Larry Hodges, Dr. Al Aho** and **Steve Wozniak**, co-founder of Apple Computer. Space is limited, and pre-registration is required. Register online at www.csc.ncsu.edu/40th/symposium_registration.php.

40th Tailgate Party – join us for a special pre-game tailgate party prior to the Homecoming Game on October 27. Before the Pack takes care of UVA, we will dine on traditional NC BBQ, fried chicken and all the fixin's. Special "meal only" or "game ticket & meal combo" options are available and must be ordered by October 1st through the Alumni Association site: www.alumni.ncsu.edu/events/event.php?id=940.

Steve Wozniak

40th Year Scholarship Online Auction – Bidding begins on September 15 on our first-ever online auction to raise money for a new scholarship endowment. This is a way that all our alumni around the world can

be a part of this special 40th Year Celebration. Items up for bid include trips, restaurant gift certificates and special sports collectibles. All bids officially close on October 31. Visit the online auction site (www.ncsu-csc.cmarket.com) for more information about donating, bidding, or becoming a sponsor.

The department has also set a goal of commemorating our 40th Year with a bold and transforming goal of increasing our endowments by 40 percent during 2007. Several individuals and corporations have stepped forward to launch new endowments this year.

40th Anniversary Celebration (continued)

Perhaps the crowning jewel of these will be a new **"40@40 Scholarship Endowment"** which we hope to launch with proceeds from the online auction mentioned above and through donations to a special "40@40 Campaign." By early August, all CSC alumni in the U.S. were mailed a package detailing this new endowment and asking for their support. We have partnered with the Alumni Association to offer donors numerous benefits based on their support level; including 40th Year Commemorative items, a year's membership (or extension) in the Alumni Association, an engraved brick on Centennial Campus, a special dinner at the Park Alumni Center, and a chance for tickets in a luxury suite for the NC State vs. Maryland football game on November 24.

It has been said that you only turn 40 once. The NC State Department of Computer Science embraces and celebrates this milestone, knowing that we are positioned among the very elite computer science departments in the nation.

You are encouraged to bookmark and check the 40th Year Web page frequently, as changes may be made and new events added.

For more information, or if you would like to be involved in any of the 40th Year Celebration events and activities, contact Ken Tate.
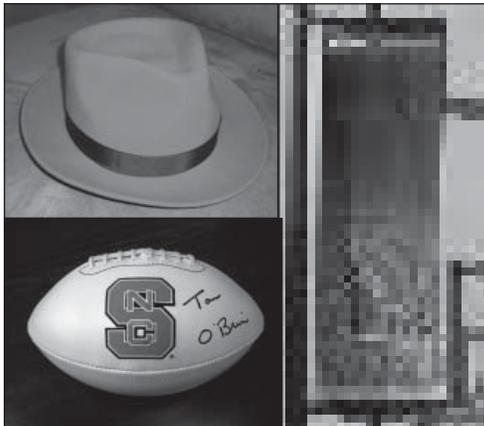
Some of the items included in the online auction.

Donate or Bid

on auction items at

www.ncsu-csc.cmarket.com

40th Year Celebration Events

Sept. 11, 2007 (6 pm in 1025 EBII) - The *Fidelity Investments "Leadership in Technology" Speakers Series* presents **Steve A. Scullen III,** president of Fidelity eBusiness.

Sept. 15, 2007 - Bidding begins on our **40th Year Online Auction**, with proceeds to create a new scholarship endowment.

Oct. 5-7, 2007 - "Geek-a-Thon" - CSC students, faculty and alumni join together to refurbish donated PCs to help high-achieving, but less-advantaged middle school students.

Oct. 16, 2007 (6 pm in 1025 EBII) - The *Fidelity Investments "Leadership in Technology" Speakers Series* presents **Matthew J. Szulik,** chairman, CEO & president of Red Hat.

Oct. 25, 2007 - A very special *40th Year Technical Symposium.* **Steve Wozniak,** co-inventor of Apple Computer heads a star-studded cast of speakers.

Oct. 27, 2007 - All alumni and friends are invited to join us for a *40th Year Tailgate Party* prior to the Homecoming Game with UVA.

Nov. 14, 2007 (6 pm in 1025 EBII) - The *Fidelity Investments "Leadership in Technology" Speakers Series* presents **Frank Plastina,** president & CEO of Tekelec.

Insight Racing's Driverless Robotic Sports Car Qualifies for $2M Race

North Carolina State University (NCSU) sponsored **Insight Racing Team** is one of the select few invited to participate in the **Defense Advanced Research Projects Agency (DARPA) Urban Challenge National Qualification Event** in October. The race posting a $2 Million prize will pit driverless autonomous vehicles in an urban race to complete missions over 60 miles of city driving conditions. The final race is scheduled to be conducted on November 3rd of this year.

Insight Racing is the only team from the Carolinas eligible to compete, and they will be there with a sleek Lotus Elise.

Insight's Lone Wolf set an autonomous vehicle record.

Driven by a Congressional mandate to convert one-third of the military vehicles to driverless computer-driven mode by 2015, the Department of Defense that authorizes the event, believes the future holds great promise for autonomous vehicles to perform missions that put our men and women in uniform at risk. The Urban Challenge is the third in a series of Grand Challenge events. The first two races in 2004 and 2005 featured vehicles that navigated a 132+-mile course through the Mojave Desert. Although none of the vehicles completed the course in the first Grand Challenge, five teams completed the course in 2005. Insight Racing placed 12th in that event.

First prize for the November 3 race is $2 million for the vehicle that completes all of the missions on the urban course in the fastest time under six hours. The field was narrowed down to 36 participants from the original 89 entrants on the basis of site visits that demonstrated the viability and capability of each entrant.

Grayson Randall, Insight Racing founder, stated, "The technology developed for the Urban Challenge gives us a glimpse of how driving will change in the not too distant future. Smart highways will be populated with smart cars, which will dramatically change how we get to travel. An outstanding team effort was needed to advance to the next phase, and we got it." Randall went on to say, "We have an exceptional team that is comprised of faculty and students from North

Carolina State University, Lotus Engineering, Inc., sponsoring companies, members of the technical community and retired business executives who bring a vast array of experience, expertise and enthusiasm to the team."

"As a performance engineering company, Lotus Engineering has a legacy of integrating emerging technology into breakthrough vehicles, which is exactly what this challenge is all about. I believe that Insight Racing has assembled a winning team, and Lotus Engineering is proud to be part of the collaboration," said **Don Graunstadt,** chief executive officer & president of Lotus Engineering.

According to **Walt Sliva,** adjunct lecturer in the Department of Electrical and Computer Engineering at NC State University, "Many NC State University students have had the opportunity to participate in this challenging problem. It has enriched their educational experience to work on a real-world problem with so many integrated disciplines needed to succeed."

Insight Racing's Lone Wolf has been featured in the Discovery Channel's *Daily Planet Show* and will be featured in a BBC Special called "The Future," which is scheduled to air worldwide this fall.

In July, the Lone Wolf set an autonomous vehicle record on the full course at Virginia International Raceway.

To sponsor the team or for more information, contact Walt Sliva at (919) 931-1118 or wjsliva@ncsu.edu. ▲

Story provided with permission from Insight Racing

Editor's Note: *The NC State Department of Computer Science has played a vital role in this partnership through the support of our Senior Design Center student project teams. Over the past two years, numerous project teams have helped develop and refine the software required to control the driverless vehicle* in *the DARPA Grand Challenge. Corporate partners* **Cisco Systems** *and* **Northrop Grumman** *have also played a key role in the process, providing sponsorship support for the teams working on the related projects. SDC project teams are expected to, once again, be involved in the evolution of the software for the DARPA Urban Challenge.*

"Lone Wolf" Autonomous Vehicle Featured on BBC

While preparing for the **Defense Advanced Research Projects Agency (DARPA) Urban Challenge** this November, the Insight Racing team's driverless Lotus Elise appeared on TV screens worldwide with its latest filming by the **British Broadcasting Corporation (BBC).** Dubbed the *Lone Wolf,* the Lotus sports car, complete with sensors and on-board computers, has been selected to demonstrate how automotive technology will affect our lives in the BBC show "The Future."

The BBC filming features the Lotus Elise driving autonomously, with no human or remote control, while the show's host, **Professor Michio Kaku,** sits casually in the moving car describing how this futuristic vehicle will change transportation in the not too distant future.

The Lone Wolf, which has also been filmed for **Discovery Channel's Daily Planet Show,** is a completely computer-driven vehicle. The team is preparing the car for the Urban Challenge, the third in a series of Grand Challenge robotic vehicle races sponsored by DARPA.

"We are pleased that the BBC selected Insight Racing to showcase our smartcar capabilities in a segment on future vehicle technologies," said **Grayson Randall,** Insight Racing founder.

The Insight Racing team is the product of collaboration between Insight Technologies Inc., Lotus Engineering Inc., NC State University's College of Engineering and the Advanced Vehicle Research Center (AVRC). Other sponsors include SAS, Comtrol, Ascot Technologies Inc., Auto Europe, BD Micro, Have A Nice Day Wireless, Global Transpark, Grid Connect, Peak System Technik, PC MedEvac, Revware, Sanford-Lee Airport, Smith Anderson and Tekelec. ▲

Dr. Donald Bitzer, Distinguished University Research Professor, was the featured guest recently on UNC-TV's *North Carolina People with William Friday.*

WiCS Hosts CRA-W Distinguished Lecture Series Event

The **Women in Computer Science (WiCS)** student organization hosted two CRA Committee on the Status of Women in Computing Research (CRA-W) sponsored Distinguished Lecturers and a panel discussion on April 12 and 13.

Distinguished Lecturers were **Dr. Monica Lam** from the Department of Computer Science at Stanford University and **Dr. Xiaohui (Helen) Gu** from IBM's T. J. Watson Research Center. A panel discussed graduate school and women's issues.

The panel was preceded by a reception. Panelists included **Dr. Monica Lam, Dr. Xiaohui Gu, Ms. Kathy Markham** (Kindred Healthcare), **Dr. Lina Battestilli** (MCNC), and **Xenia Mountrouidou** (NCSU). ▲

CSC Delegation Garners CSNDSP Conference Award

Congratulations to CSC faculty, **Drs. George Rouskas and Rudra Dutta**, and former PhD student, **Bensong Chen**, for receiving the "best paper" award at the Communication Systems, Networks and Digital Signal Processing 2006 (CSNDSP 2006) conference held July 19–21 at the University of Patras in Patras, Greece.

Their paper entitled "Clustering Methods for Hierarchical Traffic Grooming in Large Scale Mesh WDM Networks", was one of four receiving a "best paper" award. NC State was the lone U.S. university to be so recognized.

Rouskas represented the trio in accepting the award during the conference.

The first co-author, former PhD student Bensong Chen, now works with Google Labs. ▲

Martin-Vega Named MOSI National Hispanic Scientist of the Year

Dr. Louis A. Martin-Vega, dean of Engineering at NC State University, and former professor and dean of the University of South Florida College of Engineering, has been named the Museum of Science & Industry's (MOSI) 2007 **National Hispanic Scientist of the Year.**

Of Puerto-Rican descent, Dr. Martin-Vega has held several prestigious national positions, including being the first Hispanic to serve as acting head of the Engineering Directorate at the National Science Foundation (NSF) and director of NSF's Division of Design, Manufacture and Industrial Innovation. His efforts at NSF included the development of foundation-wide programs such as the Grant Opportunities for Academic Liaison with Industry (GOALI) and Research Experiences for K-12 Teachers (RET) programs aimed at integrating research and education and increasing the participation of women and underrepresented minorities in science and engineering. His NSF responsibilities also included a visit to the South Pole.

In addition to spending nearly five years as professor and dean of the College of Engineering at the University of South Florida (2001–2006), he has also served as chair of the Department of Industrial and Manufacturing Systems Engineering at Lehigh University, Lockheed Professor in the College of Engineering at Florida Institute of Technology, and as the director of the Center for Electronics Manufacturing at the University of Florida. He has also held tenured faculty positions at the University of Florida and the University of Puerto Rico at Mayaguez. In August 2006, Dr. Martin-Vega was named Dean of Engineering at North Carolina State University in Raleigh, North Carolina.

Among his numerous awards and honors, Dr. Martin-Vega received the Albert Holtzman Distinguished Educator Award from the Institute of Industrial Engineers in 1999 and the Hispanic Engineer National Achievement Award (HENAC) in the college education category in 2000. Martin-Vega is a fellow and president-elect of the Institute of Industrial Engineers; fellow of the Society of Manufacturing Engineers; a member of the Pan American Academy of Engineering and the National Engineering Deans Council, as well as several other engineering societies and organizations. He received his B.S. degree in industrial engineering from the University of Puerto Rico at Mayaguez in 1969, his M.S. degree in operations research from New York University in 1971 and his Ph.D. in industrial and systems engineering from the University of Florida in 1975.

For seven years, MOSI has recognized nationally distinguished Hispanic science and engineering professionals to serve as role models and mentors for Tampa Bay's Hispanic youth. Past honorees include a former U.S. Surgeon General, a Nobel Laureate of Chemistry, a NASA astronaut, a marine biologist, a Harvard professor of pathology and former chief of immunogenetics at Dana-Farber Cancer Institute, and most recently a seismologist and former director of the Carnegie Academy for Science Education (CASE) in Washington, D.C.

The mission of the MOSI National Hispanic Scientist of the Year Award is to recognize outstanding national Hispanic scientists who promote a greater public understanding of science and motivate Hispanic youths' interest in science. Proceeds from the event help to fund scholarships for at-risk youth who participate in MOSI's "YES! Team," Youth Enriched by Science program.

This year MOSI will present the National Hispanic Scientist of the Year Award to Dr. Louis Martin-Vega during a gala award ceremony on Saturday, October 6, 2007. During his visit, Dr. Martin-Vega will have the opportunity to mentor over 1,000 Tampa Bay area school children, many of whom will be visiting the museum for the first time.

Adapted, from the Museum of Science & Industry (MOSI), Tampa, FL

Did You Know?

The College of Engineering is the largest college at NC State, with more than 7,000 students.

Centennial Campus Gateway Naming Honors Masnari

The College of Engineering has announced the naming of the Centennial Campus gateway in honor of former dean, **Dr. Nino A. Masnari.**

Located at the end of Oval Drive, the **Nino A. Masnari Engineering Gateway** is the main entrance to what will become the engineering building cluster on Centennial Campus. The gateway is dedicated to Masnari in recognition of "his many contributions to educational and research program development at North Carolina State University and for vision and leadership in moving the College of Engineering to Centennial Campus."

During Masnari's tenure as dean, the College of Engineering began its move to Centennial Campus. Currently Engineering Buildings I and II have been completed and are home to four engineering departments. Funding was also secured for Engineering Building III, which will house two more departments when completed.

Under Masnari's leadership, the College of Engineering became the third highest producer in the nation of total engineering degrees awarded, and research funding in the college nearly doubled to more than $90 million. Scholarship funding more than quadrupled, with total endowments growing to more than $51 million. The College received its largest gift from a single individual, a $10 million endowment in support of industrial engineering. As a result, the Edward P. Fitts Department of Industrial and Systems Engineering became the first named academic department in the history of the university. In addition, the college established the joint Department of Biomedical Engineering with the University of North Carolina at Chapel Hill and added a bachelor's degree in paper science and engineering. The College also became a leader in distance education, ranking as one of the best online degree programs in the nation and adding two-plus-two programs that serve students across the state.

Under Masnari's direction, the quality of entering freshmen increased, national recognition of faculty and research by the National Science Foundation tripled and four new centers and institutes were created. The College also grew in the number of programs for minorities and women, and the Women in Science and Engineering (WISE) program was established. The first woman associate dean was appointed during Masnari's tenure as dean.

A Distinguished Professor of Electrical and Computer Engineering, Masnari received his bachelor's, master's and doctorate degrees all in electrical engineering from the University of Michigan. He served as professor of electrical and computer engineering and director of the Electron Physics Laboratory at the University of Michigan prior to joining the NC State faculty in 1979 as head of the Department of Electrical and Computer Engineering. ▲

Nino A. Masnari Engineering Gateway

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Sign up for our e-news monthly updates:
www.csc.ncsu.edu/alumni/alumni_update.php

Visit the Computer Science website any time for the latest departmental news: www.csc.ncsu.edu

NC State Launches Institute for Advanced Analytics; Rappa Named Director

A new institute at NC State University will spearhead graduate education in the emerging field of analytics.

The **Institute for Advanced Analytics** will oversee the Master of Science in Analytics (MSA), a graduate program approved in February and admitted its first class of 40 students in July. The MSA is an intensive 10-month professional degree that focuses exclusively on the tools, methods and applications of data analytics. The degree consists of an interdisciplinary curriculum that involves the expertise of 30 faculty members from seven colleges across the university. The entirely new curriculum is being developed with the help of a major gift from SAS Inc.

Dr. Michael Rappa, who proposed the institute in April 2006, has been named its founding director. With more than two decades in higher education, Rappa began his career as a professor at the Massachusetts Institute of Technology before joining NC State as the Alan T. Dickson Distinguished University Professor of Technology Management in 1998. He holds faculty appointments in the colleges of Management, Engineering, Textiles, and Humanities and Social Sciences.

"NC State is fortunate to have Dr. Rappa at the helm of the institute," said NC State Provost and Executive Vice Chancellor **Larry Nielsen**. "His proven leadership in interdisciplinary programs—and his successful track record of working closely with industry—has put NC State at the forefront in the emerging field of advanced analytics. The Master of Science in Analytics is on the path to become one of the largest graduate degree programs we have, and one that leverages our unique strengths."

"The institute is a wonderful example of NC State's ability to be an innovator in the development of educational opportunities that address the needs of the 21st century," said Rappa. "I am delighted to serve as its director."

A study published last year in the British journal *R&D Management* identified Rappa as a leading scholar in the field of technology management, ranking him in the 99th percentile among 9,335 authors in terms of research productivity in top journals over the past 50 years. Rappa's research has been selected on three occasions as an outstanding contribution to the field, and his pioneering work on Internet business models is one of the most highly cited publications on the subject.

Rappa is perhaps best known as the creator of *Managing the Digital Enterprise,* an innovative and award-winning educational Web site devoted to the study of management in the digital world. Launched in 1999, originally as the foundation for a course he teaches, the site is now used by more than 250,000 learners and hundreds of instructors from around the world each year.

> **The institute is a wonderful example of NC State's ability to be an innovator in the development of educational opportunities that address the needs of the 21st century**

NC State has recognized Rappa on numerous occasions for his contributions to teaching and service. He is the recipient of the Outstanding Extension Service Award, the Award for Graduate Teaching Excellence, and the Gertrude Cox Award for Innovative Excellence in Teaching and Learning with Technology.

Prior to establishing the Institute for Advanced Analytics, Rappa led the development of the university's interdisciplinary program in e-commerce and co-founded the Computer Networking graduate degree program. An early advocate of open courseware, he established the Open Courseware Laboratory in 1998 to promote the creation of openly accessible educational resources on the Internet. Rappa and a team of his students are credited with creating OpenSeminar, an award-winning open source software platform for hosting collaborative courseware. In 2005, Rappa became among the first members of the NC State faculty to create a podcast of his entire course on the Internet.

Kathy Green was named associate director of Administration for the Institute. Green joined NC State in 1993 as head of Research and Information Services in the NCSU Libraries and began her work with Rappa in 2000.

To learn more about the institute, visit the Web at http://analytics.ncsu.edu. ▲

Department Icon to Retire After 38 Years

Dr. Alan L. Tharp, Alumni Distinguished Professor and previous department head, begin phased retirement effective July 1, 2007.

When he joined the NC State Department of Computer Science in 1969, the newly created department was just two years old. Because the field was so new, it was difficult to find PhDs in computer science. Tharp, who earned his PhD in computer science from Northwestern University, became one of the very first faculty in the department with a degree in the field.

Tharp, whose research interests have spanned data and file structures for new technologies and computer-user interfaces, has always been a favorite among students. As a tribute to his outstanding teaching skills, he received the NC State University Alumni Association's Distinguished Undergraduate Professorship Award in 1985.

As his career progressed, Tharp took on ever increasing levels of leadership within the department. After serving as interim department head for a year, in 1993 he became the fourth official department head. Serving in this capacity until 2004, Tharp led the department during a period of incredible growth and transition.

During his tenure as department head, 29 tenure-track faculty were recruited (17 of them received the NSF CAREER development award). The department established an active Strategic Advisory Board, launched the award-winning Senior Design Center to manage corporate-sponsored student projects, and established the highly successful ePartners corporate recognition program. Both the undergraduate and graduate programs grew significantly during the period, and much of the groundwork was completed to move the department into a new facility on Centennial Campus.

After stepping down as department head in 2004, Tharp returned to the classroom, developing and delivering a popular course in technology innovation.

In addition to Tharp's illustrious work at NC State, Tharp boasts work experience with Texas Instruments, Aerospace Corporation and Data General (now EMC).

He has maintained a close association with computer science accreditation for nearly 20 years, and recently served as an ABET/CAC (Computing Accreditation) commissioner.

Please join us in extending our sincere gratitude and appreciation to Dr. Alan L. Tharp for his outstanding contributions and dedicated service to our department, NC State University, and the state of North Carolina. ▲

Gehringer's Expertiza Platform Takes Honorable Mention in Gertrude Cox Awards

The Expertiza Platform, developed by **Dr. Edward Gehringer,** associate professor of computer science, received Honorable Mention recognition in the area of tool development during the 2007 Gertrude Cox Awards reception held at the Talley Student Center on January 25.

The Gertrude Cox Award for Innovative Excellence in Teaching and Learning with Technology was established to honor the creative pedagogy of NC State's faculty and technical staff and their work in integrating new technologies into effective teaching strategies. The award was endowed in the fall of 2002 and named for "The First Lady of Statistics," **Gertrude Cox,** who came to NC State in 1940 to establish the university's distinguished Department of Statistics.

The Expertiza Platform is a program that allows instructors to take full advantage of peer-to-peer student abilities and efforts as enhancements of the instructional process. It is a system, including software, for managing student evaluations of one another's work. Through this system, a student benefits not only from comments from the instructor, but also from comments by other students in the class. Each student also has the chance to review the work of others and thereby become better able to discriminate between different qualities of work. This process clearly improves critical thinking.

Gehringer is the first faculty member from the Department of Computer Science to be recognized by this prestigious award. ▲

Faculty Promotions

Dr. Matthias Stallmann has been promoted to full professor. He received his PhD from the University of Colorado in 1982. His research interests include algorithm design and analysis for serial and parallel models of computation, experimental analysis of algorithms, algorithm implementation and engineering, combinatorial optimization, graph algorithms, and algorithms for design automation. He is currently the co-director of the Collaborative Benchmarking and Experimental Algorithmics Laboratory (CBEAL).

Dr. Rudra Dutta has been promoted to associate professor with tenure. He received his PhD in computer science at NC State University in 2001. His research interests include traffic grooming and fault tolerance, performance and management of optical networks, as well as ad-hoc wireless networking. He has worked for IBM and currently serves on a number of professional and academic boards and commissions.

Dr. Vincent Freeh has been promoted to associate professor with tenure. He received his PhD from the University of Arizona in 1996. His research interests include operating systems, compilers, and programming languages, especially distributed and parallel computing and embedded systems. A one-time combat engineer for the U.S. Army, he has also worked for IBM and taught at the University of Notre Dame.

Faculty Additions

Kemafor Anyanwu joined the department as an assistant professor after receiving her PhD from the University of Georgia this summer. Her research interests are in semantic Web, databases and bioinformatics. ▲

Dr. Nagiza Samatova joined the department as an associate professor. She holds a PhD from the Computing Center of Russian Academy of Sciences (CCAS). Her research interests are in systems biology and bioinformatics, scalable data analytics, data management and data integration, graph theory and algorithms, natural language processing, and data and text mining. ▲

Dr. Xiaohui (Helen) Gu will join the department in Spring 2008 as an assistant professor. She is currently a research staff member at the IBM T. J. Watson Research Center in Hawthorne, NY.

Her research interests are in the areas of computer systems, with a current focus on information processing systems, large-scale networked systems, and wireless mobile systems. ▲

Staff Additions

Dare Cook is the new admissions specialist and counselor for Graduate Programs. Cook has a BS in psychology from Wingate University and an MA in Appalachian studies from Appalachian State University. She served as an instructor, research assistant and teaching assistant at Appalachian State, and she served as assistant director of Alumni Giving at Wingate. ▲

Ann Hunt is the new departmental bookkeeper. She came to Computer Science from the College of Physical and Mathematical Sciences on July 2. Ann is a CPA and has been with the university for six years.

Staff Retirement

Carol Holloman, finance director for the department, retired May 31, after 23 years of faithful service to NC State University. We wish her the very best in her retirement; she will be greatly missed.

Antón Testifies at Congressional Hearing on SSN Privacy

Serves as Expert Witness at Hearing on Protecting the Privacy of Social Security Numbers from Identity Theft

Dr. Annie Antón, associate professor of computer science at NC State University, testified at a Congressional Hearing on Social Security Number (SSN) privacy, held by the **House Committee on Ways and Means Subcommittee on Social Security** on Thursday, June 21, 2007.

The Subcommittee is examining what role SSNs play in identity theft, and the steps that can be taken to increase SSN privacy and thereby limit its availability to identity thieves and other criminals. The hearing will examine how SSNs are currently used, what risks to individuals and businesses arise from its widespread use, and options to restrict its use in the public and private sectors.

Called as an expert witness, Antón testified on behalf of the U.S. Public Policy Committee of the Association for Computing Machinery (USACM) that the theft of Social Security numbers has become the primary tool for stealing an individual's identity, enabling criminals to unlock access to credit, banking accounts, and other services. Antón, an advisor to the Department of Homeland Security's Data Privacy and Integrity Advisory Committee and a member of USACM, proposed policies that combine business procedures and information technology to help protect SSNs and reduce the nation's reliance on them for personal identification. She urged Congress to strengthen the privacy of SSNs to prevent the resulting fraud that has become increasingly commonplace.

"Two key factors have enabled the explosion of identity theft in today's environment. One is the common use of SSNs as a de facto national identification number; the other is current computing technology that enables the collection, exchange, analysis, and use of personal information on a scale unprecedented in the history of civilization," said Antón.

Speaking before the Subcommittee, Antón urged banks, credit agencies and government agencies to require strong proof of identity; such as passports, military IDs, or licenses with a photograph to verify personal identity. "Once that is established, a secondary authenticator, such as a secret shared password or PIN can be used for subsequent transactions. This approach provides extra layers of security and should help assure the public that the security and privacy of their information is being taken seriously," she said.

To provide an incentive to move away from the SSN as an identifier, Antón added that there should be no penalty or discrimination for someone who will not provide this information when conducting business, unless required by law to disclose it. She said this approach is consistent with advice from the U.S. Federal Trade Commission on protecting against identity theft.

She said that when paper records were used for personal information that included SSNs, they required some effort to find, copy, and disseminate; but the spread of inexpensive computing technology has made it much easier to find, use and exploit such information for fraudulent purposes.

Antón also proposed prohibiting the display of SSNs in public records, and redacting them from these records. She offered several additional actions to reduce the use and exposure of SSNs including:

• Requiring transmission of records or documents containing SSNs and other personally identifiable information to be secure or encrypted

• Requiring electronic security for files and devices containing SSNs

• Eliminating SSNs as the primary key in databases and substituting a unique number generated by the database management system.

Dr. Antón has achieved national recognition for her work on privacy and legal compliance in software-based information systems, homeland security, and her analyses of recent publicized security breaches. She serves on the US Department of Homeland Security Data Privacy and Integrity Advisory Committee, the US Association of Computing Machinery (USACM) Public Policy Executive Committee, and co-authored the USACM Privacy Principles. ▲

Featured Faculty

Dr. Frank Mueller, associate professor, and Theresa-Marie Rhyne, director of the Center for Visualization and Analytics, have both been recognized by the Association of Computing Machinery (ACM) as Senior Members for 2006. Mueller and Rhyne are among an elite group of just 77 people world-wide to receive this honor. Mueller has contributed to a number of award-winning research projects. With his doctoral advisee Jaydeep Marathe, he garnered the April 2007 Gelato (IP)2 Award, Innovative Project on Itanium Processors, for their project entitled "Hardware Profile-Guided Automatic Page Placement for ccNUMA Systems." He and his former student, alumnus Michael Noeth's (MS '06) paper entitled "Scalable Compression and Replay of Communication Traces in Massively Parallel Environments" was selected for the Best Paper Award in the Software Track of the IEEE International Parallel & Distributed Processing Symposium. He was also awarded $15,000 from the Oak Ridge National Laboratories for his research proposal titled "Online Data Reconstruction for Supercomputers." The award ran from January 1, 2007 through June 30, 2007.

Dr. Peng Ning, with Dr. Wenliang Du of Syracuse University, served as guest editor for the special issue of the *Journal of Computer Security* (JCS) featuring articles on security for ad hoc and sensor networks research. Also, he received funding from SRI International of approximately $80,000 to support his research proposal titled "Cyber-TA: NCSU: Large-Scale Privacy-Preserving Collaborative Intrusion Analysis." The award ran from July 1, 2006 through July 14, 2007. In addition, he and Frank Mueller received funding from the Army Research Office of $21,000 for their proposal titled "ARO Workshop on Security of Embedded Systems and Networks." The award ran from September 15, 2006 through September 14, 2007.

Dr. Mladen Vouk, head of the department, is a co-PI on a major research initiative which has received funding from the National Science Foundation (NSF) of $511,512 for a research proposal titled "Markers of STEM Success (MOSS): An 11-Year Longitudinal Study of High Achieving Young Women's Interests, Experiences, and Preparation For STEM Careers." Joining Vouk on this multi-disciplinary research initiative are PI Dr. Sarah Berenson (Math & Science) and co-PIs Drs. Joan Michael (Psychology), Roger Woodard (Statistics), and Sue Bracken (Adult & Higher Education). The award will run from October 1, 2006 through September 30, 2009. Dr. Vouk also has been awarded $885,000 by the Department of Energy (DOE) to fund his research proposal titled "Scientific Data Management Center for Enabling Technologies." This is the second round of funding provided by the DOE in support of the Scientific Data Management (SDM) Center. The award will run from November 15, 2006 through June 30, 2011.

Dr. Ben Watson has been selected to receive an NVIDIA Professor Partnership Award valued at $25,000. The unrestricted cash award will be used to augment Watson's research on sparse change-focused imagery as detailed in his proposal "Fonts for Imagery." He also received funding from the National Science Foundation (NSF) of $60,000 for his research proposal titled "Hyper-Resolution Rendering and Display." The award ran from August 16, 2006 through August 15, 2007.

Dr. Ana (Annie) I. Antón, associate professor, has been appointed by Department of Homeland Security (DHS) Secretary Michael Chertoff to serve on the DHS Data Privacy and Integrity Advisory Committee. She was also recognized at the 2006 IEEE International Requirements Engineering Conference (RE'06) for a paper she published at the annual conference in 1996. In addition, she is among 80 of the nation's brightest and gifted young engineers selected by the National Academy of Engineering (NAE) to participate in the 12th annual U.S. Frontiers of Engineering Symposium.

Dr. Xiaosong Ma was been awarded $43,830 by the Oak Ridge National Laboratories—UT-Battelle LLC to fund her research proposal titled "Transparent Data Recovery for Parallel File Systems Abstract." The award ran from February 15, 2007 through September 30, 2007. She and Vince Freeh have teamed with Dr. John Blondin (Physics) and received funding from the National Science Foundation (NSF) of $266,002 for their multidisciplinary research proposal titled "Application-adaptive I/O Stack for Data-intensive Scientific Computing." The award will run from August 15, 2006 through August 14, 2009.

Featured Faculty Awards

Drs. George Rouskas and Rudra Dutta have collaborated with the Research Triangle Institute (RTI) to obtain funding from the National Science Foundation (NSF) of $400,000 for their research proposal titled "NeTS-FIND: The SILO Architecture for Services Integration, Control, and Optimization for the Future Internet." The RTI research team includes two PhD graduates from NC State, **Drs. Ilia Baldine** (who studied under Rouskas) **and Arnold Bragg.** This is one of a very limited number of NSF awards this year targeted at defining what the architecture of the Internet will look like in 20 years. The award, which includes $220,000 for the NCSU researchers and $180,000 for the RTI researchers, will run from September 15, 2006 through August 31, 2008.

Dr. Michael Young, associate professor, has been named the new editor-in-chief of the *Journal of Game Development.*

Dr. Laurie Williams has received funding from Nortel Networks of approximately $46,000 to support her research proposal titled "Hot Spot Identification and Test-Driven Development." The award will run from August 15, 2006 through December 31, 2007.

Drs. Laurie Williams, Harry Perros and **Frank Mueller,** were selected to receive a 2006 IBM Faculty Award valued at $27,000. **Dr. Munindar P. Singh** received a 2007 IBM Faculty Award valued at $30,000

Dr. Carla Savage's research on symmetric Venn diagrams was featured in the December 2006 issue of *Notices of the American Mathematical Society.* In addition to the feature article entitled "The Search for Simple Symmetric Venn Diagrams," the work of Savage and her colleagues was featured on the magazine's cover.

Dr. James Lester has partnered with researchers from NC State's College of Education to obtain funding from the National Science Foundation (NSF) of $605,436 for their research proposal titled "Bayesian Pedagogical Agents for Dynamic High-Performance Inquiry-Based Science Learning Environments."

Joining Lester on this collaborative effort

are **Drs. Hiller Spires and John Nietfeld** of Curriculum & Instruction in the College of Education. The award will run from January 1, 2007 through December 31, 2009.

Dr. Steffen Heber was awarded $227,029 by the NC Biotechnology Center to fund his research proposal titled "A Bioinformatics Computing Cluster for NC State University." The award will run from February 1, 2007 through January 31, 2008.

Dr. Harry Perros, Alumni Distinguished Professor of Computer Science, was the guest of honor at the National University of Science and Technology's (NUST) Institute of Information Technology (NIIT) in Islamabad, Pakistan during the last week of April 2007.

Featured Staff Award

Susan Peaslee, administrative support specialist for the department, has been recognized as a "Pride of the Wolfpack" award winner in the College of Engineering.

Did You Know?

The College of Engineering is moving its entire facilities to Centennial Campus. Construction recently started on EBIII.

For a summary of our current research initiatives, see our 2007 Research Brochure at

www.csc.ncsu.edu/research/brochure/ 2007Research_Pub_Final.pdf

Baradwaj, Battestilli Receive Nancy G. Pollock Awards

Congratulations to **Nikhil Baradwaj** and **Lina Battestilli!** Baradwaj is the recipient of the **2006 Nancy G. Pollock Thesis Award** and Battestilli is the recipient of the **2006 Nancy G. Pollock Dissertation Award.** Both are the first graduate students from Computer Science ever to receive these prestigious awards.

Baradwaj conducted his MS research under the guidance and supervision of **Dr. George Rouskas,** and his work was funded by a grant from the National Science Foundation.

His thesis entitled *Traffic Quantization and its Application to QoS Routing* investigated traffic quantization as a method for supporting per-flow functionality in packet-switched networks in an efficient and scalable manner.

Born in New Delhi, India, Baradwaj completed his MS in Computer Science at NC State University in August 2005. He is now employed with MicroStrategy, in McLean, Virginia.

Battestilli conducted her PhD research under the guidance and supervision of **Dr. Harry Perros.**

Her dissertation was entitled *Performance Analysis of Optical Burst Switched Networks with Dynamic Simultaneous Link Possession.* In this work, she developed mathematical models of Optical Burst Switched (OBS) networks using tools from queueing theory and teletraffic theory, which belong to the broad category of probability theory.

Battestilli completed her MS in Computer Networking at NC State in August 2002. After successfully defending her PhD dissertation in August, 2005, she is now working as a scientist at MCNC in the Research Triangle Park. Her latest research focus is the role, control and design of optical networks within the context of Grid computing.

Sponsored by the NC State University Graduate School, the Nancy G. Pollock Thesis and Dissertation Award program is designed to reward outstanding scholarly research and to demonstrate the positive impact of graduate-level research on both the economy of North Carolina and the quality of life for all its citizens. The MS Thesis Award carries a $500 stipend. The Dissertation Award carries a $1000 stipend. ▲

Heckman and Breaux Win IBM PhD Fellowship Awards

Congratulations to CSC graduate students **Sarah Smith Heckman** and **Travis Breaux,** each of whom were awarded the prestigious 2007 IBM PhD Fellowship Award.

This is the second consecutive year that Heckman and Breaux have been honored by winning these awards.

Special thanks go to their sponsors, **Drs. Laurie Williams and Annie Antón**, respectively, for their assistance. And thanks to IBM for their continued support of our department and our students.

Nine TAs Recognized at UGSA Ceremony

The following Computer Science TAs were selected for Outstanding Graduate Teaching Assistant Awards by the University Graduate Student Association (UGSA): **Mithun Acharya, Alexander Balik, Paul Breimyer, Pankaj Chopra, Sangtae Ha, Jeff Ligon, Kunal Taneja, James Tetterton and Benjamin Wheeler.**

These are just a sampling of the awards and partnerships. For more information visit www.csc.ncsu.edu/ news/

Fall ePartners Career Connection Event Largest Ever

On October 4, 2006 the Department of Computer Science hosted its 6th annual **ePartners Career Connection** event, a recruiting and networking event provided exclusively for CSC students and ePartner companies.

This was the second time the event had been held in EBII, the department's new home on Centennial Campus, but the first time using the atrium.

The extra space came in handy as this event was the largest in the department's history, featuring 12 corporate partners. Participating in the event were **Cisco Systems, EMC, Progress Energy, Network Appliance, Tekelec, i-cubed, The Vanguard Group, Duke Energy, Prometheus Group, Itron, NC Office of the State Auditor, and Microsoft.**

As always, student participation was strong. Several recruiters estimated that as many as 200 to 250 CSC students attended the event.

Prometheus Group at the ePartners Career Connection Event

Jim Johnson, director of Human Resources for Network Appliance said, "We spoke with some very strong students today. It has been a very successful event for us." ▲

Cisco Grant Supports Game Room and Student Organizations

Soon students in Electrical and Computer Engineering as well as Computer Science will have a place on Centennial Campus to socialize and have a little fun. With generous support from **Cisco Systems,** a game room will be up and running in Engineering Building II in a room just off of the atrium. The game room comes complete with a ping pong table, air hockey table, foosball machine, a large television with PlayStation II games, as well as Guitar Hero and Dance Revolution. Student organizations will also provide board games from various cultures so that all students can enjoy this room.

In addition to the game room, Cisco has provided support to many of the student organizations within CSC and ECE. Funds were provided to the Society of Hispanic Engineers (SHPE), the Underwater Robotics Club, Eta Kappa Nu (HKN), the ECE Graduate Student Association, the student branch of the Institute of Electrical and Electronic Engineers (IEEE), the CSC Geek-A-Thon (providing refurbished computers), the Association for Computing Machinery (ACM) and Women in Computer Science (WICS).

"We are so appreciative of the support Cisco provides to our programs and our students. They are a great partner to both the CSC and ECE departments, and we appreciate their continued interest in our students," said **Tara J. Britt,** director of External Relations for the ECE department.

The support from Cisco makes it possible for students who are in these organizations to attend leadership conferences, establish outreach efforts in the community, compete in national competitions and help fellow students with tutoring and other educational needs.

Rockin' out to Guitar Hero II in the ECE/CSC Game Room, **Dawn Johnson,** University Relations manger for Cisco, said, "Cisco has had a very long-standing partnership with NCSU, and we are very proud to have been able to contribute funding for the game room. As a corporate partner with NCSU, it is imperative that we take notice of other ways that we can enhance student life. Cisco recognizes the need for both academic and social experience to foster a true higher education. With the opening of the game room, we hope to promote a place for social gathering where students ...from various backgrounds can...learn about each other and share their cultures, backgrounds and experiences."

Cisco is a member of the CSC ePartners Program. ▲

Cisco Announces Inaugural Recipients of NCIGS Awards

Congratulations to incoming Computer Science freshmen **Mackenzie Corcoran** and **Robinson Udechukwu,** who have been selected by Cisco Systems as NC State's inaugural recipients of the **National Cisco Internet Generation Scholarship (NCIGS)** awards.

Each scholarship is valued at $5,000/year and is renewable for four years of undergraduate study, as long as the student maintains enrollment in computer science and maintains a minimum 3.0 GPA.

The program also includes internships and Cisco Engineering Education opportunities.

NC State is just one of five universities nationally selected by Cisco to participate in this prestigious scholarship program. The other schools participating in the program include the University of Texas, University of Michigan, Georgia Tech, and the University of California, Berkeley.

Through the NCIGS program, Cisco is attempting to increase the attraction and retention rates of underrepresented students (minorities and/or females) in the field of computer science.

Corcoran and Udechukwu, NC State's inaugural recipients of the NCIGS

Cisco's NCIGS program coordinator, **David Jaffe,** adds that the program is also an attempt to align their strategic recruitment efforts with their research interests. "In addition to the internships," Jaffe says, "we would ultimately love to see these students have an opportunity to work directly with local faculty on research efforts we are supporting."

Since these renewable scholarships will be awarded to two incoming freshmen each fall, in just four years, as many as eight computer science students could be benefiting from the awards each year.

Jaffe, whose office is on the west coast, plans to make regular visits to campus to dialogue and interface with the students. He adds that he and local mentors at Cisco "really want to get to know these kids very well over the course of their academic career." As the program matures, he expects a community of award winners will emerge,

nurturing strong relationships and friendships that will last a lifetime.

Udechukwu, a native of Charlotte, NC, developed an interest in networks and computer science while in high school. He claims the NCIGS scholarship played a key role in his decision to come to NC State. "I was looking at several options, including a program at UNC—Chapel Hill," said Udechukwu. "But ultimately, the Cisco scholarship provided the tipping point for me to come here and study computer science." He has obtained his A+ and Network+ certifications, and is excited about future internship opportunities at Cisco.

Corcoran, a native of Cary, NC, knew early-on that she wanted to come to NC State to study computer science, but the NCIGS scholarship has been a huge help to her and her family. Since arriving on campus, she has taken a very active role in the Women in Computer Science (WiCS) program, and she has volunteered to help with departmental events, such as serving as a student representative at Open House. She is also excited about the intern opportunities provided by Cisco, as she really values "hands-on" experience.

As the inaugural winners of the NCIGS scholarships, both students are extremely honored to have been selected, and they look forward to the opportunity to mentor future winners. ▲

> **"I was looking at several options, including a program at UNC–Chapel Hill, but ultimately, the Cisco scholarship provided the tipping point for me to come here and study computer science."**

Sun Microsystems Donation to Support Wireless Sensor Instruction and Research

Sun Microsystems, Inc. has donated 10 Sun SPOT wireless sensor kits to **Dr. Robert Fornaro,** professor and director of the Senior Design Center. The technology gift, valued at $5,500, will be used to support wireless sensor related student projects, classroom instruction and research initiatives.

Sun SPOT (Small Programmable Object Technology) is experimental technology developed by Sun Labs. Using Java-based technologies, a Sun SPOT device has almost an unlimited potential for countless applications.

The Sun SPOT kits are not commercially available at this time in the United States and have a very limited distribution. NC State is one of a very small number of universities experimenting with them.

Immediate plans are to incorporate the technology in CSC 453, a senior-level course aimed at introducing concepts and applications of ad hoc wireless sensor systems. Fornaro plans to revise labs for this course to include more exercises aimed at learning about Sun SPOTs and creating demonstrations and applications that show their versatility.

In addition, Fornaro has commissioned two teams of Senior Design students to pursue a broader range of applications of Sun SPOTs. He also plans to conduct research experiments using the Sun SPOTs in a benchmark against other sensor systems to compare relative computational performance of security-related algorithms.

According to Fornaro, the donation has generated great interest and enthusiasm from our students. "On the first day of our CSC 453 course this semester, I announced the receipt of the Sun SPOT gift and our plans to build laboratory exercises around it to the class," Fornaro said. "One week later, the class had doubled in size!"

For more information on Sun SPOTs, visit http://www.SunSpotWorld.com/ ▲

Dulberg and Adams Endow Computer Science Scholarship

Alumnus **Dr. Martin "Marty" Dulberg** (MS '96, PhD '03) and his wife, **Dr. Barbara "Jasmine" Adams,** have made a generous donation to the Department of Computer Science to establish a scholarship endowment in honor of Marty's mother and stepfather, Renee and Stan Katz.

The **Renee and Stan Katz Scholarship Endowment** will provide scholarship funds to a freshman in Computer Science and is renewable for up to eight semesters as long the student maintains qualifying grades and makes acceptable academic progress toward graduation. Should the recipient decide to change majors, the scholarship may be retained as long as the recipient remains in the College of Engineering. Preference shall be given to first-generation college students.

Marty is the director of the Computer Programming Certificate Program, and Jasmine is the director of Advising for the Department of Computer Science.

This is the department's 14th named endowment, and the 7th specifically created to provide scholarship funding for Computer Science students.

More important, this endowment is the first in the "40@40 Campaign", a special campaign designed to help the department commemorate its milestone 40th year by increasing its endowments by 40 percent in 2007. While a very ambitious goal, this embodies the bold and transforming support required to position our department among the very elite computer science departments in the nation.

Marty and Jasmine feel strongly about supporting higher education, and in particular, they feel strongly about helping others achieve their academic potential.

This is actually the second scholarship endowment created by the couple. Their first endowment, the **Michael and Olga Liss Memorial Scholarship,** was created in 2005 in memory of Jasmine's grandparents, Michael and Olga Liss. It provides support for students majoring in mechanical engineering. ▲

Selected Student Awards and Achievements

Kristy Boyer

Kristy Elizabeth Boyer, a doctoral student in Computer Science co-advised by **Drs. Mladen Vouk and James Lester,** and **Laurie Jones,** a research scientist working with **Dr. Annie I. Antón,** are both recipients of the prestigious National Science Foundation (NSF) Graduate Research Fellowship Award. The Graduate Research Fellowship provides three years of support for graduate study leading to research-based masters or doctoral degrees and is intended for students who are at the early stages of their graduate study.

Laurie Jones

Mavric Bonto-Kane

Marivic A. Bonto-Kane, a PhD candidate was chosen as one of only 13 women to participate in the Student Bridges "Women in Leadership Development" program for Spring 2007, offered by the NCSU Women's Center.

Claris Castillo, a doctoral student and teaching assistant, was named a finalist for The Google 2007 Anita Borg Scholarship.

Clara Castillo

Phil List

Phil List, a senior, was named as co-recipient of the 2006–07 Deborah S. Moore Student Volunteer of the Year Award. The Deborah S. Moore Service Awards recognize exemplary service and outstanding volunteerism by students and clubs, and they are presented by the Center for Student Leadership, Ethics and Public Service (CSLEPS).

Lauren Hayward participated in CRA's Distributed Mentor Project (DMP) this summer. Lauren worked with **Dr. Mary Beth Rosson,** professor of information sciences and technology at Penn State University. She began her graduate studies in the Computer Science department at NC State in the fall.

Lauren Hayward

Patrick Talmage

Talmage Patrick, a junior, has been named a recipient of the UPE/ACM Scholarship Award, valued at $1,000. Patrick is one of just three recipients of the award nationwide.
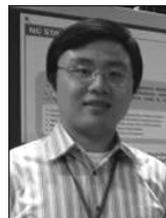
Jiang Zheng, a doctoral student and research assistant, took first place in the graduate category of the ACM Student Research Competition. He is now eligible to participate in the Grand Finals of the ACM Student Research Competition.

Jiang Zheng

Fidelity Investments Sponsors Leadership Speakers Series

In conjunction with its 40th Year Celebration this fall, the Department of Computer Science at NC State University is very pleased to announce the launch of the **Fidelity Investments "Leadership in Technology" Executive Speakers Series.**

The Executive Speakers Series, which has been made possible during the **2007–08** academic year as a result of a generous $25,000 gift from Fidelity Investments, is expected to feature five to six high-profile, technology-focused business leaders throughout the year.

According to **Ken Tate,** director of Development & External Relations for the department, the series is an outgrowth of a very popular executive seminar-based course created a few years ago. "Our 'Leadership in Technology' course was one of our students' most popular courses," says Tate. "Making this transition allows us to reach a much larger audience and have a greater impact on the lives of our students."

Dr. Mladen Vouk, head of the department, commented, "We are so grateful to Fidelity Investments for making this series possible. ...this is a strong statement to their partnership commitment with our department." Vouk adds, "As we celebrate our 40th year as a department this year and look forward to an exciting future where technology will continue to touch every phase of our lives, it is imperative that we understand and embrace the unique leadership skills required to compete and thrive in an ever-flattening world."

Steve Scullen, president of **Fidelity eBusiness,** will serve as the first executive speaker for the Fidelity Investments "Leadership in Technology" Executive Speakers Series. This inaugural talk will take place on Tuesday, **September 11** at 6 pm in Room 1025 of EBII on Centennial Campus.

The fall schedule will also include **Matthew Szulik,** CEO and president of Red Hat (**October 16**), and **Frank Plastina,** CEO of Tekelec (**November 14**).

All talks will be delivered at EBII and free and open to the public.

For more information, consult the Fidelity Investments "Leadership in Technology" Executive Speakers Series page (www.csc.ncsu.edu/corporate_relations/fi_lit.php) or contact Ken Tate, tate@csc.ncsu.edu or 919.513.4292. ▲

Student Team Competes in International Multi-team Hacking Contest

A team of 10 CSC undergraduate students, known as the **W0lf H4ck3r5,** recently participated in the annual **UCSB International Capture the Flag (iCTF)** contest.

The iCTF is a distributed, wide-area security exercise with the goal of testing the security skills of the participants from both the attack and defense viewpoints.

The contest is a multi-site, multi-team hacking contest in which a number of teams compete independently against each other.

The CSC students competed from the Friday Institute on Centennial Campus.

Each team was given a server which contained a Windows and a Linux host system. The goal of the contest is to keep the server from going down due to viruses, malware or other computer security threats by fixing any vulnerability the servers and/or hosts have. In addition, teams are encouraged to add vulnerabilities to other servers in the competition in order to improve their chances of winning.

"Security is an ever changing and growing field. This competition is important because it allows students to experience the multifaceted challenges that security engineers face on a daily basis, where more than just virtual banks and virtual computer systems are on the line," says **Sina Barham,** a senior in Computer Science and W0lf H4ck3r5 team member.

The contest, which originated in 2003, has grown from a few U.S. colleges and universities to an international competition featuring schools from North America, South America, Europe and Australia. It is the first known international simultaneous computer security competition.

NC State has fielded a team in the event every year since the competition started. ▲

Charles W. Kelly / ISSA Scholarship Endowment Officially Launched

As part of a multi-year pledge, the Raleigh chapter of the Information Systems Security Association (ISSA) has made an $11,000 donation to the Department of Computer Science at NC State, allowing for the official launch of the **Charles W. Kelly/ISSA Scholarship Endowment.**

Leaders of the local ISSA chapter, both past and present, were on hand to make the check presentation during their June meeting held at EBII on Centennial Campus.

The scholarship endowment, named to honor the founder of the Raleigh ISSA chapter, **Charles W. Kelly,** will be awarded annually to a qualified junior or senior with a demonstrated interest in working in the field of computer security.

During the endowment pledge period, the local professional organization has made $1,000 scholarship awards, and will continue to do so while the endowment matures.

Ken Tate, director of Development & External Relations for the department, expressed appreciation to the group for their support of Computer Science students with this endowment. With well over 1,000 students, the department has emphasized the importance of growing our endowments to help attract and retain the very brightest students and faculty. Tate commented,

"This becomes our 15th official endowment, and the 3rd to officially be launched this year, our 40th year as a department. We are so appreciative of ISSA's support, and we invite other professional organizations to follow their lead."

Chapter president, **Steve Toy** said, "We are very grateful for the relationship the ISSA has with NC State and hope to continue to expand it in the future."

Individuals or corporations interested in contributing to this fund should make their donations to the "NC State Engineering Foundation," noting for the "Charles W. Kelly/ Raleigh ISSA Scholarship Endowment" in the memo section. Donations can be sent to the NCSU Department of Computer Science, Campus Box 8206, Raleigh, NC 27695. ▲

40@40 Scholarship Endowment to be Launched

A new **40@40 Scholarship Endowment** will be created with proceeds from the 40 Year Celebration's online auction (www.ncsu-csc.cmarket.com) and donations to a special **40@40 Campaign.**

In August, all CSC alumni in the U.S. were mailed a package detailing this new endowment and asking for their support. We have partnered with the Alumni Association to offer donors numerous benefits based on their support level; including 40th Year Commemorative items, a year's membership (or extension) in the Alumni Association, an engraved brick on Centennial Campus, a special dinner at the Park Alumni Center, and a chance for tickets in a luxury suite for the NC State vs. Maryland football game on November 24th.

Northrop Grumman Makes Significant Contribution to NC State Engineering

Northrop Grumman Corporation has donated $60,000 to the College of Engineering at NC State University. The gift will support departmental and diversity scholarships; K-12 outreach and diversity programs; student leadership development; the Career Center; and senior design projects for the departments of Computer Science, Electrical and Computer Engineering, Materials Science and Engineering and Mechanical & Aerospace Engineering.

Northrop Grumman, a global defense corporation, has been a long-standing supporter of the College and is a significant recruiter of engineering students from NC State.

Dr. Louis Martin-Vega, dean of the College of Engineering at NC State, said of the gift, "We greatly appreciate the generous support of Northrop Grumman to the College of Engineering. This gift will enhance current programs and create educational opportunities." ▲

New Strategic Advisory Board Members Named

Dr. Mladen Vouk, department head, and the NC State Department of Computer Science are pleased to announce the addition of four new members to the department's Strategic Advisory Board (SAB):

Sidd Chopra (CSC B.S. '88) – president and founder of Analytrix LLC.

Gail Kramer (CSC B.S. '85) – VP, Business Intelligence Clients w/SAS Institute

Eric Wagner – senior director, NAS Solutions w/EMC Corporation

Mark Wyatt (CSC B.S. '80) – VP, IT Business Applications w/Duke Energy

The SAB is a cornerstone of the Computer Science department's strategic planning efforts. This dynamic group of industry executives and academic leaders provides input and guidance which is critical to helping shape the department's strategic focus.

The SAB meets each spring on campus and functions as a virtual working team throughout the year through conference calls and member involvement on subcommittees and executive panels.

Membership terms are for three years and may be renewed for a second term.

In addition to providing guidance and direction to the department chair and faculty, the SAB has taken an active role in addressing some of the department's key challenges.

For example, numerous members of the SAB have contributed to launch the Diversity in Computer Science Endowment, the vision of previous SAB chairperson **Keith Collins** and his wife **Margie**. This fund was created to help improve the attraction and retention rates of females and minorities in the field of computer science. The SAB provides guidance each year on how the proceeds for this endowment might best be put to use by the department.

The SAB is currently chaired by **Wayne Clark,** CNS architect with Cisco Systems. **Jesse Fearrington,** retired Wachovia executive, is the current vice chairperson.

The SAB held its 2007 meeting in Raleigh on April 12 and 13.

For more information on the department's Strategic Advisory Board, go to www.csc.ncsu.edu/corporate_relations/sab.php. ▲

Alumnus Wins Prestigious NSF CAREER Award

Alumnus **Dr. Lisong Xu** (PhD '02), an assistant professor at the University of Nebraska-Lincoln, has received a Faculty Early Career Development (CAREER) Award from the National Science Foundation valued at $400,000 for his proposal "Stochastic TCP Friendliness: Exploring the Design Space of TCP-Friendly Traffic Control in the Best-Effort Internet".

These prestigious awards are provided by the NSF in support of the early career-development activities of those teacher-scholars who most effectively integrate research and education within the context of the mission of their organization. Such activities should build a firm foundation for a lifetime of integrated contributions to research and education.

While at NC State, Xu's academic co-advisors were **Drs. Harry Perros and George Rouskas,** and his dissertation was entitled *Performance Analysis of Optical Burst Switched Networks*.

Xu also worked with **Drs. Injong Rhee and James Lester** as a postdoc after his graduation. ▲

Deferred Charitable Gift Annuity

It's never too early to plan your future. Prepare for retirement now and help NC State's Computer Science department through a deferred Charitable Gift Annuity that will secure income for your future. You can get a current charitable deduction for your gift and increased income at your retirement date. Ask us about flexible income start dates.

For more information, contact Ken Tate at 513-4292 or NC State Office of Gift Planning at 515-1506.

Troy Tolle—Alumni Achiever

Troy Tolle (BS 1998, MS 2000) is co-founder and chief technology officer of DigitalChalk, "the first 100 percent Web-based system for building and delivering online learning." Tolle started the company in Asheville, NC last year, making use of interests he learned to combine while at NC State—media, learning and technology.

When he was considering where to attend college, Tolle wanted to combine his interest in art with his interest in technology. He looked at several schools and considered a double major in graphic design and computer science. When he was awarded a Caldwell Scholarship, that sealed the decision to choose NC State.

Once on campus, it did not take long for Tolle to get fully involved. After his first semester of Computer Science courses, he became a teaching assistant for the Introduction to Programming course. Tolle also became very active in Campus Crusade for Christ and joined the Phi Delta Theta fraternity. He played a large part in the Computer Science club, ACM/AITP: president for three years and graduate advisor to the club while in graduate school. "Being a part of ACM during the dot-com boom was exciting. Companies were lining up to speak to the members and recruit graduating students," said Tolle. Now he is the one recruiting and offering NC graduates an exciting place to work.

While in graduate school, Tolle was asked to teach the *Introduction to Programming* course in Java when the department switched from C++ to Java. While he was completing his graduate work in human computer interaction, Bill Scott, former assistant department head, introduced Tolle to the CEO of CrossLogic Corporation, where Tolle became a consultant after graduating from NC State with his MS in 2000.

While with CrossLogic, he helped many companies, organizations and government agencies with software architecture and design, programming and software processes. He helped design and write software for companies like for Sprint, Yellow Transportation, Wachovia, St. Jude's Children's Hospital and the Department of Defense. He has also written and contributed software to the open source community on projects varying from a complete Java framework for role-based access control to frameworks for building MVC software

applications and portlets. In 2005, CrossLogic was bought out by Number Six Software, where Tolle continued to travel around the country mentoring organizations on software practices. After about a year, Tolle decided to leave and form a company with a flagship product called DigitalChalk.

The beginnings of DigitalChalk were in 2005. Tolle was engaged as a consultant to a university to plan a video-based, online learning solution. That solution allowed the university to employ professors from all over the world to contribute to the university and deliver material to students around the globe. After leaving Number Six Software in 2006, Tolle was approached by some investors who had seen his work and were interested in creating a company that delivered next-generation online learning. They commissioned Tolle to build a team and design a new software system that he views as the "YouTube of online learning." One of the unique features of DigitalChalk is that it allows instructors to synchronize video, slides, and outline points—all through an online interface.

"When I remember Troy, I remember someone who always sees a glass as half

> ## "Being a part of ACM ... was exciting. Companies were lining up to speak to the members and recruit graduating students."

full, not half empty," says Carolyn Miller, a faculty member in the CSC department. "Troy is *always* positive. He is enthusiastic and fun to be with. He works hard, and his energy fills the room so everyone is raring to go!"

Growing up, Tolle was never far from technology and learning. His father is a math professor and is "the person that I want to grow up to be," says Tolle. Outside of work, he enjoys all types of outdoor activities, especially hiking and mountain biking, with Laura, his wife of almost two years. Media, technology and learning are still a huge part of Tolle's life, even away from computers and work. Tolle is an avid photographer, shooting everything from weddings to the nature around him. "People just know they are going to get their picture taken when I am around," said Tolle. He is also a devout Christian who is very active in many of the programs and activities at Biltmore Baptist Church, including being one of the photographers for their publications and events. ▲

We'd Like to Hear From You!

Please let us know if your contact information has changed. In particular, we would like to get e-mail addresses from all alumni so we can send you our monthly *eNewsletter*. Please send the following information to Ken Tate, Campus Box 8206, NCSU, Raleigh NC 27695-8206 or update your contact information online at www.csc.ncsu.edu, under the "Alumni" section.

Name _____ Degree & Class Year _____

Home Street _____

City _____ State _____ Zip_____

Home E-Mail Address _____

Home Phone _____ Home Fax _____

Mobile Phone _____

Company Name _____

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Company Phone _____ Company Fax _____

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Online Alumni Contact update available at:

http://www.csc.ncsu.edu/alumni_update.php

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Updates —to be included in the next issue of *Connected*

- Department Celebrates 40th Year
- DARPA Urban Challenge Results
- NC State Named 2007 Laureate for VCL Project
- Geek-a-thon
- Steve Wozniak Speaks at Technical Symposium

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