

CONNECTED

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summer 2006

computer science newsletter



www.csc.ncsu.edu

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- ▲ CSC Project Team Wins International Competition
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Upcoming Events

- Aug. 23 - First Day of Classes for Fall Semester
- Oct. 2 - Minority Career Fair
- Oct. 3 - Fall Engineering Career Fair
- Oct. 4 - ePartners Career Connections Event
- Oct. 21 - NC State Open House
- Nov. 4 - NCSU Homecoming
- Dec. 20 - Fall Commencement & Diploma Ceremony

On the front cover: Engineering Building II (EBII), the new home of the Department of Computer Science and the Department of Electrical and Computer Engineering. The official dedication event for EBII was April 28, 2006.

From the Department Head



As we approach our 40th anniversary in 2007, the NC State Department of Computer Science (CSC) has so much to celebrate. This issue of the *Connected* newsletter sports a new look and feel and features many of the stories we can all be very proud of.

During the last year, the department successfully completed its ABET/CAC accreditation, and the National Security Agency once again recognized NC State as a Center of Academic Excellence in Information Assurance. Several new and talented faculty have joined the department. Three of our faculty won prestigious NSF Career Awards, one of the highest honors awarded to young faculty. Research expenditures continue to increase. In the 2004-2005 academic year, department research expenditures exceeded \$6 million for the year, and total active research grants exceeded \$19 million.

The department currently ranks in the top 10 in bachelor's degrees awarded, in faculty size, and in undergraduate enrollment, and is in the top 20 in graduate enrollments and research funding among computer science programs in colleges of engineering. Our alumni population has grown to almost 5,000. The size and the quality of our program put our graduates in great demand with employers in the Research Triangle Park and throughout the region and nation, across all sectors. Perhaps a little known fact that we can all be proud of is that NC State continues to be the number one supplier of new graduate talent to IBM worldwide, as well as the top supplier to other high tech companies.

The Senior Project experience, through our Senior Design Center, has long been a cornerstone of our undergraduate program. Last summer a multi-disciplinary project team from NC State brought home the \$20,000 top prize in the IEEE Computer Society International Design Competition (CSIDC) 2005 World Finals held in Washington, DC. This is the first team ever from the United States to win this prestigious competition.

[Editor's note: We have just won the CSIDC 2006 competition too! That will be featured in the next issue.]

In the fall of 2005, NC State announced *Achieve! The Campaign for NC State*, a major \$1 billion fund-raising campaign designed to grow the endowments across all disciplines on campus. As part of this campaign, we have launched several new endowments within our own department to aid students, faculty, and programs.

Our corporate partnerships continue to be a strength of the department. Over 50 companies are now recognized as partners with the department on some level, providing support and engagement that has a very real impact on the quality and focus of the research and educational experience within our department.

NC State University was recently recognized as one of the "25 Most Connected Campuses" in the nation by *The Princeton Review*. The selection was based in part on the strength of the computer science program at NC State, the availability of school-owned digital cameras and equipment for student use, wireless Internet access on campus and support for handheld computing.

The crown jewel of our success as a department during the past year is the opening of Engineering Building II (EBII), our new home on Centennial Campus. Classes began in EBII in August 2005, with faculty and research lab moves completed early in the Spring 2006 semester. This new state-of-the-art teaching and research facility provides CSC close to 40,000 square feet of space, allowing us to consolidate most of our faculty, graduate students and research activities into three buildings: EBII and Monteith Engineering Research Center (MRC) on Centennial Campus and Daniels Hall on the historic main campus. The official dedication of EBII on April 28, 2006 featured a grand-opening ceremony, facility tours and a reception. Many alumni, sponsors and friends joined us in this celebration.

As I complete my two years as interim department head and begin my term as department head, I extend appreciation to all who have helped me along this journey. No doubt, your continued support and involvement will help ensure our future success.

Sincerely,

A handwritten signature in dark ink, appearing to read "Mladen Vouk". The signature is fluid and cursive.

Mladen Vouk
Professor and Department Head ▲

CSC Project Team Wins International Competition

About 70 students, faculty, staff, relatives, friends, university administrators and community leaders joined the Networks for Endangered Animal Tracking (NEAT) Senior Design Center team on August 25, 2005 to celebrate their historic win in the IEEE Computer Society International Design Competition (CSIDC) 2005 World Finals. The finals were held in Washington, DC, June 25 through 28, 2005. NC State provost, **Dr. Larry Nielsen**, was on hand to deliver words of praise for the multidisciplinary Senior Design Center project team members **David Coblentz** (CSC), **Dakota Hawkins** (CSC), **Jonathan Lewis** (CSC) and **Ben Noffsinger** (Fisheries & Wildlife Sciences), who took home the \$20,000 grand prize. Nielsen told the audience, "We at NC State are so proud of this team's accomplishment.

They weren't just #1 in the state, or #1 in the nation...they were #1 in the world!" In the six years of the CSIDC, this is the first United States team to win first place at this prestigious competition.



*Dr. Larry Nielsen,
NC State Provost*

During the reception, the team gave an encore presentation of their award-winning pitch to the CSIDC judges. The project, entitled *NEAT: Networks for Endangered Animal Tracking*, combines GPS technology with wireless sensor networks to track animal movements in the wild. Their mentors for this project were **Dr. Robert Fornaro** and **Ms. Margaret Heil**, director & associate director of the Computer Science Senior Design Center and **Dr. Richard Lancia**, Fisheries & Wildlife Sciences.

"We at NC State are so proud of this team's accomplishment. They weren't just #1 in the state, or #1 in the nation...they were #1 in the world!"



Back row (l. to r.): Dr. Alan Clements (Chair of the CSIDC), Ben Noffsinger, Jonathan Lewis. Front row (l. to r.): Dakota Hawkins, David Coblentz, Ms. Margaret Heil (Team Mentor, CSC), Dr. Robert Fornaro (Team Mentor, CSC).

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 2003 team placed third in the world with their *Diet Download* project. ▲

[Editor's note: A CSC Senior Design team just won the CSIDC 2006 competition too! That will be featured in the next issue.]

Congratulations to the NEAT team and to their mentors. Special thanks to the following:

- Integrated Industrial Information, Inc. (I-Cubed), CSC ePartner
- Dr. Hugh Devine, NCSU Parks, Recreation & Tourism Management
- Ms. Charlene Lassiter, CSC
- Mr. Mark MacAllister, NC Zoological Society
- Mr. William Millinor, NC State Parks, Recreation & Tourism Management
- Mr. William Slocumb, NC State Center for Earth Observation
- Mr. John Stone, CSC Senior Design Center
- Mr. Ben Tilley, CSC Senior Design Center

Vouk Named Head of Computer Science



Dr. Mladen A. Vouk, professor of computer science and associate vice provost for information technology at North Carolina State University, has been named head of the

Department of Computer Science, effective July 1, 2006. He has served as interim head since July 2004.

Vouk, whose research interests include software engineering, scientific computing, computer-based instruction and high-

performance networks, is also known for his work to improve science and math education in schools. He is a co-founder and former co-director of the Computer Science Software Systems and Engineering Laboratory, founder and former director of the NC State Multimedia and Networking Laboratories, and former technical director of the Center for Advanced Computing and Communication.

A fellow of the Institute of Electrical and Electronics Engineers (IEEE), Vouk received his Ph.D. in solid state physics from the University of London, Kings College, in 1976. He joined the faculty at NC State University in 1985. ▲

Graduate Milestone Achieved

On Wednesday, December 14, 2005 approximately 1,000 relatives and guests watched in pride as more than 130 degrees were conferred by the department during the Fall Diploma Ceremony



Christina McCain, mother of three young sons, proudly celebrates her B.S. degree. "I couldn't have done it without their support," she said.

held at the beautiful *Meymandi Concert Hall* in the **Progress Energy Center for the Performing Arts** in downtown Raleigh.

Of the 132 degrees conferred, almost 47 percent came from the graduate program (7 Ph.D.s and 55 M.S. degrees), the highest percentage in the department's history. As noted during the ceremony by

Dr. Mladen Vouk, interim department head, "This significant milestone is a statement as to the outstanding reputation and sustained growth of our

graduate program."

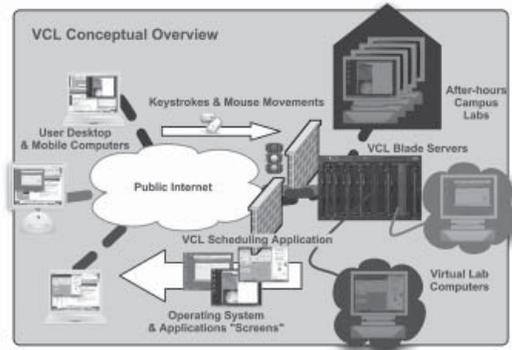
Dr. Donald Bitzer, Distinguished University Research Professor within the department and winner of an Emmy Award for his work in developing the flat plasma display panel, served as special guest speaker for the event. He told the graduates that while it is important that they be equipped to "answer questions right," it may be more important to their success to learn how to "ask the right questions." He advised the graduates to pursue their interests and passions, and the money will follow. Finally, he told the graduates that despite their concerns over rising tuitions, the total that they and their parents paid for their education is far less than what it really costs, and the difference has been and will continue to be made up by donations from those who want to help others. He challenged the graduates to remember this when they become successful and to give back so that others can follow in their footsteps.

Special entertainment was provided by the *Capital Brass* of the **North Carolina Symphony**.

Special thanks to Super ePartner **Progress Energy** for sponsoring this very special event. ▲

Virtual Computing Laboratory Provides Students and Faculty with Remote Access to Advanced Computing Resources

As information technology advances with rapid improvements in network bandwidth, mobile computing devices and high-end computational resources, the computing needs and expectations of students, faculty and staff also increase. Since fall 2004, the NC State **Virtual Computing Laboratory** (VCL) has provided on-campus students, distance education students, and faculty remote access to engineering, design, and scientific software applications. Students and faculty can now access advanced computing resources from their personal computers via the web any time, from any location.



VCL Conceptual Overview

VCL provides on-demand, reservation-based access to applications that have been pre-installed on high-end computing resources. This semester, approximately 3000 students had free access to expensive, specialized Windows-based applications as though they were in a campus lab, without installing anything new on their machine. The VCL will not make campus labs obsolete. It augments the physical labs by optimizing use of existing computational resources and giving students the choice of using a lab or working from another location. The VCL provides the entire NC State population access to the Linux and Solaris environments, with a goal of providing all NC State students, faculty and staff access to all of the VCL computing environments.

The heart of VCL is a web-based service built on off-the-shelf and open source technologies for scheduling and provisioning of remote access to a set of high-end computational resources (machine-room installed "blade" computers and other specialized NC State lab computers). Resources are loaded on demand, with a choice of operating system images and pre-defined application sets geared to instructional computing.

Key VCL features:

- **Easy-to-use remote access** from one's own desktop or mobile computer, bringing the "lab" to the student and alleviating some licensing issues.
- **Full access to a dedicated computing resource** (some scheduling choices include monitored root or administrator access). Access is the same or more than what is possible in a physical computing lab.
- **No need to customize a personal computer.** Vendor-standard remote access protocols and client software eliminate the need to customize one's own computer and simplify updating and maintenance. The protocols and software are extensible to any remotely accessible desktop system in specialized campus labs, allowing departments to take their labs to their students.

In addition to delivering on-demand applications and reducing the need for costly physical labs, this next-generation approach to campus computing offers these advantages:

- **Computing environments can be customized to match the needs of a specific course, research project or specialized purpose.** For example, the VCL provides **Carolyn Miller's** CSC295w course access to a highly customized Red Hat Linux installation, which would not be easy to achieve in a traditional public lab environment. Students design, develop, and debug the client and server during the class. Later they can continue the work, using their own computers or lab computers for the client and

VCL computers for the server work. Miller had this to say about the VCL:

If we had offered this course to 30 students without VCL facilities, it would have required several dedicated machines and dedicated technical support or, optionally, no actual practice with the concepts. VCL saved the day and the course!

• **High-end computers can be kept in use continuously.** A user in CSC can use a specific environment; then when that person's work has been completed, the hardware can be reallocated and reinstalled dynamically to fit another user's requirements. With this continuous reloading and re-allocation of hardware, fewer computers can satisfy the needs of more people—making optimal use of the computational resources.

“With my full-time job, I have difficulty getting to a Unity lab to use software. This makes life much easier.”

-Student survey response to VCL.

Interest in the virtual lab concept is growing in several areas among UNC System universities and local industries. As a result of the outside interest in the VCL model, NC State's VCL hopes to operate as an open source installation, with open source licensing.

NC State's VCL began as a joint venture of the College of Engineering's Information Technology and Engineering Computer Services (ITECS) group and Information Technology Division's High Performance Computing (HPC) team. The lab is hosted on the IBM BladeCenter platform and idle lab machines. Most of the hardware was purchased by the College of Engineering and the Information Technology Division. Some hardware was provided through an IBM SUR grant (College of Education). The VCL currently provides remote access to the colleges of Engineering, Education, Natural Resources, Statistics, Management, and Humanities and Social Sciences. For a complete list of available environments, visit <http://vcl.ncsu.edu/site/pages/project/vcl-application-list>.

For more information on VCL, visit <http://vcl.ncsu.edu/site.php>. ▲

WiCS Selected to Host CRA-W Distinguished Lecture Series Event

NC State and the Women in Computer Science (WiCS) have been selected by the Computer Research Association's Committee on the Status of Women in Computing Research (CRA-W) to serve as a host school for an upcoming **CRA-W Distinguished Lecture Series** event. According to faculty advisor **Dr. Xiaosong Ma**, the program will fund a lecture by a selected distinguished guest, a dinner and panel session, as well as an informal lunch for women in the department. More information will be communicated as it becomes available. ▲

NC State Maintains NSA Center of Academic Excellence Status

NC State and the Department of Computer Science have been re-designated a Center of Academic Excellence in Information Assurance Education by the **National Security Agency (NSA)** for the academic years 2005–2008. NSA Centers promote higher education and research in information security within various disciplines. The formal award was made on June 7, 2005 at the National Colloquium for Information Systems Security Education in Atlanta, Georgia. NC State was first designated a Center of Academic Excellence in Information Assurance Education in 2002. NC State and UNC-Charlotte are the only two universities in the state to hold this designation. ▲

CAC-ABET Accreditation Completed

Dr. Richard F. Keltie, associate dean for academic affairs for the College of Engineering, announced receipt of the Final Statements from ABET. All programs (16 engineering plus computer science) received an NGR accreditation to September 30, 2011. No weaknesses were found. A special thanks is extended to **Dr. Robert Fornaro** and **Dr. Matt Stallmann** for their leadership, and all faculty and staff involved in this tremendous team effort. ▲

NC State Celebrates Dedication of Engineering Building II

Against the backdrop of a brilliant blue sky, NC State University and the College of Engineering officially dedicated Engineering Building II (EBII) on Friday, April 28, 2006.

Engineering Building II, which represents the second phase of the plan to move the entire College of Engineering to Centennial Campus, houses the Department of Electrical and Computer Engineering and the Department of Computer Science.

The building, which cost more than \$46M to build, was funded through the passing of the Bond Referendum of 2000 by the citizens of North Carolina.



Chancellor Oblinger speaking at the dedication.

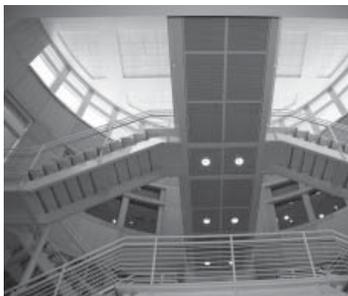
Dr. James L. Oblinger, chancellor of the university, and **Dr. Nino A. Masnari**, dean of the College of Engineering, were joined on the stage by speakers **Wendell Murphy**, chairman of the NC State Board of Trustees, and keynote speaker **Robert “Bob” McGehee**, chairman and CEO of Progress Energy.

During his remarks, Mr. McGehee announced a \$1.2 million gift from Progress Energy to support initiatives within the NC State College of Engineering. Part of *Achieve! The Campaign for NC State*, the gift is the largest given by Progress Energy to the college and will support three endowments. Two of the endowments will be dedicated to professorships, a top priority of the NC State *Achieve!* campaign.

In recognition of the generous support Progress Energy and its employees have provided to the College of Engineering, a large area on the third floor of the new building will bear Progress Energy’s name. The Progress Energy area includes

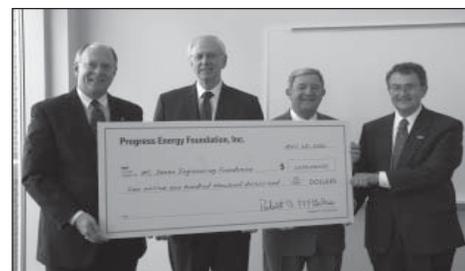
two large conference rooms, a brick terrace and the bridge that connects the two wings of the building.

Following his keynote remarks, Mr. McGehee was presented an original pastel of the new building.



View of stairway, bridge and upper floors of EBII atrium.

“The completion of Engineering Building II is a landmark event in the history of the College of Engineering at NC State,” said Masnari. “This investment by the people of North Carolina will provide much-needed space for these departments to conduct important research and educate future leaders in engineering.”



Chancellor Oblinger (left) and Dean Masnari (far right) accept a check for \$1.2 million from Progress Energy representatives Robert McGehee and Fred Day.

Approximately 300 alumni, faculty and staff, students, corporate guests, dignitaries, and friends attended the event. Following the dedication speeches, guests were invited to find their named bricks on the “Pathway to the Future” and take a guided or self-paced tour of the facility, leading to a reception in the new Progress Energy conference room on the third floor bridge.

We would like to thank everyone who joined us on this special day in the life of the department. We also extend appreciation to our corporate sponsors of the event: **Cisco Systems, EMC, IBM, Network Appliance, Progress Energy, Red Hat, and Tekelec.**

EBII – The Building

The 210,000 square foot facility contains several prominent features, including two massive three-story-tall atriums and a connector bridge over an exposed breezeway which boasts two large executive conference rooms.

Housed within the east wing of EBII is a *DELTA Teleclassroom*, providing students access to a variety of distance education opportunities. The *Center for Visualization and Analytics (CVA)*—which supports the use of visualization technology and analytical methods to explore engineering, scientific, design and educational challenges—has plans to construct a high-tech demo room in EBII, complete with sophisticated VizWall and Access Grid.

Also, Port City Java plans to open a gourmet coffee shop and café in the building later this year.

EBII has 50 research and teaching labs, as well as 9 state-of the art classrooms, of various sizes, with 785 seats. Each classroom is equipped with the latest in instructional technologies, including ergonomic consoles and touch-screen panels—providing instructors control over a variety of media (networked computing, document cameras, VCR/DVD devices) as well as control of classroom audio and high-quality LCD projection.

Students enjoy wireless Internet connectivity throughout the classrooms in EBII, and work is underway to expand wireless access throughout the rest of the facility.

Teaching and research labs within EBII are filled with the latest equipment and software; in many cases donated by corporate partners such as SAS, Cisco Systems, EMC, Microsoft, OPNET Technologies, IBM, Network Appliance and many more. ▲



CSC Strategic Advisory Board gathers in the atrium before their morning meeting.



One of EBII's 50 different research and teaching labs.



Dr. Oblinger and Mounted Patrol.



Guests locating their engraved bricks along the "Pathway to the Future."

Student-to-Student: CSC Peer Advising

Sometimes it takes a student to help a student. As the spring semester draws to a close, Computer Science students start planning their courses for the fall semester. In addition to undergraduate advisors **Joyce Hatch** and **Barbara Adams**, students can now count on Peer Advising—a new means of finding out first-hand what classes to take. Peer Advising is informal, candid guidance such as what classes to take and not take together, what to expect from professors and course difficulty.

“I learned many hard lessons, and I enjoy sharing those experiences with other students so they don’t make the same mistakes that I did.”

followed by a question-and-answer session. Undergraduate advisors were present in case clarification was needed or a peer advisor presented misinformation. After the group session, peer advisors met one-on-one with students to help plan specific course schedules and answer individual questions.

Peer advisor Sammie Carter commented, “I learned many hard lessons, and I enjoy sharing those experiences with other students so they don’t make the same mistakes that I did.”

In the spring semester 2005, two Peer Advising sessions were held—led primarily by Computer Science seniors **Alex Balik**, **Sammie Carter**, **Chris Davy**, **Travis Cornwell** and **Rich Killian**. Junior and senior students shared their experiences and offered advice to freshmen and sophomores. There was a presentation from the seniors,

What do students receiving peer advising think? According to one student, “Peer advising gave me real advice, from a student’s point of view. There are some things you can only learn from other students who’ve been through the classes that you are looking at.” ▲

Derbinsky & Lucas Receive 2006 Engineering Senior Awards

Congratulations to CSC seniors **Nathaniel L. Derbinsky** and **Blake C. Lucas** for winning two of the four 2006 Engineering Senior Awards presented during a special awards ceremony on April 20, 2006. Derbinsky received the 2006 Leadership Award. Lucas (a dual major in ECE) received the 2006 Scholarly Achievement award.

These outstanding student leaders serve as tremendous representatives of the department and great role models for the student body. ▲

Bitzer Inducted into the Consumer Electronics Hall of Fame

Dr. Donald L. Bitzer, Distinguished University Research Professor of Computer Science at North Carolina State University, has been inducted into the Consumer Electronics Hall of Fame by The Consumer Electronics Association (CEA) for his efforts in advancing television technology. CEA President and CEO Gary Shapiro announced the new inductees during CEA’s Entertainment Technology Policy Summit held in Washington, D.C.



Bitzer, also an emmy-award winner, co-invented the flat plasma display panel in 1964.

Congratulations Dr. Donald Bitzer! ▲

Team Qualifies for DARPA Grand Challenge



The driverless "Desert Rat" participates in the DARPA Grand Challenge.

On October 8, 2005 in what must have seemed like a scene from a science fiction movie, a driverless 1987 Chevy Suburban nicknamed "The Desert Rat" and 22 other driverless vehicles set out on their way across the Mohave Desert on a grueling 150-mile race. The technology that guides the Suburban is the product of a partnership between NC State University and **Insight Technologies, Inc.** This technology may one day revolutionize not only the way the military performs missions, but also the way that commuters drive to work each day.

Sponsored by the **Defense Advanced Research Projects Agency (DARPA)**, the Grand Challenge competition was created to answer a congressional mandate to convert one-third of the military vehicles to driverless, computer-driven mode by 2015. The objective of the competition is to have teams design a completely autonomous vehicle that can traverse rugged terrain while avoiding obstacles, with no human assistance. The technology developed for the race will help DARPA reach its goal of having the autonomous vehicles perform missions that currently put military personnel in harm's way.

The Insight Racing team is a cooperative venture between NC State University and Insight Technologies, Inc., a company formed in 2003 to develop autonomous robotics solutions. The company and the team include NC State University students and alumni.

"While the technology is being developed for defense purposes, it has potential for spin-off into

everyday life, from mowing grass to driving down the Interstate," says **Dr. Robert Fornaro**, professor of computer science and director of the Senior Design Center. "Some of the software technology used on the vehicle was initially designed and prototyped by NC State Computer Science students in the Senior Design Program."

"We have a highly talented dynamic team that is composed of students from NC State University, members of the Triangle technical community and retired business executives," says **Grayson Randall**, Insight Racing founder. "The development of robotics technology will allow us to accomplish both human relief and military missions that pose a threat to our country's personnel. We are thrilled to compete in this innovative race, which is moving autonomous driving ahead so rapidly."

"What is so special about the Insight Racing team is that they are competing with teams that have spent literally millions of dollars on developing technology for the competition, while Insight Racing operates on a shoestring budget," says Fornaro. "It is a 'David versus Goliath' competition for our team!"

A team from Stanford University won the \$2 million competition. The Insight/NC State Desert Rat completed approximately 26 miles of the desert course and finished ahead of 11 of the 22 teams. ▲

Keeping Girls On Track

At the end of the 2005 **Girls on Track (GoT)** summer camp (June 20 through 24, 2005), camper **Heather Barnes** said to a counselor, "I'm definitely coming back to camp next year! I had so much fun.... Are you coming back too?"

This was the seventh Girls on Track camp since the program first began in 1999. The camp focuses on keeping middle school girls interested in math and science. Camp activities center around the use of computers and technology to solve problems. By familiarizing girls with information technology, the camp organizers hope to raise interest in careers and courses where women are often underrepresented.

CSI: Campers Start Investigating

The campers' first investigation focused on the education and salaries tied with careers. From artist to programmer to zoologist, the campers concluded that the more schooling a career requires—particularly in math and science—the higher the salary. The girls discovered that IT careers require "all the math" and yield significant salaries.

At the end of the career investigation, camp director **Lolita Tripp** burst into the room and shouted, "Hey everyone! You've got to come—I just found a skull, blood, some hair and fibers, and a note.... I don't know what happened, but let's find out!"

Campers were then led to the staged crime scene and collected evidence to solve the *Mystery of the Missing Skull*. Throughout the week, the girls used blood typing and gel electrophoresis to study the blood found at the scene, chromatography tests to determine the type of ink on the note, dichotomous keys to discover what kind of animal the skull was from, and microscopes to analyze the hairs and fibers.

Math and The Arts

Maria Droujkova, NC State Ph.D. graduate and founder of **Natural Math**, led the girls in an investigation of math as the backbone of art and dance. A visit to the **North Carolina Museum of Art** provided background for a discussion of how proportion, ratios, perspective, symmetry, and patterns are used in painting and sculpture to produce the desired visual effects.

Kirstie Tice, Co-founder and Director of the **NC Dance Institute**, helped campers choreograph their own dances. They linked math concepts such as angles, degrees, symmetry and sequence to the movements in dance. After a few days of practice, the girls danced for their parents and



GoT campers learning how to combine science and computer technology in real-world situations.

received much applause.

Gaming

Tiffany Barnes, a CSC Ph.D. graduate and professor at UNC-Charlotte, taught campers how to create their own computer games. Using the program Game Maker, the girls created games using a process similar to programming in Java. Within a few days, the girls progressed from a tutorial bouncing clown game to their own, more complex platform and maze games.

Pulling It All Together

At the end of their five days at Girls on Track, the campers prepared presentations for their parents on what they learned. They showed that blood type can be determined through the use of antigens and that black pen ink consists of different colors. They explained the role of proportion in realism and abstract art, the evidence that the hair and fiber from the crime scene were cat and cotton, the steps involved in creating a game, and the procedure for distinguishing a muskrat skull from a hawk skull.

In addition to its role as an intervention program, Girls on Track is a seven-year longitudinal study on why girls make the course and career choices they do. As a joint project between NCSU Computer Science and the Center for Research in Mathematics and Science Education, Girls on Track follows the progress of its campers as they move through middle school, high school and college.

Girls on Track is made possible through the help of **Meredith College**, where the camp meets, and funding from the **National Science Foundation** and **IBM Corporation**. ▲

[Editor's note: Another successful GoT camp just concluded in June 2006. More about that in the next issue.]

Dean Masnari to Steps Down as CoE Dean

Dr. Nino A. Masnari, dean of the College of Engineering at NC State University, has stepped down from the position effective July 31, 2006. Dean of the college since August 1996, Masnari has overseen major growth in enrollments, research funding, private financial support for scholarships and professorships, and college facilities; including the opening of three new buildings on Centennial Campus. In an announcement made earlier in the year, Masnari said, "I have made no specific plans beyond next July, but I certainly look forward to continuing my relationship with NC State University and the College of Engineering." A national search recently concluded in the selection of **Dr. Louis A. Martin-Vega**, dean and professor at the University of South Florida's College of Engineering, as Masnari's successor. ▲



[Editor's note: Martin-Vega's selection as the new dean will be featured in our next issue.]



Chancellor Oblinger unveils the plaque for the MRC

EGRC Officially Renamed Monteith Research Center

The NC State University community gathered at an event held on October 5, 2005 to celebrate the renaming of the Engineering Graduate Research Center as the **Larry K. Monteith Engineering Research Center (MRC)**. Chancellor James Oblinger unveiled a bronze plaque on the plaza following the ceremony held inside the MRC. Monteith was NC State's 11th chancellor, serving from 1989 to 1998, and was dean of the College of Engineering from 1978 to 1989. ▲

NC State Ranked Third Nationally in Tech Transfer

NC State's efforts to put its academic findings and inventions in life science to work for the people of North Carolina and the United States ranked third in the nation in 2004, making it a "patent powerhouse," according to an examination by **1790 Analytics**, an intellectual property consulting firm based in Mount Laurel, NJ. ▲

Did You Know?

NC State is ranked 2nd on *The Princeton Review's* national "Best Value" list.

NC State Named One of the Nation's "Most Connected" Campuses

NC State University is among the "25 Most Connected Campuses" in the nation, according to the editors of *The Princeton Review*.

The list, published by *Forbes* on January 20, 2006, features colleges and universities selected on the basis of criteria including the breadth of the computer science curriculum, the sophistication of campus technology (including streaming media of classes and extracurricular offerings), availability of school-owned digital cameras and equipment for student use, wireless Internet access on campus, and support for handheld computing.

NC State is the only representative from the state of North Carolina to make the Top 25 listing, and the students, faculty and staff in the Department of Computer Science are among the most connected on campus.

EBII, our new home on Centennial Campus, is a virtual showcase for the technologies behind the Top 25 ranking. State-of-the-art classrooms are equipped with the latest in instructional technologies, including ergonomic consoles and touch screen panels that provide instructors control over a variety of media—networked computing, document cameras, VCR/DVD devices—and control of classroom audio and high-quality LCD projection. Teaching and research labs within EBII are filled with the latest equipment and software, in many cases donated by corporate partners such as **SAS, Cisco Systems, EMC, Microsoft, OPNET Technologies, IBM, Network Appliance** and many more.

Housed within the east wing of EBII is a *DELTA Teleclassroom* providing students access to a variety of distance education opportunities. There is also the *Center for Visualization and Analytics (CVA)*, which supports the use of visualization technology and analytical methods to explore engineering, scientific design and educational challenges. There are plans to construct a high-tech demo room in EBII, complete with sophisticated VizWall and Access Grid.

Students enjoy wireless Internet connectivity throughout the classrooms in EBII, and work is underway to expand wireless access throughout the rest of the facility.



A virtual classroom in action!

In addition to classroom and learning technologies, computer science students, alumni, corporate partners, faculty, and staff also enjoy a newly redesigned departmental web portal with enhanced features and audience-specific content, including a virtual career services page with online job postings and exclusive resume database access. Targeted news is also distributed via the web site, along with a monthly *eNewsletter*. ▲

NC State Ranks Second in Nation in Engineering BS Degrees, Third Overall

According to data released by the American Society for Engineering Education (ASEE), the College of Engineering at NC State University has moved from third to second place in the number of B.S. degrees awarded among all engineering colleges in the nation. These figures from ASEE cover the 2003-04 academic year. The College of Engineering at NC State routinely ranks in the top ten, usually in fifth or sixth place. This is the first time it has climbed to second place. NC State's engineering college ranks third—just after Georgia Tech and Michigan—in the total number of degrees awarded; which includes B.S., master of science (M.S.) and doctoral (Ph.D.) degrees. NC State ranks seventh in M.S. degrees and eleventh in Ph.D.s awarded. ▲

Four Department Icons to Retire

Deepest gratitude and appreciation to the following individuals who are retiring this academic year. Please join us in celebrating the incredible achievements of these departmental icons and in recognizing their outstanding service to our department, NC State University, and the state of North Carolina.



Dr. Edward Davis

received his Ph.D. from the University of Illinois in 1972. Prior to joining NC State in 1978, he was with Goodyear Aerospace Corporation and the University of Florida. At NC State, Davis has served in a number of roles; including that of director

*Dr. Edward Davis, PE
Professor*

of undergraduate programs (1993–1997), director of graduate programs (1998–2003), and associate department head (2000–2003). Davis' research interests are in computer organization and architecture, with emphasis on highly parallel processing. He has received a number of awards and recognitions, including the NC State Academy of Outstanding Teachers award, "Best Lecturer" award, and "Best Classroom Presentation" award.



Dr. Robert Funderlic

received his Ph.D. from the University of Tennessee in 1970 under the direction of Professor Alston Householder. Prior to joining NC State in 1986, he worked at the Oak Ridge National Laboratory. Funderlic served as the Computer Science

*Dr. Robert Funderlic
Professor*

department head from 1986 to 1992. He was an NC State faculty senator from 1998 to 2000. Funderlic's main interests lie in the design, implementation and analysis of numerical linear algebra algorithms for high performance computing. He has received a number of honors and recognitions, including the College of Engineering's G.H. Blesiss Undergraduate Advisor award and ACM/AITP's "Most Helpful Outside of Class" and "Outstanding Service" awards.



Ms. Joyce Hatch

received her M.Ed. in Math Education from NC State University in 1975. She joined the department in 1975 and has since held a number of prominent positions; including that of assistant

*Ms. Joyce Hatch
Director of Advising
and Lecturer*

department head (1984–93), director of undergraduate programs (1988–93), and director of undergraduate advising (1993–2006). She has received numerous accolades. To honor her for her 30 years of outstanding service, a grassroots alumni effort was launched to create a named scholarship endowment in her honor. A special "Joyce Hatch Retirement" web page gives details about the endowment and offers visitors an opportunity to read and share their favorite "Joyce Hatch Memories"—<http://www.csc.ncsu.edu/enews/hatch-retirement.php>.



Dr. David McAllister

received his Ph.D. from the University of North Carolina at Chapel Hill in 1972. McAllister joined NC State in the same year. He served the department in numerous roles, including director of graduate programs (1979–1985) and faculty senator

*Dr. David F. McAllister
Professor*

(2000–2001). McAllister's research interests encompass a wide range of fields—from computer graphics to 3D display technology, software reliability and fault-tolerance, performance evaluation, voice processing and speaker identification, electronic publishing and numerical analysis. McAllister is also an accomplished jazz piano player and still plays in several bands. He is a member of a number of professional organizations, serves on editorial boards of several professional journals, and has received a number of awards and recognitions.

Watson Joins CSC Faculty



We are very pleased to announce that **Dr. Ben Watson** of Northwestern University has joined the department as an associate professor of computer science effective January 1, 2006. His research focus is in visualization and graphics.

With Watson's arrival, we now have 44 tenured and tenure-track research faculty and 16 **National Science Foundation (NSF) Career Award** winners.

The NC State Department of Computer Science remains one of the largest computer science departments in the nation. ▲

Antón Appointed to NSF Committee

Dr. Annie Antón, associate professor of computer science, has been appointed to serve on the **National Science Foundation (NSF) Computer & Information Science & Engineering (CISE) Advisory Committee**. The Committee supplements NSF knowledge by providing up-to-date information on the state of the field. They provide advice on the impact of NSF support policies and programs on the CISE community, oversight on program management and performance, and advice to the CISE Assistant Director on special issues.

Antón also has been elected to a three-year term on the **Computing Research Association** Board of Directors and serves on the **Intel** Privacy and Security Policy Advisory Board. ▲

Gehring Coordinating Computer & Engineering Module

NC State has been awarded a \$250,000 **National Science Foundation (NSF)** grant over the next three years for working with other land-grant and historically black institutions to develop a model curriculum for improving the ethics education of

graduate students in science and engineering. Dr. Edward Gehring, associate professor of computer science and electrical and computer engineering, will coordinate the Computer Science and Engineering module of the Land Grant University Research Ethics (LANGURE) program. The LANGURE initiative will include examples of ethical behavior from business and industry; and Super ePartner **SAS Institute** will collaborate with LANGURE's teams. ▲

Perros Named to NLR Networking Research Council

Dr. Harry Perros, Alumni Distinguished Graduate Professor of Computer Science and program coordinator of the M.S. degree in computer networks at NC State, is among a select group of world-renowned networking researchers and technologists named by the **National LambdaRail (NLR)** to its NLR Networking Research Council.

The NLR is a consortium of leading U.S. research universities and private-sector technology companies that is deploying a nationwide optical, Ethernet, and IP networking infrastructure. The council has been assembled to help guide, direct, and promote NLR's support of research that leads to future-generation networking technologies and services. ▲



Williams Named Co-Director of E-Commerce Initiative

Dr. Laurie Williams assumed the role of co-director of the E-Commerce Initiative, effective June 2005, along with **Dr. Michael Rappa** of the College of Management. Williams was recruited to NC State in 2000 as assistant professor of software engineering. Author of several books and articles, Williams specializes in agile software development processes and practices, empirical software engineering, secure application development, software reliability, software testing and pair-programming. Laurie holds an M.B.A. from Duke University and a Ph.D. from the University of Utah. ▲

Young Receives 2005 Outstanding Teacher Award

In April 2005, **Dr. R. Michael Young**, assistant professor of computer science, received an Outstanding Teaching Award from the NC State Office of the Provost. Along with the award, Young was named to the Academy of Outstanding Teachers. Membership in the Academy is open only to recipients of the award and lasts for as long as the faculty member remains at NC State.



Young teaches courses that center around his research area of artificial intelligence in virtual worlds. Each spring he teaches a 400-level course on computer game development in which students work in teams on semester-long projects building complete computer games. Young also regularly teaches a graduate course on computational models of interactive narrative that covers the use of artificial intelligence in virtual reality. The course takes a cross-disciplinary approach—including ideas from computational linguistics, narrative theory, film theory and other aspects of the humanities and social sciences.

“Interactive virtual worlds provide a great sandbox environment for the application of a wide range of tools from all of computer science,” Young says. Building computer games, for example, often requires students to apply what they have learned from previous courses in graphics, networking, artificial intelligence, user interfaces and other advanced data structures and algorithms.

Young’s research on artificial intelligence includes planning and plan recognition, natural language processing and the development of computational models of human-computer interaction, task-related discourse, interactive narrative and the design of intelligent systems in computer games.

Young received his B.S. in computer science from California State University–Sacramento in 1984, his M.S. in computer science from Stanford University in 1987 and his Ph.D. in intelligent systems from the University of Pittsburgh in 1997. He joined the NC State faculty in 1999. Young received a National Science Foundation (NSF) CAREER Award in 2000. He is co-director of the Center for Digital Entertainment, an informal, multi-disciplinary center that focuses on NC State’s digital entertainment research, educational, and outreach activities.

Students, faculty, alumni, and staff recommend professors for an Outstanding Teacher Award. Committees within each college submit nominations to the Office of the Provost. Choices for the award are based on the candidate’s teaching philosophy, courses taught, the candidate’s involvement in the department/university, and endorsements by two faculty colleagues and two students. ▲

[Editor’s note: Young was recently promoted to associate professor.]

Young to Collaborate on Multi-disciplinary HI-FIVES Program

Dr. Michael Young is leading one of the teams working to implement the **Highly Interactive, Fun Internet Virtual Environments in Science (HI FIVES)** program, which integrates science learning, game development and children’s love of computer games.

HI FIVES researchers will develop easy-to-use game creation tools and teach high school instructors how to build compelling games that teach science, technology, engineering and mathematics (STEM) content.

Through a \$1.2 million **National Science Foundation (NSF)** grant, members of the College of Education’s science education program have teamed up with NC State’s Department of Computer Science, the Distance Education and Learning Technology Applications (DELTA) unit, the Kenan Institute for Engineering, Technology and Science and the NC Department of Public Instruction to implement the HI FIVES program. ▲

Dr. Harry Perros, Alumni Distinguished

Graduate Professor of Computer Science, was a guest editor for the February 8, 2006 issue of *Computer Networks Journal*, providing his expertise to a section dedicated to papers on optical networks. ▲

Williams Receives 2006 Outstanding Teacher Award

Dr. Laurie Williams, assistant professor of computer science at NC State University, has received an Outstanding Teaching Award from the NC State Office of the Provost. Along with the award, Williams has been named to the Academy of Outstanding Teachers. Membership in the Academy is open only to recipients of the award and lasts for as long as the faculty member remains at NC State.



Williams was recognized, along with several other outstanding faculty and students, at NC State's Honors Baccalaureate and Celebration of Academic Excellence, held on Thursday, May 11 at the McKimmon Center.

According to her nomination, Williams is an excellent teacher and researcher who has been instrumental in organizing, extending, and improving the software engineering curriculum in the Department of Computer Science. Her efforts have contributed greatly to this area, which has become one of the department's four core areas of strength.

Williams has a unique teaching style. During her lectures, she uses an innovative technique of displaying slide material with a Tablet PC and then writing additional notes and student comments directly onto the slides with her stylus.

Her restructuring of the undergraduate software engineering course to a lecture plus lab course enables students to gain much-needed hands-on experience. She has also incorporated team projects as part of the course requirements. In addition, she created a new graduate course, *Software Testing and Reliability*, which introduces software reliability processes, reliability growth models, and techniques to improve and predict software reliability.

Known for her mentoring and dedication to her students, Laurie inspires her students. One student wrote, "Dr. Williams provides excellent out-of-class support and mentoring. While I had already intended to obtain a master's degree, after working with Dr. Williams over the summer, I decided to pursue my Ph.D. Dr. Williams is an excellent advisor and mentor and is an inspiring female role model for her students." Another student stated that Williams has incorporated ways to effectively convey ideas to her students and uses critical thinking activities during lectures to encourage students to participate in class

and to enhance students' understanding of the material.

Williams' research interests include agile software development methodologies and practices, collaborative/pair programming, software reliability and testing (particularly of secure applications).

She received her Ph.D. in computer science from the University of Utah, her MBA from Duke University, and her BS in industrial engineering from Lehigh University. She worked for IBM for nine years in Raleigh, NC before returning to academia—joining the faculty at NC State in 2000. She received the IBM Eclipse Innovation Award in 2002, the IBM University Partnership Award in 2003, and the prestigious National Science Foundation CAREER Award in 2003. She leads the Software Engineering Research group and serves as director of the Laboratory for Collaborative System Development and co-director of the eCommerce Education Initiative.

Students, faculty, alumni and staff can recommend professors for an Outstanding Teacher Award. Committees within each college submit nominations to the Office of the Provost. Choices for the award are based on 1) candidate's teaching philosophy, 2) courses taught, 3) candidate's involvement in the department/university and 4) endorsements by two faculty colleagues and two students.

Congratulations to Dr. Williams on her Outstanding Teacher Award and induction into the Academy of Outstanding Teachers. These honors stand as a testament to her ability to inspire her students and her excellence in the classroom! ▲

[Editor's note: Williams was recently promoted to associate professor.]

Rodman Writes for Public Radio Program Series on Languages

Dr. Robert Rodman, professor of computer science, was invited to write two short radio scripts on linguistics for *Talkin' About Talk*, a **National Public Radio** series celebrating the Year of Languages. Rodman's first script, "*What's Special About Language?*" was the first to be aired in the series. The second script, "*Can You Use Language to Solve Crimes?*" discusses forensic linguistics and focuses on Rodman's current research at NC State. ▲

Featured Faculty Awards

Dr. Peng Ning, assistant professor of computer science, received a Faculty Early Career Development (CAREER) Award from the **National Science Foundation (NSF)**, effective July 1, 2005 through June 30, 2010. The NSF will provide \$400,000 in funding over the next five years to support Ning's research project, entitled *CAREER: Towards Trustworthy and Resilient Sensor Networks*.
[Editor's note: Ning was recently promoted to associate professor.]

Dr. Xiaosong Ma, assistant professor of computer science, has been awarded the prestigious Early Career Primary Investigator Award by the **U.S. Department of Energy** in support of her research proposal titled *Runtime Data Management for Data-Intensive Scientific Applications*. The award, valued at \$300,000, will run from August 15, 2005 through August 14, 2008.

Ma is also a recipient of the Faculty Early Career Development (Career) Award from the **National Science Foundation**, effective March 1, 2006 through February 28, 2011. The NSF will provide \$400,000 in funding over the next five years to support Ma's research project, entitled *Career: Transparent, Interactive Desktop Parallel Computing for Scientific Data Processing*.

Dr. Jaewoo Kang, assistant professor of computer science, has been selected to represent NC State University in the **Microsoft** New Faculty Fellowship Award Program. Congratulations to Dr. Kang. NC State wishes him the best as the competition continues.

Dr. Annie Antón, associate professor of computer science, was awarded one of four Women of Influence awards at the 2005 Executive Women's Forum in Phoenix, Arizona. The awards are sponsored by *CSO Magazine*. Antón was featured along with the other winners in the December '05 issue. The award is given for the excellent exercise of influence—both within an organization and across the security ecosystem as a whole.

Antón was also nominated and selected by the **National Science Foundation** to be a member of a U.S. delegation of 12 scientists at the World Science Forum in Budapest, Hungary in November 2005. The World Science Forum is organized by the **Hungarian Academy of Science** in



Antón addresses Hungarian Parliament.

Did You Know?

The NCSU Department of Computer Science now has 16 NSF Career Award winners on faculty.

partnership with UNESCO and ICSU. The forum focused on the theme of knowledge, ethics, and responsibility.

Theresa-Marie Rhyne, director of the Center for Visualization and Analytics, will be listed in the 2006–2007 edition of *Marquis Who's Who of American Women—the 25th Silver Anniversary Edition*.

Rhyne is coordinator of special technology projects with Distance Education and Learning Technology Applications (DELTA). She is currently on a two-year assignment with the Department of Computer Science to establish the Center for Visualization and Analytics (CVA).

Dr. Rada Y. Chirkova, assistant professor of computer science, received a Faculty Early Career Development (CAREER) Award from the **National Science Foundation**, effective August 1, 2005 through June 31, 2010. The NSF will provide \$489,810 in funding over the next five years to support Chirkova's research project, entitled *CAREER: Adaptive Automated Design of Stored Derived Data*.

\$1 Billion Achieve! Campaign Targets Endowment Growth

On September 23, 2005, NC State launched the “public phase” of the largest comprehensive fund-raising campaign in the university’s history—*Achieve! The Campaign for NC State*—announcing a goal of \$1 billion.



As a part of campaign kick-off festivities, **Chancellor James Oblinger** announced two of the largest gifts ever given to the university: a \$20 million gift from the **R. B. Terry Charitable Foundation** to establish the Randall B. Terry Jr. Companion Animal Medical Center, and a \$10 million pledge from Engineering alumnus **Edward P. Fitts**. The Fitts gift endows the Department of Industrial Engineering and serves as the largest gift ever received by the College of Engineering from an individual donor and the largest endowed gift to academics in NC State University’s history.

The College of Engineering is playing a leadership role in *Achieve! The Campaign for NC State*. With a total goal of \$225 million, the campaign will help to transform the college by doubling the endowment levels for scholarships and fellowships, professorships and faculty startup funds, program development, research, state-

The College of Engineering is playing a leadership role in *Achieve! The Campaign for NC State*.

of-the-art facilities and equipment, and unrestricted support to meet new needs and stay on the leading edge of engineering education.

While the Department

of Computer Science has become one of the largest and most successful departments on campus, it faces tremendous financial needs. Computer science is much younger than most other engineering disciplines, with far fewer endowments. Growing our endowments is thus our number one goal during the campaign.

How are we doing?

In the past few years, we have added several new endowments, including

Pathway to the Future Endowment—funded by proceeds from our engraved brick campaign. This will provide the department unrestricted funds to use wherever the need is the greatest.

SAS Chair in Computer Science—the department’s only endowed professorship, held by **Dr. Jon Doyle**.

KC Tai Memorial Endowment—named for ever-popular professor, **Dr. KC Tai**, who passed away in 2002. This endowment provides scholarship and program support in the area of software engineering.

Diversity in Computer Science Endowment—provides scholarship and program support to increase the attraction and retention rates for females and minorities in the field of computer science.

Charles W. Kelly/Raleigh ISSA Endowment—provides scholarship support in the area of computer security.

Joyce Hatch Scholarship Endowment—named for retiring director of advising, **Joyce Hatch**, this fund will provide scholarship support for future generations of CSC students.

This is just a sample of the endowments now supporting the department. It represents just a few of the ways you can support the campaign and our department.

For more information on how you can support the department, consult <http://www.csc.ncsu.edu/alumni/gifting-options.php> or contact **Ken Tate**, director of development & external relations, at 919-513-4292 or via e-mail at tate@csc.ncsu.edu. ▲

Balik and Chandler Awarded Scholarships by Progress Energy

Computer Science students **Adam Chandler** and **Alexander Balik** were awarded the **Progress Energy CSC Scholarships** for the 2004/2005 academic year. These scholarships are valued at \$2,500 each.

The Department of Computer Science would like to thank Super ePartner **Progress Energy** for their support of the department and NC State. ▲

Breaux Wins Prestigious Cisco Scholarship

Travis Breaux (CSC Ph.D. student) was awarded the **Cisco Systems Information Assurance Scholarship**, valued at \$2,500, for the Fall 2005 semester. Since this prestigious national scholarship program was launched in 2003, Cisco Systems has awarded eight Information Assurance scholarships annually. Breaux was the fourth recipient of the award from the Department of Computer Science. In fact, 20 percent of all awards distributed from the program have gone to NC State students. Breaux's selection was based on the originality of the ideas posed in his essay, along with his breadth of knowledge in the information assurance field.

Breaux credits the research and recognition of his Ph.D. advisor, **Dr. Annie Antón**, as a significant factor in his decision to enter the graduate program at NC State. He serves as an associate collaborator for ThePrivacyPlace.org, chaired by Antón. He recently presented the paper *Deriving Semantic Models from Privacy Policies*, co-authored with Antón, at the IEEE 6th International Workshop on Policies and Distributed Systems in Stockholm, Sweden. In August he presented another paper entitled, *Analyzing Goal Semantics for Rights, Permissions, and Obligations* at the 13th IEEE International Requirements Engineering Conference in Paris, France. Breaux also serves as president of the Computer Science Graduate Student Association, a student organization which represents the interests of the more than 380 graduate students in the Department of Computer Science. For more information on Breaux's impressive work, visit his personal web site at <http://www4.ncsu.edu/~tdbreaux/>. ▲

Bahram Awarded First Dr. KC Tai Memorial Endowment Gift

Congratulations to CSC junior, **Sina Bahram**, for being selected as the very first scholarship winner to come from the **Dr. KC Tai Memorial Endowment**. The endowment was created in 2003 by family, friends, and colleagues of Tai to honor his significant contributions to the department and NC State in the field of software engineering.

Tai, who passed away in October 2002, was known as a kind, compassionate, and caring person who enjoyed helping others. The endowment was established to provide an ongoing source of programmatic and/or scholarship funding to help future generations of NC State software engineering students and faculty, with highest priority going to individuals with medical hardships or disabilities. Bahram, who is blind, will receive \$1,000 from the award.

Ling Tai recently contributed \$1,500 to the KC Tai Memorial Endowment, bringing the total value of this fund to almost \$37,000. This contribution represents royalties from a book her late husband co-authored with NCSU alum **Dr. Richard Carver** (MS '85, Ph.D. '89), *Modern Multithreading: Implementing, Testing, and Debugging Multithreaded Java and C++/Pthreads/Win32 Programs*. ▲

Herndon & Smith Named Inaugural NC-SIM Scholarship Winners

Congratulations to CSC sophomores, **Kevin Herndon** of Winston-Salem, North Carolina and **Aaron Smith** of Charlotte, North Carolina for being named the winners of the first ever North Carolina Society for Information Management (NC-SIM) scholarships. Each of the awards is valued at \$2,500. NC-SIM is a professional organization



comprised primarily of CIOs and CTOs from local companies. They established the scholarship using proceeds from their highly successful golf tournament and CIO

Forum events, with the intent of "giving back" to the community and helping support the next generation of technology leaders. ▲

Join Us on the Pathway to the Future

With the opening of **Engineering Building II (EBII)**, the College of Engineering reached another critical milestone in its vision for a complete transition onto Centennial Campus.



EBII, the new home for the Department of Computer Science and the Department of Electrical and Computer Engineering, is an impressive \$46 million, 210,000 square foot, state-of-the-art teaching and research facility. EBII is located at the top of the Centennial Campus oval, around which the College of Engineering complex is being built. EBII symbolizes the College of Engineering's continuing commitment to excellence in advancing computer and information technology. The brick pathways that traverse the oval serve as more than a means of getting across campus; they are a pathway to innovation and the future.

We invite everyone to help build the

Engineering *Pathway to the Future* by laying a personalized brick for the EBII walkway on the oval. Our appreciation extends to alumni, students, faculty, staff and friends of the department who have already purchased a brick for the

EBII *Pathway to the Future* brick campaign. Each brick holds three lines of text, with up to 18 characters per line. Any combination of characters—uppercase, lowercase, spaces, or punctuation—may be used. These commemorative bricks require a donation of \$150 and can be ordered through the printable online order form at http://www.engr.ncsu.edu/promise/brick_card.pdf.

By ordering your personalized brick, you will not only become a permanent part of our campus history, you will be contributing to NC State's \$1 billion Achieve Campaign, providing much-needed funding to support the educational goals of NC State and our department. ▲

Raleigh ISSA Pledges New Security Scholarship Endowment

The Raleigh chapter of the Information Systems Security Association (ISSA) has made a multi-year pledge of \$25,000 to establish the **Charles W. Kelly/Raleigh ISSA Scholarship Endowment**, which will support a junior or senior with a demonstrated interest in working in the field of computer security.

The endowment is named to honor the founder



Charles W. Kelly (right) with William Beers, inaugural winner of the ISSA Scholarship.

of the Raleigh ISSA chapter, **Charles W. Kelly**. The chapter recently presented the department with a check for \$6,000, of which \$5,000 will go toward the endowment funds and \$1,000 will be distributed to a qualifying student this year.

Individuals or corporations interested in contributing to this fund should make their donations to the NC State Engineering Foundation, Inc., noting 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. ▲

Mentor Graphics Awards \$15,000 to Dr. Franc Brglez

Mentor Graphics Corporation, the technology leader in Electronic Design Automation (EDA), has awarded a grant of \$15,000 to **Dr. Franc Brglez** to further his research in the xBED project.

The xBED project is part of on-going research at the Collaborative Benchmarking and Experimental Algorithmics Laboratory co-directed by Brglez and **Dr. Matthias Stallmann**. The grant from Mentor Graphics Corporation will support the purchase of a number of Xserve units from Apple and represents a significant upgrade of the web- and computer-serving capabilities for the laboratory. ▲

Network Appliance Support Tops \$350,000

Network Appliance (NetApp), a world leader in unified storage solutions headquartered in Sunnyvale, California has renewed its commitment as a **Super ePartner** with a \$25,000 unrestricted cash gift.

As their presence in the Research Triangle Park area has grown, so too has their relationship with the Department of Computer Science. Since becoming a founding Super ePartner with the department in 2001, NetApp has provided equipment and cash donations to the department valued at over \$350,000.

In addition to sponsoring and benefiting from numerous Senior Design Center student projects, NetApp has arranged for students in the Engineering Entrepreneurs Program to visit their corporate headquarters and provided guest speakers for department events. They have sponsored several high-profile events in the life of the department, including the ground breaking ceremony for the EBII facility on Centennial Campus. NetApp was also one of the premier sponsors of EBII's dedication ceremony in April 2006.

According to local executive **Ken Hibbard**, NC State is one of NetApp's top sources for new graduate talent and should continue to be so as their local operation continues to grow. Hibbard comments, "NC State's computer science program produces well-grounded and productive

talent who are quick to make real contributions."

Hibbard maintains a very active role in the partnership. He serves as a member of the department's Strategic Advisory Board, provides feedback and guidance on new curriculum strategies, and frequently speaks to student organizations and classes.

While NetApp's total contributions now exceed \$350,000, Ken Tate, director of development & external relations for the Department of Computer Science, says the value of the partnership goes far beyond the financial commitment. "Having strong and dynamic partnerships with the global business community, such as we have with Network Appliance, is one of the cornerstones of our success as a department," says Tate. "Without question, the tangible support we have received from NetApp in terms of funding and equipment has benefited our students and our faculty. But equally important are the relationships that have emerged between NetApp's leadership team and our faculty, the sharing of ideas that have positively impacted our programs and curriculum, and the career opportunities that have emerged for our students."

The department extends its deepest gratitude to NetApp for its ongoing support and continued commitment to collaboration. ▲



NCSU Teams with IBM to Develop New Academic Discipline for Services

NC State University and **IBM** recently announced a new curriculum initiative in Services Sciences, Management and Engineering (SSME). The new academic initiative is designed to prepare graduate students for careers in the evolving multidisciplinary field of services management.

NC State, whose motto is "Innovation in Action," will be the first research university in the U.S. to launch a master's-level curriculum initiative in SSME, which was created in collaboration with IBM through its Academic Initiative program.

The new program draws on research and teaching in the fields of computer science, computer engineering, business strategy, and management sciences to help students develop the skills required in a technology-

based, services-led economy.

Dr. Harry Perros, Alumni Distinguished Graduate Professor of Computer Science and program coordinator of the MS degree in computer networks at NC State, is among a team of faculty members from the management and engineering colleges which developed five new services-related courses that will be added to the graduate-level studies in SSME and Master of Science in Computer Networking (MSCN) programs.

Graduates from both programs will have master's-level expertise in business processes, business strategy, information technology, and management of people in the workforce. Both colleges began admitting students for the new curriculum in fall 2006. IBM also encourages its employees to enroll in the program. ▲

Awards & Partnerships

Thanks to Our Valued Corporate Partners

Having strong and active corporate partners has long been a cornerstone of the success of our department. Over the past academic year, our list of active corporate partners has grown to over 50, and they have collectively contributed more than \$6M to the department in cash, equipment, scholarships, research, and programmatic support. As state-provided funds continue to decrease, the support of our valued corporate partners and our alumni continue to help us ensure we provide our students the highest educational experience possible. Our 2005–2006 corporate partners include:

Super ePartners

Cisco Systems
EMC
IBM
John Deere
Microsoft
Network Appliance
Progress Energy
SAS
Tekelec

ePartners

BCA
ComputerService
Partners
Duke Energy
Epic Games
Field2Base
i-cubed
Itron
NC Office of the State
Auditor
Red Hat
RedPrairie
SlickEdit
Vanguard Group
WakeMed



Corporate Partners

ABB
Analytrix
Apple
Army Research Office
Assoc. for Computing
Machinery
BBN Technologies
Concert Technology
Council for
Entrepreneurial
Development
Crispin
Distrobot Systems
DynCorp
Fujitsu
GlaxoSmithKline
GTE
Hewlett-Packard
IEEE
Intel
ISSA—Raleigh Chapter
Lucent Technologies
MCNC-RDI
MEMSCAP
Mentor Graphics
n software
NC-Society for Info
Mgmt
NCTA
Nortel Networks
Northrop Grumman
OnWired.net
OPNET Technologies
SchoolDude
Triangle Community
Foundation
US Dept of Energy
Verizon

Smith and Breaux Win IBM Ph.D. Fellowship Awards

Sarah Smith and **Travis Breaux** each received a prestigious 2006 **IBM** Ph.D. Fellowship Award.

The IBM Ph.D. Fellowship Program honors exceptional Ph.D. students in an array of focus areas of interest to IBM and fundamental to innovation. These are highly competitive awards; over 500 students world-wide were nominated this year.

Fellows are awarded tuition, fees, and a stipend of \$17,500 for one academic year. All IBM Ph.D. Fellows are matched with an IBM Mentor, and they are encouraged to intern at an IBM research or development laboratory under their mentor's guidance. An IBM ThinkPad is awarded during the internship. Internship assignments are designed to strengthen and broaden the awardee's technical experience and contacts.

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

Wright Named Junior Research Ethics Fellow

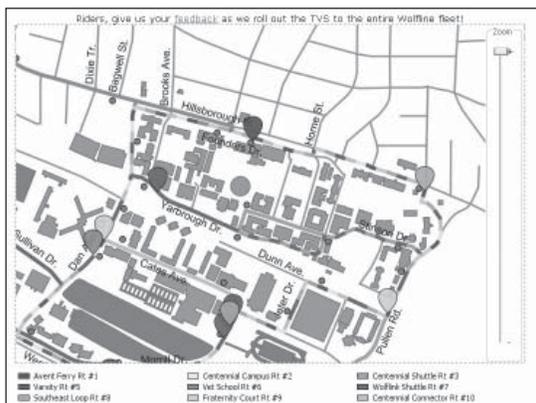
The Research and Professional Ethics Program is proud to announce that NC State Ph.D. student **David Wright** has been named one of its Junior Research Ethics Fellows for 2005-2007. The university-wide competition carries with it an award of \$1,000.

As a Fellow, Wright will participate in the *Introduction to Research Ethics* workshop and collaborate with two senior Research Ethics fellows, **Drs. Tom Honeycutt and Ed Gehringer**, to create an interactive instructional module in computer science and research ethics. His work will be part of a national initiative funded by the **National Science Foundation (NSF)** to create a Model Curriculum for Land Grant Universities in Research Ethics (LANGURE). More details on LANGURE are available at www.ncsu.edu/langure.

NC State graduate students interested in applying for a Research Ethics Fellowship may do so at <http://www.chass.ncsu.edu/ethics/page.php?name=fellows>. ▲

New Real-time Online Wolfline Tracking System Designed by CSC Alumni Start-up Company

When students arrived on the NC State campus in fall 2005, they had a new resource for navigating the Wolfline system. The University Transportation Office contracted with **TransLoc**, a company founded by four NC State Computer Science alumni, to offer real-time information on the location of each of the Wolfline buses through a website. **Joshua Whiton** (BS CSC '04), co-founder and CEO of TransLoc, came up with the idea for an online, Web-based locator for buses while waiting for the bus with his friend and co-founder, **Dominique Bischof** (BS CSC '03, MS CSC '04). "People had kicked around the idea for a while, but no one ever really pursued it," said Whiton. "We were standing at the bus stop and just said that it was possible and then set out to make it happen." The team, which also includes **Jesse Lovelace** (BS CSC '05) and **Justin Harris** (BS CSC '04), formed an intelligent transportation system (ITS) company to develop and market the innovative Transit Visualization System (TVS) that provides real-time tracking of multiple vehicles. ▲



Transloc tracking system provides real-time information on the location of Wolfline buses.

Fearrington Joins SAB

The CSC Strategic Advisory Board (SAB) welcomed **Jesse Fearrington** (BS, '73) as a new member of the CSC Strategic Advisory Board (SAB) in April 2006. Jesse recently retired as senior VP & director of Cross Channel Technologies with **Wachovia** in Charlotte.

Weathers Named Executive VP



Clint Weathers (BS, '85) of Charlotte, NC has been named Executive Vice President at **Performance Improvement**, a business and technology consulting alliance based in Winston-Salem, NC. ▲

Alumnus Wins DM Review Magazine Award

Congratulations to CSC alumnus **Robert Allison** (BS, '87) for winning *DM Review* magazine's data visualization dashboard contest. Robert, who works at **SAS Institute** in Cary, was featured in the September issue of *DM Review*. A full-size view of his award-winning sales dashboard can be found at <http://www.math.yorku.ca/SCS/Gallery/allison/scen3b.htm>. ▲

CSC Alumna Reappointed to NC State Board of Trustees

In March 2005, the University of North Carolina Board of Governors approved several new appointments and reappointments to the NC State University Board of Trustees. Among those approved for reappointment to a second four-year term was CSC alumna, **Suzanne Gordon** of Cary, NC. Gordon received both her B.S. in computer science and mathematics and her M.S. in statistics from NC State. She is the CIO and vice president of Information Technology at **SAS** in Cary, North Carolina. Gordon was named a *ComputerWorld* Premier 100 Information Technology leader in 2003. She has served on NC State's Alumni Association Board and on the College of Management Advisory Board. She is a frequent speaker and mentor to women pursuing technical careers and is active in a medical ministry that provides services to low-income individuals. ▲

Kathy Markham—Alumni Achiever

Kathy Markham (B.S., '80) is vice president of Information Systems Planning & Field Services for **Kindred Healthcare** in Louisville, Kentucky, the nation's largest full-service long-term care provider. In this executive role, Markham serves as Kindred's point person for Information Systems strategy and the enterprise architecture plan supporting this \$3.4 billion company.



As a female executive in the IT community, Markham understands the importance of maintaining balance between her professional and personal life. She is proud of her career, and equally proud of her husband and five children.

Markham attributes much of her success to great mentors and teachers, including her father who urged her to consider studying computers.

At NC State, Markham interned locally with IBM, where she remained after graduation as a programmer. Her desire for a role that allowed interaction with the people who were using the applications she was developing led her into professional services. While working in software design and project management in Washington, D.C. and Atlanta, she became involved in industry and government projects.

As a manager for IBM in Nashville, Markham was inspired by a female boss who had young twins. "She's probably the one who taught me how to balance kids and work," Markham said. When the supervisor left IBM to start a consulting practice with KPMG Peat Marwick, Markham went with her.

From there she moved into a strategic planning role at Columbia HCA in Nashville, the largest healthcare/hospital company in the country. The CIO was a "great mentor" who taught her to understand the business side. She learned about the healthcare industry and managing hospitals. During her tenure, Columbia HCA was recognized as being number one on the *InformationWeek* 500 for innovative use of technology!

She followed this CIO to Kindred Healthcare in

Louisville, where she became the vice president of Information Systems Planning & Field Services. Kindred Healthcare has 75 hospitals, 250 nursing homes, 35 pharmacies and a rehabilitation center.

Markham encourages women to choose computer science careers. She said, "I don't know any other way I could have made as much money and had the flexibility and opportunity that I've had."

Markham is a long-distance mentor for NC State's Women in Computer Science (WiCS) group and has made a significant multi-year pledge in support of the department's Diversity in Computer Science Endowment. She supports women in her community through the Louisville Women in Technology organization and participates in the Technology Network for Greater Louisville Region.

She serves on advisory boards for computer science departments at NC State and the University of Louisville.

Her work in healthcare has given Markham an opportunity to help doctors and nurses get more information faster and more accurately. She knows that people's lives depend on the effective use of technology in the healthcare field.

Markham works with expectant parents as a certified doula (labor support professional); she has attended approximately 100 births. She is certified to teach a variety of childbirth-related courses, ranging from Lamaze to Hypnobirthing.



One of the many births Markham has attended.

Her son, Alan, earned a B.S. in computer science from NC State in 2004. Her youngest son, Chris, is pursuing a degree in Electrical Engineering at NC State. Markham and her husband Bruce live in Prospect, Kentucky.

Having achieved incredible professional success and balance in a service-focused career, we are proud to recognize Kathy Markham as an NCSU Computer Science Alumni Achiever! ▲

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 _____

Company Street _____

City _____ State _____ Zip _____

Company E-Mail Address _____

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Online Alumni Contact update available at:

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

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Credits

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Editors: Ken Tate and Fay Ward

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

- Senior Design project team wins again in 2006
- 2006 Girls On Track Camp
- Ning, Williams, Young promoted to associate professors
- Martin-Vega named COE dean
- Scholarship endowment established to honor Dr. Don Martin

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