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Irish Flying High in Iraq

Will Herbert graduated in 2004 with a bachelor's degree in computer science. Although he had not been in the Reserve Officer Training Program as an underclassman, he signed with the Air Force during his senior year. After officer and pilot training, he is now logging many hours flying the C-130 Hercules in Iraq. In addition to flight duties, he works as a weapons and tactics officer responsible for understanding threats and knowing how to use available resources to defeat them. "I haven't written a lot of code since graduation," says Herbert, "but my job demands quite a bit of technical know-how. Thanks to the rigorous program in computer science, I was well prepared."

We ask you to join us as we keep Will, and all the service men and women, in our thoughts and prayers.

To submit your stories for inclusion in *configurations*, contact Ginny Johns at vjohns@cse.nd.edu.

CSE Student Featured in Half-time Commercial

Sarah Ring, currently a junior computer science major, and Professor **Kevin Bowyer,** the Schubmehl-Prein Professor and Chair of the Department of Computer Science and Engineering, appeared in a video segment discussing biometrics research at Notre Dame. The commercial was shown during the halftime of this year's football game between the University of Notre Dame and Duke University.

Ring worked on the department's iris biometrics research project in summer 2007 as an *Edward Ateyeh Undergraduate Research Scholar* and is continuing her research during this academic year.

To see the video, go to the Notre Dame web page: http://nd.edu/video/biometrics.

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May 2008

A Newsletter of the Department of Computer Science and Engineering at the University of Notre Dame

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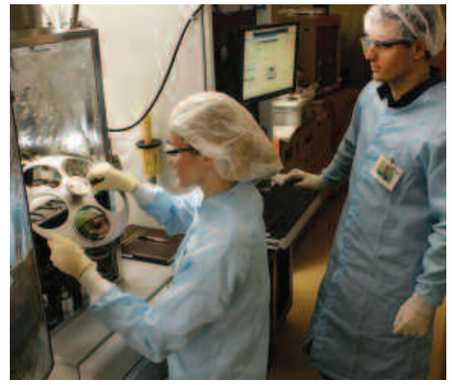

Big Strides in "Little" Research: Notre Dame to Lead MANA

On March 25, Indiana Gov. **Mitch Daniels** announced the establishment of the Midwest Academy for Nanoelectronics and Architectures (MANA), a new research consortium led by the University of Notre Dame. Faculty from the departments of computer science and engineering and electrical engineering are key participants in the consortium, which also includes Purdue University, the University of Illinois, Pennsylvania State University, the University of Michigan, Argonne National Laboratory, the National Institute of Standards and Technology, and the National High Magnetic Field Laboratory. "MANA is a giant stride in the development of the technology of small things," says University President Rev. **John I. Jenkins,** C.S.C. "It promises to move us past the limits currently imposed by the laws of physics and enable the building of advanced devices, circuits, and systems that will be faster, more powerful and more compact than those that currently power our cell phones, computers, and other electronic devices."

University Named to Nano Consortium

The **University of Notre Dame** is one of only a dozen universities selected by Sandia National Laboratories as a founding academic member of a unique research consortium. The newly established National Institute for Nano-Engineering (NINE) will function as a national hub for technological innovation and engineering education. The other founding members from academia include Harvard University, Harvey Mudd College, the Rensselaer Polytechnic Institute, Rice University, the University of California at Davis, the University of Florida, the University of Illinois, the University of New Mexico, the University of Texas, the University of Wisconsin, and Yale University. Initial industry members include Corning, ExxonMobil, Goodyear Tire and Rubber, IBM, Intel , and Lockheed Martin.

NEWS ... FROM THE PATENT OFFICE

INTENSITY MODULATED RADIATION THERAPY

U.S. utility patent 7,185,611 B1 was issued on Oct. 16, 2007, to Professor **Danny Z. Chen,** Associate Professor **X. Sharon Hu,** and **Chao Wang** of the Department of Computer Science and Engineering, entitled "Segmentation Algorithmic Approach to Step-and-Shoot Intensity Modulated Radiation Therapy." This patent contains new algorithms for solving a key problem — leaf sequencing, that arises in the treatment planning process of a common radiation cancer therapy approach — step-and-shoot intensity modulated radiation therapy (IMRT). It was co-invented with Assistant Professor **Shuang Luan** (University of New Mexico), Assistant Professor **Xiaodong Wu** (University of Iowa), and Dr. **Cedric X. Yu** (University of Maryland School of Medicine).

MOBILE THREAD PARADIGM

Professor **Peter M. Kogge,** the Ted H. McCourtney Professor of Computer Science and Engineering, was recently awarded a new patent by the U.S. Patent Office. Patent 7,185,150, titled "Architectures for Self-contained, Mobile, Memory Programming," deals with programming of computer systems that use a mobile thread paradigm.


Aaron Striegel


Douglas Thain

Striegel and Thain Receive Sun Equipment Grant

Assistant Professors **Aaron Striegel** and **Douglas Thain** have received a Sun Academic Excellence Grant (AEG), entitled "Unified SGD Support for Enterprise Network Management," totalling approximately $41,000, which will be used for equipment and software licenses. The equipment will help create a high-end database node/SunRay server for managing the Lockdown project which is focused on practical enterprise network security management as well as the creation of a new SunRay thin client pool. The new server offers exciting opportunities for the development of Lockdown in terms of application development from an Sun Global Desktop perspective (SunRay thin client) and trust dependency analysis of the SunRay itself from a management perspective. The equipment will also enable the development of SGD-friendly tools for visualization of the Lockdown data (Java-based), optimizations focused on the CoolThreads architecture (database), and direct support for SunRay security analyses into Lockdown itself.

Kogge Presents Keynote at DoE/DoD Workshop


Peter M. Kogge

Professor **Peter Kogge,** the Ted H. McCourtney Professor of Computer Science and Engineering, gave the opening keynote talk at the Department of Energy/Department of Defense (DoE/DoD) Workshop on Emerging High-performance Computer Architectures and Applications. The workshop was held in Washington, D.C., Nov. 29-30, 2007, and brought together application experts, computer architects, and experts in programming environments, tools and software. The output of the workshop was a report detailing the impact of these emerging architectures on challenging DoE and DoD applications.

NSF Awards $300,000 to Department for Undergraduate Research

Assistant Professors **Christian Poellabauer** and **Aaron Striegel** have received a Research Experience for Undergraduates (REU) site grant from the National Science Foundation (NSF). Their project, "Experimental Research on Wireless Networking" will provide 10 paid positions for undergraduate researchers each summer for the next three years. The site is the first one being offered by the Department of Computer Science and Engineering (CSE) as an official NSF REU site. Participants will choose their research projects from a group of problems described by faculty mentors from both CSE and electrical engineering, culminating in a final research presentation at the end of the summer. For more information, see *http://www.cse.nd.edu/~darts/reu.html.*


Christian Poellabauer

Bowyer Serves on Science Foundation Panel

Schubmehl-Prein Professor and Chair of the Department of Computer Science and Engineering **Kevin W. Bowyer** was invited by Science Foundation Ireland (SFI) to participate in a review panel for the Stokes Professorship and Lectureship Programme in the area of information and communication technology. SFI plans to invest up to $18 million euros a year in the program, which is aimed at recruiting senior academics as well as entry-level faculty and senior post-doctoral researchers to Irish universities.


Samuel Banina


Daniel Dugovic


Chris Fallin


Raymond Le Grand


Pavan Sadarangani


Joe Schmitt

Notre Dame Teams Participate in ACM Programming Contest

On November 9, 2007, six Notre Dame students from the Department of Computer Science and Engineering traveled to the University of Michigan to compete in the Association for Computing Machinery (ACM) Regional Computer Programming Contest. The region for Notre Dame consists of Indiana, Ohio, Michigan, western Pennsylvania, and eastern Ontario, Canada. Approximately 100 teams participated in the event. The first activity on Friday night was a practice contest consisting of three problems designed to familiarize the students with the computers and the environments for the contest.

Team Irish Blue, did not need much time to master the practice material. They won the practice contest with time to spare. For the actual contest on Saturday the team solved four problems and finished 11th in the region. Members of Irish Blue are **Dan Dugovic,** a senior from Woodridge, Ill.; **Chris Fallin,** a sophomore from Beaverton, Ore.; and **Joe Schmitt,** a sophomore from Cary, N.C.

Irish Gold solved two problems and had a near miss on one of the other problems during the competition. This garnered the team a ranking of 26th in the region. The members of Irish Gold are **Pavan Sadarangani,** a senior from Philipsburg, St. Maarten; **Samuel Banina,** a junior from Peru, Ind.; and **Ray Le Grand,** a freshman from Allen, Texas.

Both teams won prizes during the regional contest. Though the contest is a fun event and the team members enjoyed meeting students from other schools, the practical benefit is that to perform well students must review material from all of their university courses, since problems can come from areas as diverse as computer science, music, or economics. Moreover, recruiters from industry and graduate schools are on hand to scout the talent and identify the rising stars in the field.

ALUM SPEAKS TO E-TECH CLASS

On Nov. 16, Notre Dame alum **John J. Kelly III** spoke to the "Introduction to e-Technology" class about the challenges of software development and, in particular, of successful user interface design.

Kelly, the president of Model Software Corporation, has developed advanced software applications and consulted with the Department of Defense, as well as a variety of industrial, financial, and service companies. Located in New Orleans, Model Software is a General Services Administration Federal Supply Service contractor.

Paper Cited among Most Influential of the Decade


X. Sharon Hu.

A paper co-authored by Associate Professor **X. Sharon Hu** and **Gang Quan,** a former student currently serving as an assistant professor of computer science and engineering at the University of South Carolina, was selected to be included in the book titled "Design, Automation, and Test in Europe — The Most Influential Papers of 10 Years DATE." DATE (Design, Automation, and Test in Europe Conference) is a leading conference in the field of electronic design automation. It celebrated its 10th anniversary in 2007. The aim of this book is to highlight some of the most influential technical contributions from the past 10 years of DATE. Only three papers were selected from more than 200 papers in each year's proceedings.

Journal Paper Named "Highly Accessed"

A journal paper appearing in *BMC Bioinformatics* on January 11, 2008, and authored by Ph.D. student **Scott Christley,** Research Assistant Professor (Biology) **Neil Lobo** and Associate Professor **Greg Madey,** titled "Multiple Organism Algorithm for Finding Ultraconserved Elements," was recently given the status of "highly accessed." The designation identifies those articles that have been highly accessed relative to their age and the journal in which they are published. *BMC Bioinformatics* is a top-ranked open access journal with an impact factor of 3.62. The paper has been accessed almost 800 times since being publicly available earlier this year. Christley was the *Thomas Meurer Graduate Teaching Scholar* in fall 2007; he teaches a course in bioinformatics computing. The article is available at *http://www.biomedcentral.com/1471-2105/9/15.*