



December 2013

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



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## Commencement 2013



The Department of Computer Science & Engineering (CSE) graduated 57 students on Sunday, May 19, 2013. A departmental ceremony was held in the afternoon and attended by the graduates, their families, and CSE Professors. This year's faculty speaker, selected by the students, was Professor **Nitesh Chawla**. Professor **Aaron Striegel**, the department's associate chair, served as master of ceremonies. The ceremony was organized and coordinated by seniors **Justin Hintz** and **Jessica Vallejo**, with the help of Administrative Assistants, **Ginny Watterson** and **Dian Wordinger**.

This year's Outstanding CPEG Senior recipient was **Jonathan Koch** and the Outstanding CS Award recipients were **Steven Kraska** and **Kevin McShane**.

Seniors **Kyle Buckley**, **William Heineman** and **Stephen Kraska** won first-place for the Advanced Database Projects Competition held in Spring of 2013, sponsored by the **Thomas Meurer Endowment Fund for Excellence**. The third-place winning team included Seniors **Adam Wisbrock**, **Alvin Hu**, and **David Wisniewski**. The winners were students enrolled in CSE 40746: Advanced Database Projects taught by Professor **Ramzi Bualuan** and studied topics such as database design, development and management.

The Outstanding CSE Faculty Teaching Award was granted to Professor **Ramzi Bualuan**.

Students receiving their degrees at this ceremony were **Kobena Ampofo**, **Justin Bernhard**, **Matthew Bernstein**, **Daniel Bolivar**, **Kyle Buckley**, **Elizabeth Caldwell**, **Karl Celeste**, **Nathan Clemente**, **Benjamin Curl**, **Matthew Daye**, **Kerry Dobmeier**, **Brian DuSell**, **David Ellett**, **Thomas Falcon**, **Dante Garcia**, **Ryan Hammond**, **Isaac Harrington**, **William Heineman**, **Dominique Hightower**, **Justin Hintz**, **Alvin Hu**, **Margaret Hurlbut**, **John Kemnetz**, **Henry Kim**, **David Klueck**, **Jonathan Koch**, **Brenden Kokoszka**, **Steven Kraska**, **Megan Limos**, **Collin Mackett**, **Antwane Mason**, **Ryan McAndrews**, **William McGough**, **Kevin McShane**, **Thomas Mealey**, **Harold Metzger**, **Derek Neidecker**, **Michael O'Brien**, **Sarah O'Connor**, **Jennifer Piccione**, **Thomas Potthast**, **Vikram Saraph**, **Nicholas Schmidt**, **Jared Schneider**, **Andrew Sindoni**, **Cedric Strickland**, **Robert Thompson**, **Kaytlyn Troyer**, **Ryan Turner**, **Jessica Vallejo**, **William Vranderic**, **Adam Wisbrock**, **David Wisniewski**, **John Yost**, **Thomas Young**, **Tina Yue**, **Yiting Zheng**.

## Graduate School Welcomes New Associate Dean

Graduate School Dean Laura Carlson has announced the appointment of Professor **X. Sharon Hu** as the associate dean for professional development.

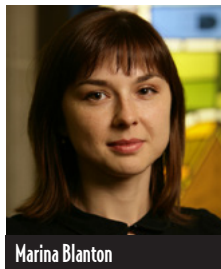
In this new role, Dr. Hu will lead a vibrant and effective Professional Development team that is dedicated to fostering the training of graduate students and postdoctoral scholars in the areas of research, career, teaching and ethics. The Graduate School's Professional Development team has been in place since 2009, and was recognized by the University with a Team Irish Award for 2011-2012. "Hu has been a long-standing advocate for graduate students and the importance of mentoring," said Dean Carlson. "In addition, she brings international experience that we hope to leverage to create opportunities for our graduate students. She is an accomplished researcher, mentor and administrator, and we are fortunate to now have her on our team."



X. Sharon Hu

## Blanton Receives NSF Grant

Professor **Marina Blanton** has received a three-year research grant from the National Science Foundation for a project titled "A General-Purpose Compiler for Distributed Computation and Outsourcing". The award was issued through the Secure and Trustworthy Cyberspace (SaTC) program of the NSF's Division of Computer and Network Systems (CNS) to Blanton's research group. The project is to develop a system for secure distributed execution of general-purpose programs in a way that sensitive data is provably protected throughout the execution. The main component of the system is a compiler that translates a user program written in an extension of C with data to be protected marked as private into corresponding distributed computation with provable data protection. The focus of the project is on high performance and generality, which makes it suitable for a variety of applications and broad categories of collaborative and individual computing needs including secure multi-party computation and secure computation outsourcing.



Marina Blanton

## Undergrads Return from Internships

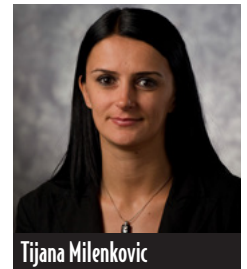
Rising Juniors and Seniors returned from internships at a broad range of companies to start the new academic year. The intern pyramid in the photo shows six CSE majors who interned at Epic in Madison Wisconsin this past summer.



Top to bottom (left to right): Taryn Green, Nick Taylor, Jeremy Vercillo, Chas Jhin, Chris Groce, Taylor Seale

## Milenkovic Receives NSF Grant

Professor **Tijana Milenkovic** has received three years of funding totaling \$445K from the National Science Foundation for a project titled "Novel Directions for Biological Network Alignment". Professor Milenkovic and her Complex Networks Lab will develop new algorithms for identifying topologically and functionally similar regions between biological (cellular) networks of different species, in order to efficiently guide the transfer of biological knowledge from well annotated species to poorly annotated ones between conserved (i.e., aligned) network regions. This is expected to further our insights into organizational principles of life, evolution, disease, and therapeutics. In particular, the new algorithms will be used in interdisciplinary collaborations to study: 1) the role of the cellular machinery responsible for protein degradation in human and 2) pathogenicity and drug resistance of malaria parasites.



Tijana Milenkovic

## Lana Canen, Victim of Wrong Fingerprint ID, Visits Biometrics Class

**Lana Canen** spent eight years in prison after being convicted of murder, based on mistaken latent fingerprint identification. Her lawyer, **Cara Wieneke**, challenged the fingerprint identification and the detective who made the original identification admitted that he had made a mistake. Lana Canen and Cara Wieneke visited the CSE 40537/60537 Biometrics class, taught by Professor **Kevin Bowyer**, to talk with students about the experience.

Their time talking with the class gave insights into how the criminal justice system uses technical evidence such as latent fingerprints, and into the human cost when the system fails.

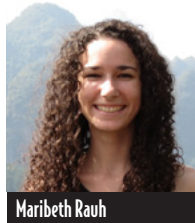
## Notre Dame Students Win the 2013 Built for BlackBerry® Campus Competition

**Sean Fitzgerald** and **Maribeth Rauh**, two Computer Science and Engineering students (class of 2015), have won the Grand Prize at the 2013 Built for BlackBerry Campus Competition, held in Orlando, Florida. The contest was promoted in the Computer Science and Engineering Department's Mobile Application Projects course taught by **Salvador Aguinaga** and **Nikhil Yadav**. As finalists from the university of Notre Dame, they received their choice of a BlackBerry Z10® or a BlackBerry Q10® smartphone and a trip to BlackBerry Live in Orlando, Florida to present their winning apps to a panel judges at the BlackBerry Live Conference, which was held May 14-16, 2013. Sean and Maribeth's winning app entry, pillBox, is designed to store information, create reminders, and order more pills and pill prescriptions. As Grand Prize winners, they receive a cash prize and guaranteed placement of their winning app or game on the BlackBerry World storefront carousel for 48 hours. The University of Notre Dame will receive an engraved trophy to put on display for a year, until the next competition.

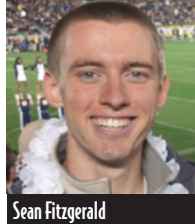
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## Hu and Niemier Hold Leadership Roles at 2014 Design Automation Conference

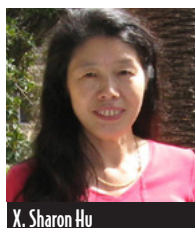
The 2014 Design Automation Conference (DAC) embarks on its 51st year as the premier conference devoted to the design and automation of electronic systems. In addition to DAC's best-in-class technical program, the conference offers outstanding training and education as well as superb networking opportunities. The 51st DAC will be held at the Moscone Convention Center in San Francisco, CA, June 1-5, 2014. What brings 2014 DAC closer to Notre Dame is that Professors **X. Sharon Hu** will be the Co-Chair of the Technical Program Committee and **Michael Niemier** will be the Chair of the Sub-Committee on New and Emerging Technologies. Besides Hu and Niemier, other faculty members (e.g., **Jay Brockman** and **Danny Chen**) and quite a few students at Notre Dame have also published papers at the past DACs.



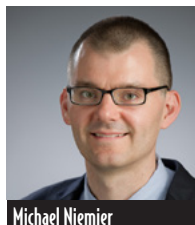
Maribeth Rauh



Sean Fitzgerald



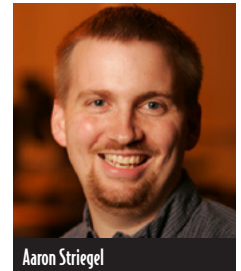
X. Sharon Hu



Michael Niemier

## Striegel is Member of Research Team Using Smart Devices

*News.nd.edu* reports that a team of researchers from the University of Notre Dame and Texas A&M University are developing an innovative system using smart devices to measure the emotionality of offline communications. The interdisciplinary effort is designed to examine whether the increasing prevalence of online interactions may be inhibiting the development of strong, reciprocal and emotionally significant offline social ties.



Aaron Striegel

Notre Dame sociologists **David Hachen** and **Omar Lizardo**, computer scientist and engineer **Aaron Striegel** and educational psychologist **Jeffrey Liew** of Texas A&M will develop a system that uses smart devices to detect speech traits that indicate various emotional states and provides data on offline emotionality. The data are needed to understand changing social networks.

For full article, see *news.nd.edu*.

## Michael Gonzales - GEM Fellowship Awardee

**Michael J. Gonzales**, a PhD student in the Department of Computer Science and Engineering advised by Professor Laurel Riek, has been awarded an Adobe GEM Associate Fellowship for the 2013-2014 academic year.



Michael Gonzales

GEM describes their PhD Fellowship program as a way to "prepare technical leaders for advanced careers in industry, academia, and government agencies by identifying and selecting highly qualified students to complete a program of STEM graduate study and industry internships." Michael will be sponsored by the Adobe Foundation for his fellowship, which includes a discretionary stipend for the 2013-2014 academic year.

Michael received his B.S. degree in Computer Engineering from the University of Notre Dame in 2010. His research interests include human-computer interaction, affective computing, and health informatics.

## Notre Dame Researchers Develop System that Uses a Big Data Approach to Personalized Health Care

*News.nd.edu* reports that University of Notre Dame researchers have developed a computer-aided method that uses electronic medical records to offer the promise of rapid advances toward personalized health care, disease management and wellness. Notre Dame computer science Professor **Nitesh V. Chawla** and his doctoral student, **Darcy A. Davis**, developed the system called Collaborative Assessment and Recommendation Engine (CARE) for personalized disease risk predictions and well-being.



Nitesh V. Chawla

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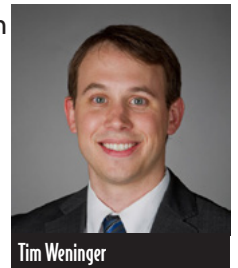
**Schubmehl-Prein Professor**  
**Kevin W. Bowyer**, kwb@cse.nd.edu



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## New Faculty Spotlight

Professor **Tim Weninger** received his Ph.D. in 2013 from the University of Illinois at Urbana-Champaign and came to the CSE department Fall of 2013. Dr. Weninger's research work is in "network science", with a particular focus on multimodal/heterogeneous information networks. His research, generally, is at the intersection of large scale information network analysis, social media, information retrieval, machine learning and data mining, and has been applied to solve problems on the World-Wide Web, text corpora, scientific simulation data, complex networks and cyber situational awareness.



Tim is a recipient of the National Defense Science and Engineering Graduate Fellowship (NDSEG) and the National Science Foundation Graduate Research Fellowship (NSF GRFP). He has published over 25 peer-reviewed papers, has been an invited speaker at many international venues and has served as a reviewer, external reviewer or PC member for dozens of international journals, conferences and workshops.