

Computer and Information Science News April-October 2005 Fall 2005 Engineering Advisory Board Meeting

The Department contributed a chapter to the textbook for the expanded offering of the ENGR 100 (Introduction to Engineering) course developed by Marni Kendricks and Maxine Woolsey of the Dean's office. Dr. H. Conrad Cunningham, Dr. Pamela B. Lawhead, and Ph.D student Pallavi Tadepalli wrote the chapter "Introduction to Computer Science". In Fall 2005, this course is being taught by Kendricks and Woolsey via distance learning technology to high school, junior college, and Ole Miss students to encourage students to undertake study in the engineering disciplines. Cunningham presented the introductory material on computer science and the binary number system. Lawhead introduced the students to programming using the Alice 3D authoring system from Carnegie-Mellon University.

In conjunction with the Engineering Computing Core Committee, faculty member Charles M. Jenkins is revising the content of CSCI 251 (Programming for Engineering and Sciences) to use both the traditional Fortran programming language and the Mathematica symbolic mathematics tool.

Faculty member Cynthia B. Zickos and adjunct instructor Teresa McCarver have been teaching online sections of the courses CSCI 103 (Survey of Computing) and CSCI 191 (Office Applications), respectively, for the past several semesters. Both are also teaching sections of these courses for the special mini-term created for students whose studies have been interrupted by Hurricane Katrina and its aftermath.

Dr. Philip J. Rhodes is developing a new graduate special topics course on three-dimensional graphics programming and teaching it as a CSCI 581 section during the Fall 2005 semester.

Dr. P. Tobin Maginnis is revising the course ENGR 656 (Operating System Design Concepts) to include new material on cluster programming using the Department's new Orion Multisystems Workstation Cluster, purchased in Spring 2005 using "lapsed salary" and Associates' Grant funding.

Dr. Dawn E. Wilkins is developing a new graduate special topics course on computational biology and teaching it as an ENGR 692 section during the Fall 2005 semester.

Other special topics courses being offered in Fall 2005 are a popular CSCI 581 section on internet programming by Dr. Steven B. Schoenly and another CSCI 581 section on research methods by Dr. Pamela B. Lawhead.

During the Fall 2005 semester the Computer Science Seminar Series continued successfully and included topics on the Eclipse development environment, Mathematica, SIMSCRIPT III, regular expressions, Macromedia Flash, text editing with vi and emacs, and a review of research at Miltec Corporation.

Dr. Stephen V. Rice is the lead designer of CACI's SIMSCRIPT III programming language for object-oriented simulation. It is a major extension of its predecessor, SIMSCRIPT II.5. He is collaborating with CACI and Nobel laureate Dr. Harry M. Markowitz, who designed the original SIMSCRIPT language in 1962. Rice is writing a book on the SIMSCRIPT III language.

As a consultant, Dr. P. Tobin Maginnis is assisting Global Technical Systems, a Virginia-based company, in establishing a new Information Technology division in Oxford. GTS-Oxford will emphasize the application of commercial-off-the-shelf (COTS) hardware and open source software for defense-related systems applications. MS student (and former Department staff member) Benjamin Pharr is the first full-time GTS employee working at the Oxford location. MS student James Church is working part-time with Maginnis and Pharr to build a Linux cluster with forty dual-core processors.

Dr. Dawn E. Wilkins is the Principal Investigator (PI) on a new contract with the Environmental Laboratory at the U.S. Army Engineer Research and Development Center (ERDC) in Vicksburg. She is working with co-PI Dr. Sunil Mathur from the Mathematics Department and computer science MS student Sean Smith to develop a bioinformatics research infrastructure on ERDC's Beowulf computing cluster. The group will also develop custom data mining software for understanding and predicting the ecological effects of ordnance-related compounds on animals such as rodents, birds, fish and earthworms.

Dr. Dawn E. Wilkins' subcontract with Mississippi Valley State University (MVSU) was renewed for a second year. This work is to help train MVSU's computer science, mathematics, and biology faculty and students in bioinformatics concepts and technologies. MVSU's funding is from the National Science Foundation (NSF).

Dr. Dawn E. Wilkins is also involved with the Bioinformatics Working Group on campus. This group received a two-year \$20K grant from the Office of Research to promote interdisciplinary research in bioinformatics on campus.

During summer 2005 Dr. Guangbin Fan visited Bell Labs China where he performed research on the Session Initiation Protocol (SIP) and multimedia networking. He also gave a talk at Peking University on next generation wireless networks.

Dr. Philip J. Rhodes is engaged in discussions regarding collaboration on grid computing projects with Dr. Sudharshan Vazhkudai of Oak Ridge National Laboratories. Vazhkudai is a 2003 PhD graduate of the Department.

Faculty member Charles M. Jenkins, PE, continues consulting with ExxonMobil in Houston, Texas. The work primarily involves replacing a legacy information management application system first implemented 17 years ago with a commercial application.

In summer 2005 Dr. H. Conrad Cunningham and Dr. James Cross, Chair of Computer Science and Software Engineering at Auburn, served as consultants to the Tennessee Board of Regents to evaluate the MS and PhD programs of the newly independent Computer Science Department at the University of Memphis.

Dr. Pamela B. Lawhead is one of fifty reviewers chosen nationally for A Workshop for GeoSpatial Educators.

Dr. Pamela B. Lawhead is also one of thirty proposal reviewers chosen from the region for the NSF program "Integrative Computing Education Research (ICER): Preparing IT Graduates for 2010 and Beyond" and a reviewer for the upcoming NSF CISE Research Experiences for Undergraduates solicitation.

Dr. H. Conrad Cunningham and Dr. Dawn E. Wilkins serve as members of the Regional Steering Committee for the Consortium of Computing Sciences in Colleges (CCSC) Mid-South Conference. Cunningham is 2005-6 committee chair and Wilkins is Registrar. Cunningham is also Participants chair and Wilkins is Vendors co-chair for the 2006 CCSC:MS conference in Memphis.

Dr. Dawn E. Wilkins is also serving as Secretary of the board of the MidSouth Computational Biology and Bioinformatics Society (McBIOS).

PhD student Yi Liu completed her degree in July under the supervision of Dr. Cunningham. Dr. Liu is now an Assistant Professor of Software Engineering at South Dakota State University in Brookings.

PhD student Wei Liu was awarded a Graduate School Summer Graduate Research Assistantship for 2005. He used this time to focus his efforts on his dissertation research under the supervision of Dr. Wilkins.

PhD student Breneria Travis and MS student Derek Park hold GK8 fellowships this year. In this NSF-funded project, led locally by Dr. John O'Haver of the Chemical Engineering Department, they work with the teachers in the elementary and middle schools in Lafayette County to design and implement lessons involving mathematics, science, and computing.

Several computer science students held internships during summer 2005:

- BSCS senior Trent Sigler was a NASA Space Grant Consortium intern at NVision Solutions, Inc., located at Stennis Space Center on the Mississippi Gulf Coast.
- MS student Hubbard Young was a NASA Space Grant Consortium intern at InTime, Inc., in Cleveland, Mississippi, for the second consecutive summer.
- MS student James Church is an intern at Global Technical Systems' new Oxford office.
- MS student Navanath Prabhudessai interned in the information technology department at Progressive Insurance in Mayfield Village, Ohio.
- PhD student Pallavi Tadepalli is an intern from July through December 2005 at Acxiom Corporation in Little Rock, Arkansas.

Beginning in Fall 2005 a \$25 laboratory fee is being collected from students in CSCI 103, 111, and 191. This new fee should ease the increasing financial burden of operating the printers and student labs.

Using a combination of Adler Endowment funds and Department equipment funds, the Department replaced the 27 computers in the South Adler Lab this summer. The new machines are Gateway workstations with 3.2 GHz Intel Pentium 4 processors, 1 GB main memories, 80 GB hard disk drives, and 19-inch flat screen CRT monitors. The 2.5-year-old machines formerly in the South Adler lab were moved to the Systems and Networking Lab for use as Linux or Windows workstations, and the older machines there were transferred to a local school district. None of the 78 computers in the Department's instructional laboratories, classrooms, or seminar room are now more than three years old.

Using Adler Endowment funds, new HP 4250tn laserprinters were purchased and placed in the North and South Adler labs to replace unreliable printers.

Dr. Guangbin Fan resigned his faculty position effective in December 2005. He is returning to China where he will be a researcher at Intel Corporation's facilities in Beijing. The Department is starting a search to fill the faculty vacancy for Fall 2006.

Benjamin Pharr resigned his Network Administrator effective at the end of September to take a staff position with Global Technical Systems in Oxford. The Department began a search to fill the position soon.

Department Administrative Secretary Jacqueline Reynolds is completing a BA degree in December with majors in English and history and a minor in political science.

Recent BSCS and MS alumnus Nilesh Dosooye recently moved to a professional position at Yahoo!, Inc.

Institute for Advanced Education in Geospatial Sciences (IAEGS) News April-October 2005 Fall 2005 Engineering Advisory Board Meeting

The IAEGS staff has made many changes during the past few months to improve the performance and reliability of the computing infrastructure that supports its online courses and course development. This included upgrading the server system, installing a firewall, optimizing the network performance, and rebuilding the database.

IAEGS has entered into agreement with several universities to use its courses in their programs:

- Delta State University for degree programs in Geographic Information Systems (GIS) at undergraduate and graduate levels
- Saint Mary's University of Minnesota for credit at the undergraduate and graduate levels.
- University of Connecticut's Center for Land Use Education and Research (CLEAR) for 120 online course seats to be used by students in its programs.

Dr. Pamela B. Lawhead, IAEGS Director and computer science faculty member, made an invited presentation on IAEGS at the Summer Conference 2005 of the Management Association of Private Photogrammetric Surveyors (MAPPS) in Asheville, North Carolina.

IAEGS staff and course fellows have completed the following online courses:

- Advanced Digital Image Processing
- Aerial Photographic Interpretation
- Applications of Remote Sensing to Ecological Modeling (R)
- Business Geographics (R)
- Community Growth (R)
- Decision Support Systems
- Geospatial Data Synthesis and Modeling (R)
- Information Extraction using Microwave Data
- Introduction to Digital Image Processing
- Introduction to Geospatial Information Technology
- Orbital Mechanics
- Photogrammetry (R)
- Remote Sensing 101: Basic Remote Sensing Concepts & Aerial Photographic Data Collection and Analysis
- Remote Sensing 102: Introduction to Electro-optical, Microwave, and Lidar Remote Sensing Systems (R)
- Remote Sensing 103: Introduction to Digital Image Processing (R)
- Remote Sensing and the Environment
- Remote Sensing of Water (R)

(R) = course is undergoing external content review