



News Bytes

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Looking Back, Looking Forward

Over the past 18 months, the Department of Computer Science has been awarded over \$2 million in external grants and contracts. These grants are an excellent recognition of the department's accomplishments and a tribute to the initiative of our faculty, students and staff. Indeed, these research dollars are vital to the success of the department. They allow us to hire significant numbers of undergraduate student research assistants and purchase much needed hardware and software. These grants have also helped the department establish a number of exciting research projects that simply would not have been possible without these external research dollars. One of these projects is highlighted elsewhere in this newsletter.

Equally exciting is the recent approval of a new Master of Science in Computer Science and Information Systems (MS CSIS). This new masters' program is the culmination of two years of collaboration between the computer science and information systems and

operations management departments at UNCW. The MS CSIS is an intensive graduate program aimed at preparing the student to take on leadership roles in the development and implementation of computer and information systems. The curriculum requires 36 semester hours. There are six required core courses providing a mix of theoretical underpinning, technical skills and information technology perspectives. Students can choose elective courses to provide opportunity for additional study in a variety of areas. The program culminates with a capstone experience that can be an interactive project or a thesis. We have begun to accept applications for admission into the program and it will begin in fall 2005.

As mentioned in our last newsletter, UNCW is also building a new, state-of-the-art computer information systems classroom building to enable and foster interdisciplinary collaboration in information sciences and other technology areas across the university. The



groundbreaking ceremony was held on July 29, 2004, and the facility is expected to be complete in early 2007. The Departments of Computer Science and Information Systems and Operations Management will be the primary occupants of this new building.

Finally, it may come as a surprise to some of you, but I have decided to step down as department chair effective June 30. Sridhar Narayan, associate professor of computer science, will take over as chair on July 1. It has been my pleasure to work with such a wonderful group of faculty, staff and students over the past five years. I have enjoyed serving as department chair, but I also look forward to returning full-time to the classroom. It has been my privilege to serve the university during this time of rapid change and growth. I look forward to an equally exciting future.

Ron Vetter, PhD
Professor and Chair

Special points of interest:

- Undergraduate Research
- Natural Language Processing Award
- New Faculty



Faculty Scholarship

David Berman and **Sridhar Narayan** were awarded an Educator's Scholarship from ACM to attend OOPSLA 2004 in Vancouver.

Clayton Ferner had his grid computing submission (co-authored with Jeff Brown) accepted for presentation at GlobusWorld 2005.

Ferner also had his paper, "A Geographically-Distributed, Assignment-Structured Undergraduate Grid Computing Course" accepted for presentation and publication at ACM SIGCSE 2005. The paper is co-authored with Mark Holliday, Jeff House, Samir Daoud, and Barry Wilkinson.

In addition, **C. Ferner** (with B. Wilkinson, and M. Holliday) presented "Experiences in Teaching a Geographically Distributed Undergraduate Grid

Computing Course," at The Second International Workshop on Collaborative and Learning Applications of Grid Technology and Grid Education in Cardiff, United Kingdom.

C. Ferner, C.S. Hunt, and J.L. Brown's article, "JXPL: An XML-Based Scripting Language for Workflow Execution in a Grid Environment," appeared in *IEEE SoutheastCon 2005*.

"Emerging grid standards" authored by **C. Ferner** along with M. Baker, A. Apon, and J. Brown, appeared in the April 2005 issue of *IEEE Computer*.

"GridNexus: A Grid Services Scientific Workflow System" written by **C. Ferner** with J. Brown, **T. Hudson, A. Stapleton, R. Vetter, T. Carland, A. Martin, J.**

Martin, A. Rawls, B. Shipman, and **M. Wood,** will appear in *International Journal of Computer & Information Science (IJCIS)*.

Curry Guinn received notification from RTI International that his project titled, "Natural Language Processing for Longitudinal Exposure Data Collection" was funded through March 31, 2008.

"Codifying Bioinformatics Processes Without Programming" written by **Thomas Hudson,** Ann Stapleton and Jeff Brown, was published in *BIOSILICO*.

In addition, **Hudson's** article on "Visualization and Natural Control Systems for Microscopy" is included as a chapter in *Visualization Handbook*, C. Johnson and C.

Hansen editors (Harcourt Academic Press, 2004).

Sridhar Narayan and **Gene Tagliarini** have received a UNCW Information Technology Systems Division Innovation Award for their proposal, "Investigating the Development of an Adaptive Visual Pattern Recognition System for Application in the Environmental Sciences."

Laurie Patterson's paper "Addressing a New Audience: Development of an Information Technology Minor" was accepted for presentation at the University of North Carolina's Teaching and Learning with Technology Conference.

L. Patterson's paper on "Meeting the Needs of a New Audience" was accepted for presentation at the Association (*cont'd page 5*)

Student receives undergraduate research fellowship award



David Crist

Each spring UNCW awards several undergraduate research Fellowships. Fellowship awards consisting of a partial tuition waiver in the amount of up to \$1,000. This competition, intended to stimulate original research among undergraduate students, is open to any rising junior or senior in any department or major who has completed at least one semester at UNCW.

For the 2004 academic year, **David Crist**, an undergraduate computer science major, received an award for his research project titled, "Real-Time Natural Speech to Synthesized Voice Language Translation Using Open Source Applications and Frameworks."

David's proposal involved building an application that will leverage the power of a suite of

existing applications and frameworks to perform real-time, limited-vocabulary, natural-speech to synthesized-voice, language translation. This application will recognize limited-vocabulary, natural speech and then convert it into text. The text will then be sent to and translated by a free language translation Web service. Finally, the application will output a synthesized voice in the new language.

The completed software would be a robust language translation solution that would be free and extensible. This particular project will focus on developing a free, open source application intended to provide English to Spanish and Spanish to English translations. His faculty sponsor is **Sridhar Narayan**.

David is currently pursuing a degree in computer science (systems option) with a minor in mathematics. He was born and raised in Jacksonville, NC and currently resides in North Topsail Beach, NC. He works on campus as a computer science tutor and a laboratory teaching assistant. He expects to graduate in fall 2005 and plans to attend graduate school with the eventual goal of obtaining a Ph.D. in computer science. His research interests include digital signal processing, high performance computing, visualization, artificial intelligence, and human-computer interaction.

David's work was presented at the Research in the Capital Undergraduate Symposium in Raleigh in April.



Undergraduate Student Research News

On Tuesday, April 12, 100 students from all 16 campuses of the University of North Carolina system traveled to Raleigh to demonstrate and discuss their research experiences before North Carolina legislators. Four of those students were from the Department of Computer Science at UNCW!

The symposium was organized by the UNC Undergraduate Research Consortium with support from the UNC Office of the President.

Each campus selected students to participate from a pool of candidates nominated by their faculty advisors. Criteria for selection included the originality and importance of the work, and the students' abilities to communicate the

significance of their results to non-specialists.

William (Bill) Shipman presented on "GridNexus: A Cutting Edge Research Experience." Coauthoring with Bill were other CSC students: **Allen Rawls** and **Amy Curley**. **Ron Vetter**, **Clayton Ferner** and **Jeff Brown**, mathematics and statistics, were the faculty advisers for the project.

Grid computing is an emerging technology with a goal of maximizing utilization of resources. UNCW's software, GridNexus, gives the user a graphical interface to utilize remote resources. Using GridNexus provides the user with a set of modules that are connected together like a set of children's Legos, forming a workflow. The user adds a module for input, connects it to



Bill Shipman, Allen Rawls, Amy Curley with UNCW Chancellor Rosemary DePaolo

another module which runs a program, and finally connecting to an output module for any results. These workflows can be saved for use in larger, more complex workflows as well as simply being run again with new input.

Dave Crist also presented his work in "Real Time Natural Speech to Synthesized Voice Language Translation Using Open Source Applications and Frameworks." See the article on Crist on page 2.

'04 Alum Lauren Gowdy: Her Experience



Lauren Gowdy

Many factors need to be taken into consideration when choosing the right school: the institution's reputation, number of students, distance from home, academic program choices, and last but not least, the beach.

From the day I set foot on UNCW's campus to the day I graduated, I knew I had made the right decision not just academically but personally. Choosing to go away to school 600 miles from home forced me to be on my own and to be in charge of my life. I am incredibly fortunate to have met and interacted with such inspiring professors, students, and friends.

Why did I choose computer

science? I suppose my thoughts were, why not? Technology is everywhere and will continue to evolve and grow over the years. There are those who hate the fact that everything keeps changing and there are those, like myself, who thrive on it.

Graduating with this degree was no easy task, and the most important thing I learned from my academic experience was to never give up. To be able to strive for a goal and achieve it – that in itself, is so self-satisfying.

Prior to graduating in May 2004, I enrolled with a company called General Dynamics Network Systems in Chantilly, VA. I currently work as an Information Support

Specialist for GD supporting 2,000+ users worldwide with our various applications.

Computer security is extremely relevant to government and business today. In the near future, I look to pursue my master's degree with a focus in information security and assurance. This type of program focuses on examining ways to provide secure information processing systems and provides the knowledge in understanding the relationship between information security and advancing information systems technology.

I look forward to all I have yet to learn and to the future that lies ahead of me.

Upsilon Pi Epsilon

International Honor Society for the Computing and Information Disciplines

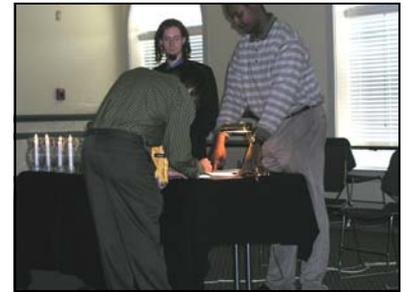
19 Initiated



Eighteen students were inducted into Upsilon Pi Epsilon on April 20. The traditional induction ceremony was held in the Nixon Annex of Trask Coliseum. The 2004 UPE officers, David Crist, Ryan Delts, and Casey Tucker, conducted the initiation. Following the ceremony, initiates and their guests were honored with a reception.



Initiates: Brent Benson; Dean Berman, Matthew Boykin, Ron Bruemleve, Jr.; Shawn Chivers; Kendall Crews; Nathan Dixon; Luke Donley; Jason Dudley; James Hancock; Robert Harrison, Jr.; Gregory Johnson; Kimberly Kelsey Hendren; Andrew Martin; Eric Putnam; Nicholas Reinke; William Shipman; and Ryan Wilkins.



UNCW Receives a Grant Focusing on Natural Language Processing for Longitudinal Exposure Data Collection

UNCW is a partner in a \$4 million dollar project from the Environmental Protection Agency to Research Triangle Institute to develop and test a variety of innovative data collection technologies to assess human behaviors related to environmental exposures. This competitive award to UNCW focuses on speech recognition.

The four-year study will assess the accuracy and practicality of collecting exposure-related behavioral

data using methods such as voice recorders, personal digital assistants, automated photo diaries, global positioning systems, radio frequency identification devices, chest-belt sensors and micro-accelerometer devices. The project will measure the effectiveness of using electronic technology to collect self-reported data such as time-stamped activity, location and exertion level; dietary consumption; and use of pesticides, household cleaners and personal care products.

UNCW is examining the data entered by voice to develop software that enables the computer to listen to and process this recorded data and automatically determine the person's reported activity and location. By developing computer software that can perform this encoding, the possibility is open for gathering and processing this spoken data from large numbers of subjects, and methods explored may be used in industrial, military, emergency response and medical studies.

Faculty Scholarship cont'd

of Small Computer Users in Education Conference this summer.

L. Patterson also received an International Travel Grant from UNCW to attend a conference on women in computer science at the Beijing Normal University in China in October 2005.

Karl Ricanek, Robert Harrison, and Theodore Burgh received a UNCW ITSD Innovation Award for their

proposal, "Virtual Studies of the Past."

Ricanek received an International Travel Grant from UNCW to travel to Ethiopia to attend the dissertation defense for an M.S. candidate in Addis Ababa, Ethiopia. **Ricanek** will also travel to Montreal in July to present a paper at the International Joint Conference on Neural Networks.

Ricanek, Eric Patterson, and Midori Albert,

anthropology, were given a contract extension from the National Security Agency through DynCorp International and \$125,000 to continue work on developing 3D models of human craniofacial morphology. In addition, their work on "models of the human face aging and impacts on face recognition algorithms" is being featured in the North Carolina *Innovations* magazine.

New Faculty Members: Curry Guinn and Karl Ricanek

Thomas Hudson, an assistant professor in the Department of Computer Science, received his Ph.D., in May 2004. His research was on "Adapting a Collaborative, Force-Feedback, Graphical User Interface to Best-Effort Networks."

Laurie Patterson was appointed to assistant professor in the department. She completed all the requirements for her Ed.D. November 2004. Her research was "Development of an Interdisciplinary Information Technology Minor."

Curry I. Guinn joins the Department of Computer Science as an assistant professor. He received his Ph.D. in 1994 from Duke University, M.S. in 1990 from Duke University, and B.S. in 1988 from Virginia Polytechnic Institute & State University.

Since 1995 he has been a researcher at RTI International, a not-for-profit research institute in North Carolina as well as an adjunct assistant professor in the Department of Computer Science at Duke University. Guinn's research interests are primarily in artificial intelligence with a focus on natural language processing, human-computer communication, virtual humans, and spoken dialog systems.



In addition, **Karl Ricanek, Jr.** joined the computer science department as assistant professor. Ricanek received his Ph.D. in electrical engineering from North Carolina Agriculture and Technical State University in Greensboro, NC in May 1999.

Before starting his graduate work, Ricanek worked for the Naval Undersea Warfare Center, Newport, RI and managed an advanced development center for NUWC that focused on next generation Web technologies for the Navy. After completing his dissertation work on lateral pose face recognition, he joined Corning, Inc. Optical Fiber Division. Ricanek then decided to take on the challenge of educating the next generation researchers and moved into academia at UNCW full time in January 2003. Ricanek continues his research in face recognition digital intelligence.



Visit us on the Web:

<http://www.uncw.edu/csc>

The faculty of the Department of Computer Science is pleased that both Guinn and Ricanek have joined them as colleagues.



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