

HOT RESEARCH

From Quantified Self to Quantified Crowd: Studying Human Behavior in the Workplace

The revolution in sensor technology development is changing how human behavior can be studied. It enables detailed measurements of people in their natural environments—providing big data. While some forms of big data collection may be well-known to the general public (e.g. mining Twitter feeds), another paradigm for big data collection is beginning to occur: measuring human behavior in everyday life. Over the last several years, with students and colleagues, Informatics professor **Gloria Mark** has extended the notion of “life-logging” or “the quantified self” to

the idea of measuring “the quantified crowd.” Rather than bringing people into the laboratory to study their interaction with computers, sensors enable researchers to

create a “living laboratory” where people can be studied using computers in their natural environments. To study human behavior, Mark and colleagues use a range of different types of sensors for tracking stress, mood and computer behavior (e.g. heart rate variability as a measure of stress; actigraph data as a measure of activity), experience sampling for probing mood throughout the day, wearable cameras for tracking face-to-face interaction, and log-

ging computer and phone behavior. Using this methodology, they can track people *in situ*, to capture how stress, attention focus and well-being change as people use information technology and conduct work in their daily environments. The goal of this data collection is to do a deep examination on the relationship of behavior (e.g. multitasking or email usage) with other factors such as attention focus, stress, and well-being. All data is measured to the second, time-stamped, and then synched together. The collection, processing, and analysis of the data produce “small” big data sets and present significant challenges.

This research has been conducted in two domains: the workplace and campus life.

Partnering with Microsoft Research, Mark and colleagues have collected data on over 72 individuals tracked in the workplace for 1-2 workweeks. Earlier research was conducted in partnership with the U.S. Army Natick Soldier Systems Center in Natick, MA, where, in collaboration with Stephen Volda, data was collected to study the effects of cutting off email in the workplace. Funded by an NSF grant, Mark is also studying information technology use of college students, research being conducted with UCI Informatics graduate student **Yiran Wang** (G. Mark, advisor) and UCI Education graduate student Melissa Niiya, and in collaboration with professors Mark Warschauer and Stephanie Reich in the UCI Department of Education. To date, 124 college students were tracked in their everyday campus life, for seven days, all waking hours.

Collecting this data enables a number of questions about information technology use, stress and well-being in the workplace to be answered. For example, it was found that people exhibit rhythms of attention focus in the workplace. People need time to “ramp up” before they can be highly focused at work: on average

RESEARCH BRIEFS

Prof. **Nenad Medvidović** has been named as both an ACM Distinguished Scientist and an IEEE Fellow. He has also been elected as ACM SIGSOFT Chair.

Prof. **Paul Dourish** has been awarded \$363,823 by the National Science Foundation for his work on “Security as an Everyday Practical Concern”.

Prof. **James A. Jones** has been promoted to Associate Professor with tenure.

Prof. **Cristina Videira Lopes’** book *Exercises in Programming Style* has been named Best Programming Book of the Decade in a Software Development (SD) Times review by columnist Larry O’Brien.

Prof. **Bonnie Nardi** gave a keynote talk at the ICT4S Conference in Copenhagen, “Priorities for ICT4S: What We Can Do For a Future of Descent,” and an invited talk at the University of Guadalajara, “The Political Economy of Video Gaming.”

Prof. **Walt Scacchi** is giving a tutorial on “Beyond Open Architecture: Issues, Challenges, and Opportunities in Open Source Software Development (OSSD) for Aerospace and Defense Applications” at the 2016 Ground System Architectures Workshop (GSAW) in Los Angeles in February.

More Research Briefs on page 5.



Prof. Gloria Mark

IN THIS ISSUE

- 3-Alumni in ICS Hall of Fame
- 3-7-Student News
- 4-ISR Sponsorship
- 5-Richardson Leads Effort on Preparing CS Teachers
- 6-Alumni Updates
- 7-ICGSE 2016 at UCI
- 7-Technical Reports
- 8-ISR Events

focused attention peaks late morning and mid-afternoon whereas boredom peaks early afternoon. In terms of workplace happiness, surprisingly people are happiest doing rote work, as opposed to focused work. This could be explained by the finding that focused work is associated with stress. It was also found that when people are engaged in their work, online interactions make people happier than being in face-to-face interactions. When highly engaged in work, with online interactions, people can control their social break time. In another exploration, distractions were examined when working online. A common assumption is that one is focused in an online activity and then becomes distracted by email or Facebook, or something else. Looking at this from a reverse perspective, the researchers asked whether one might first be in a particular attentional state that makes one susceptible to distractions. The data revealed that this was indeed the case. When people are conducting work that is considered “rote” or boring, then people were more likely to subsequently engage in “lightweight” communications that might be considered distracting, e.g. Facebook use.

With college students, among other findings, the researchers found that the more time spent online, the more stress students experienced. However, the more time spent on social media seems to mitigate stress. Heavy multitaskers use significantly more social media and experience lower positive mood than light multitaskers.



Devices used to measure behavior and mood. Clockwise from upper left: active badges, experience sampling, computer logging, heart rate monitor, wearable galvanic skin response sensor, and SenseCam (wearable camera).

Similarly, the more constantly that a student checks social media, the lower is their positive mood. College students have a much shorter focus of attention on any computer screen on average than information workers in the workplace.

This work has been presented at the South X Southwest Festival (SXSW) and the

top conferences in the field of human-computer interaction, including ACM CHI (human factors in computing) conference and ACM CSCW (Computer-Supported Cooperative Work: The conference on Social Computing). It has garnered multiple paper awards and has received significant media attention. Mark has been interviewed by NPR and BBC

news. This work has been covered in the *NY Times*, *The Atlantic*, *Wall St. Journal*, and other media.

This comprehensive capture of data in the real world using sensors has a number of implications for workplace and technology design. In the workplace, managers can use this data to design schedules that optimize when people are most focused. Work breaks can also be strategically designed to counteract boredom. Information technology can be designed to inhibit the switching of computer activity (and hence the rapid switching of attention). Longer periods of focus can be expected to improve productivity and well-being. The results in fact suggest this. Analyses are ongoing.

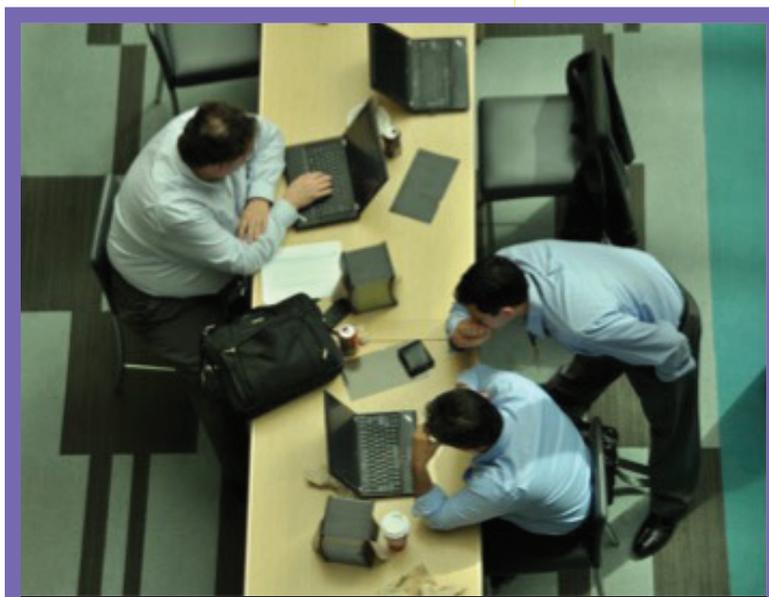
For more information, visit:

http://www.ics.uci.edu/~gmark/Home_page/Welcome.html

and

<http://www.digitalllearninglab.org/multi-tasking-as-a-collaborative-system-examining-the-millennial-generation/>

Prof. Gloria Mark can be reached at gmark@uci.edu.



Measuring information technology use *in situ* with different sensors.



ICS 2015 Hall of Fame Inductees. Owen O'Malley far left; Roy T. Fielding far right, front. Photo by Eva Lempert.

Two Distinguished ISR Alumni Inducted into First ICS Hall of Fame

Congratulations to ISR alumni **Roy T. Fielding** (R. Taylor, advisor) and **Owen O'Malley** (D. Richardson, advisor) for being inducted into the first UCI School of Information and Computer Sciences (ICS) Hall of Fame! Twenty ICS alumni were

honored at the induction ceremony in October.

Dr. Fielding earned his Ph.D. in 2000, M.S. in 1993, and B.S. 1988—all from ICS. Fielding,

a Senior Principal Scientist at Adobe, is known for his pioneering work on the World Wide Web, open source, and software architecture. He wrote the standards for HTTP and URI, has been a contributor to many other Web technologies, and defined the REST architectural style as a model for the design principles behind the modern Web architecture. Fielding is one of the founders of the Apache HTTP Server Project, incorporator and first chairman of the Apache Software Foundation, and a former member of the ASF board of directors. He has been honored with the 1999 ACM Software System Award, the OSCON 2000 Appaloosa Award for Vision, and the 2010 ICSE Most

Influential Paper Award. Fielding was also among the first elected members of the W3C Technical Architecture Group and the first selected members of the TR100 by MIT Technology Review.

ISR Director **Richard N. Taylor**, Fielding's advisor, noted "Roy has been a credit to ISR and UCI/ICS for two decades. Besides performing superb technical work Roy demonstrated remarkable, insightful leadership in the open-source community, providing a model for those who followed him in the Apache work. His many awards are highly deserved!"

Dr. O'Malley earned his Ph.D. in 1996 and M.S. in 1989 from ICS. O'Malley is a co-founder and technical fellow at Hortonworks, a rapidly growing company (25 to 750 employees in 4 years), which develops the completely open source Hortonworks Data Platform (HDP). HDP includes Hadoop and the large ecosystem

of big data tools that enterprises need for their data analytics. O'Malley has been working on Hadoop since the beginning of 2006 at



O'Malley

Yahoo, was the first committer added to the project, and used Hadoop to set the

ISR STUDENT NEWS

Maryam Khademi (C. Lopes, advisor) gave a presentation titled "Face tracking in videos in-the-wild and hand pose estimation using RGB-D images" in



Khademi

September at Intel in Santa Clara, CA while she was interning there. Khademi is also co-first author, with Hossein Hondori, of "Choice of Human

Computer Interaction in Stroke Rehabilitation," appearing in the *Journal of Neurorehabilitation and Neural Repair*. Other co-authors are L. Dodakian, A. McKenzie (Chapman Univ.), Khademi's advisor **Cristina V. Lopes**, and S.C. Cramer.

Alireza Sadeghi (S. Malek, advisor) spent his summer as an intern



Sadeghi

at Google in Mountain View, CA where he worked with the Android Security team and developed a tool that facilitates the security review of Android devices. His

mentor was Chad Brubaker.

Reyhaneh Jabbarvand Behrouz (S. Malek, advisor) interned last summer at Intel in



Behrouz

Minneapolis, MN as part of the Performance Modeling team in the Data Center Group. She studied the impact of dependency between program components

deployed on communicating peers on the performance of HPC systems, and delivered a white paper as a result of experiments on the topic.

ISR STUDENT NEWS

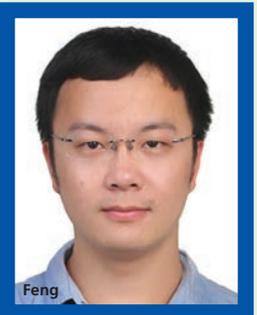
Martin Shelton (B. Nardi, advisor), who recently graduated, has received the Knight-Mozilla OpenNews Fellowship. Shelton will work at the *New York Times* starting in February conducting user research and data analytics for the Coral Project on citizen participation in journalism.



Chris Wolf (P. Dourish, advisor) spent her summer as an intern at IBM Research where she worked with mentor Jeanette Blomberg and the members of the Cloud Services Analytics group at IBM Almaden, looking at mobile work practices. She also received the Achievement Rewards for College Scientists (ARCS) Scholar Fellowship for the 2015-16 academic year.



Yang Feng's (J. Jones, advisor) paper "Test Report Prioritization to Assist Crowdsourced Testing" was accepted to the 10th Joint Meeting of the European Software Engineering Conf. and the ACM SIGSOFT Symp. on the Foundations of Software Engineering (ESEC/FSE) held in Bergamo, Italy in Sept. The paper is co-authored by Zhenyu Chen (Nanjing University, China), his advisor **James A. Jones**, Chunrong Fang (Nanjing Univ.) and Baowen Xu (Nanjing Univ.).



WANT TO GET INVOLVED?

Sponsoring ISR has many benefits. It enables your company to form closer ties with our faculty and students, puts you on the fast track to our leading edge research, and gives you first crack at our experimental software tools. Choose from multiple levels of sponsorship:

Support Level	Annual Contribution	Contribution goes to:
Friend	\$10,000	ISR's general research fund.
Affiliate—Collaborative	\$20,000	Collaborative efforts.
Affiliate—Research	\$30,000	Designated ISR research area.
Affiliate—Visiting	\$40,000	Visitor at UCI.
Affiliate—Grad Student	\$60,000	Graduate student research.
Partner	\$100,000 or more	Large-scale research project.

For more information about ISR Sponsorship, please contact:

Debra A. Brodbeck
brodbeck@uci.edu
(949) 824-2260

Gray sort benchmark in 2008 and 2009. In the last 8 years, he has been the architect of MapReduce, Security, and now Hive. Recently he has been driving the development of the ORC file format and adding ACID transactions to Hive. Before working on Hadoop, he worked on Yahoo Search's WebMap project, which was the original motivation for Yahoo to work on Hadoop. Prior to Yahoo, he wandered between testing (UCI), static analysis (Reasoning), configuration management (Sun), and software model checking (NASA).

O'Malley reflected on the award, saying: "I felt extremely honored to be inducted into the ICS Hall of Fame, especially in its first year. Attending ICS gave me a wonderful opportunity to explore my research interests and make a lot of personal and professional connections that are still very important to me 20 years later."

You can read more about O'Malley in the Alumni Profile from the Spring/Summer 2012 issue of the *ISR Connector*, which is available online at:

<http://isr.uci.edu/content/dr-owen-omalley-1996-isr-graduate>

More information on the Hall of Fame induction is available at:

http://tech.uci.edu/halloffame2015/ics_honorees.php

For more Alumni news, see page 6.

Become Part of the ISR Family

Rubbing elbows with ISR faculty, staff and students gives you a valuable window into the technology landscape of the future. But a relationship with ISR can be much more: Think of us as an extension of your company—a think tank, an R&D department, a research library, a consulting firm, a training department, and an employment agency, all rolled into one. More importantly, when you sponsor ISR you become part of a friendly group of folks who speak the



same language and are eager to work with you to solve your current technical problems in the most cost-effective way possible.

Be part of the ISR Family—a Friend, Affiliate, or Partner.

For more information, visit:

<http://isr.uci.edu/partnerships/sponsorship/> or contact:

Debra A. Brodbeck
Assistant Director

brodbeck@uci.edu, (949) 824-2260

New Supplementary Authorization will Prepare Computer Science Teachers

Prof. **Debra Richardson** has long been an enthusiastic advocate for equitable access to computer science education for all K-12 students. She has served as the Chair of the Alliance for California Computing Education for Students and Schools



(ACCESS) since 2011, where she has achieved significant impact.

Case in point: Prof. Richardson recently worked with California's

Commission on Teacher Credentialing (CTC) to propose changes to the requirements educators must meet to teach computer science in California's K-12 classrooms. The proposed revisions reflect a change in focus from preparing educators to teach only basic computer use, keyboarding, and software applications to a much broader preparation to teach students the 21st century skills required to be the next creators of computing technology.

Currently, teachers holding a limited set of single-subject teaching credentials

are authorized to teach computer science; those holding other credentials can be authorized by obtaining a Computer Concepts and Applications (CCA) Supplementary Authorization (<http://www.ctc.ca.gov/credentials/CREDS/sup-subject-matter-auth.html>). The CCA authorization is outdated, however, requiring coursework that covers only the use of computers (software evaluation and selection, hardware operation and functions, and classroom uses of computers). And in fact, this content is now addressed within the preliminary preparation program standards for all teaching credentials and is thus redundant.

Prof. Richardson proposed replacing the CCA authorization with one explicitly focused on Computer Science, changing both the name as well as the content areas. The new Computer Science (CS) Supplementary Authorization strengthens the required content areas of study to prepare teachers to teach the full range of K-12 Computer Science courses being offered and expanded in California. Teachers holding the authorization will have the knowledge to introduce students to creation of computing technology (e.g., computational thinking, programming, digital devices, impacts of computing). The specified content areas are differentiated by an introductory CS authorization (which basically authorizes teaching curriculum level grade 9 and below) and a specific CS authorization (which authorizes teaching content in grades K-12).

The CS Supplementary Authorization will prepare teachers with the proper back-

ISR STUDENT NEWS

Ankita Raturi (D. Richardson, advisor) was awarded both an ACM-W scholarship and a UCI AGS scholar-



ship to present the paper "Toward Alternative Decentralized Infrastructures" at the ACM Symposium on Computing for Development (ACM DEV) in London,

UK in December. The paper is co-authored by Bill Tomlinson (ICS) **Bonnie Nardi**, Donald J. Patterson (prev. ICS), her advisor **Debra Richardson**, Jean-Daniel Saphores (Eng.) and Dan Stokols (Soc. Ecology).

Vijay Krishna Palepu (J. Jones, advisor) presented two papers at the 3rd IEEE Working Conference



on Software Visualization (VISSOFT), in Sept. in Bremen, Germany. "Revealing Runtime Features and Constituent Behaviors within Software"

was co-authored by his advisor, Prof. **James A. Jones**, and "Spider SENSE: Software-Engineering, Networked, System Evaluation" was co-authored by MS students Junghun Kim and Nishaant Reddy, and Jones.

Consuelo Lopez (A. van der Hoek, advisor) attend-



ed Topcoder Open in Nov. in Indianapolis, IN where she worked with **Edgar Weidema** (visiting M.Sc. student) and Appirio colleagues to set up an experiment involving their crowd worker base.

RESEARCH BRIEFS

Prof. **Alfred Kobsa**, ICS Profs. Sharad Mehrotra and Nalini Venkatasubramanian, and a team from Honeywell have been awarded a \$4.92M DARPA Brandeis grant for the installation of a "Privacy Cognizant IoT Environment" at UCI.

Post-doctoral researcher **Hamid Bagheri**, Ph.D. student **Alireza Sadeghi**, post-doctoral researcher **Joshua Garcia**, and Prof. **Sam Malek** have published their paper "COVERT: Compositional Analysis of Android Inter-App Permission Leakage" in the journal *IEEE Transactions on Software Engineering*, 41 (9), 2015.

Prof. **Sam Malek** gave an invited talk "Detection and Family Identification of Android Malware" at the NII Shonan Meeting—Mobile App Store Analytics, Kanagawa, Japan, 2015.

Prof. **André van der Hoek** gave an invited talk, "Design and Crowdsourcing" in September at the Southern California Society for Information Management, Long Beach.

ISR STUDENT NEWS

Lee Martie (A. van der Hoek, advisor) interned last summer at IBM T.J. Watson in Yorktown Heights, NY where he researched and developed tools to help develop software with IBM's Watson services. His mentor at T.J. Watson was Peri Tarr and his manager was John Vergo. Martie also presented his paper "CodeExchange: Supporting Reformulation of Internet-Scale Code Queries in Context" at the IEEE/ACM International Conference on Automated Software Engineering (ASE 2015) in Nebraska, Lincoln in November. The paper was co-authored by Thomas LaToza (George Mason University) and his advisor Prof. **André van der Hoek**.



Nicole Crenshaw (B. Nardi, advisor) is presenting her paper "It Was More Than Just the Game, It Was the Community': Social Affordances in Online Games" at the Hawaii International Conference on System Sciences (HICSS) in Kauai, HI in January. Crenshaw also presented her paper "NPCs as Social Mediators in Massively Multiplayer Online Games" at the Intelligent Narrative Technologies and Social Believability in Games Workshop at the Conference on Artificial Intelligence and Interactive Digital Entertainment in Santa Cruz, CA in November. Both papers are co-authored by her advisor Prof. **Bonnie Nardi**.



Alumni Updates

ISR alumni are always on the move, reaching new heights in their careers. Highlights of recent accomplishments include:



Hazeline Asuncion (Ph.D. 2009; R. Taylor, advisor) has been promoted to Associate Professor at the University of Washington, Bothell.

Eric Dashofy (Ph.D. 2007; R. Taylor, advisor) has been promoted to Principal Director of Information Technology Development in the Enterprise Information Services division of The Aerospace Corporation, a federally funded research and development center (FFRDC) in El Segundo, CA.



Nancy Eickelmann (Ph.D. 1997; D. Richardson, advisor) is now IT Strategist for the US Department of Health and Human Services, Administration for Children and Families.

Leysia Palen (Ph.D. 1998; J. Grudin, advisor) is the Founding Chair of the newly established Department of Information Science at the University of Colorado Boulder. She is also a recipient of the 2015 ACM Computer Human Interaction Social Impact Award.

Anita Sarma (Ph.D. 2007; A. van der Hoek, advisor) is now an Associate Professor at Oregon State University.

Congratulations to our alumni on their achievements!

ground in CS to enable them to teach computer science courses that are being adopted at schools throughout the state (for instance, Exploring Computer Science and AP CS Principles), traditional introductory programming courses (e.g., AP CS A) as well as introduce computing concepts and practices in elementary school.

The new authorization is important because most California schools require computer science courses to be taught by teachers with a math credential. Given the current shortage of math teachers, they are usually assigned to traditional math courses first, leaving few if any teachers available to teach computer science. The new authorization would allow fully credentialed teachers who do not have a math credential to fill this gap and do so with the proper training.

Prof. Richardson first presented this proposed change at the February 2015 Commission meeting, where the concept was unanimously approved. Relevant amended regulations, presented at the June meeting, were also unanimously approved. The final public hearing and

unanimous approval was held at the October meeting. The new Computer Science Authorization will take effect in April 2016. For full information, refer to agenda item 11 of CTC's October meeting (<http://www.ctc.ca.gov/commission/agendas/2015-10/2015-10-agenda.html>).

One important note: anyone currently authorized to teach computer science courses remains so authorized. The Computer Science SA would only be required by credentialed teachers not currently authorized to teach computer science but who would like to become authorized to do so.

For more information, contact Prof. Richardson at debra.richardson@uci.edu or visit the ACCESS website:

<http://access-ca.org>

Read more about Richardson's involvement with ACCESS in the Fall/Winter 2014 *ISR Connector* at:

<http://isr.uci.edu/content/access-computer-science-ed>

Coming to Irvine in August, The 11th IEEE International Conference on Global Software Engineering – Submissions in late January

Mark your calendars for the first week of August 2016! ISR is co-sponsoring the 11th IEEE International Conference on Global Software Engineering (ICGSE 2016), August 2-5, to be held at UCI in Donald Bren Hall! The conference strives for a balance between industry and academic participants. As such, the call for papers found at icgse.org describes possibilities for industry as well as research papers (title and abstract due Jan. 29, 2016 and complete submission due Feb. 5, 2016). There is also a call for specialty workshop proposals (due Jan. 22, 2016) with accepted workshops having separate calls for submissions at a later date but being held in conjunction with the conference. The website also describes the benefits for anyone wishing to become a co-sponsor through a range of financial or in-kind contributions.

As the title implies, the conference seeks submissions from industry and academic participants about software engineering carried out on a global scale. Generally, global software engineering has challenges around globally distributed teams.

Challenges and solutions can center on culture, time zone differences, communication, coordination, global product design, distributed design thinking, processes including agile, software architecture, management of teams and contractors, software tool support, distributed design, and education, etc. The common thread is “global.”

Submissions to the papers track can include research papers about theoretical frameworks, technical solutions, or empirical studies and can be up to 10 pages. Industry papers can describe problems, lessons learned, solutions implemented, challenges encountered, and case studies on industrial global software engineering environments and can be up to 5 pages. Papers are archived in the IEEE Digital Library.

A program committee reviews all submissions. The committee is comprised of both industry and academic representatives. In keeping with this balance, there are two program co-chairs overseeing the review process: Marco Gerosa of the University of São Paulo, Brazil, and Tobias Hildenbrand of SAP SE, Germany. Prof. **David Redmiles** of ISR and the University of California, Irvine, is the general chair and **Debra Brodbeck** of ISR is serving as conference manager, which includes managing sponsorship, local arrangements, and much more. A new ISR gradu-

ISR Technical Reports Available Online

ISR technical reports present information resulting from student and faculty research carried out under the auspices of the Institute. They showcase early results not available in print elsewhere. ISR technical reports are available in PDF on the ISR website. Recent reports include:

“Digital Art-Mediated Practices for Building Team Trust Over Distance”
Mengyao Zhao, Yi Wang, David Redmiles
UCI-ISR-15-3, December 2015

“Accountability Through Architecture for Decentralized Systems: A Preliminary Assessment”
Matias Giorgio, Richard N. Taylor
UCI-ISR-15-2, October 2015

“Titanium: Efficient Analysis of Evolving Alloy Specifications”
Hamid Bagheri, Sam Malek
UCI-ISR-15-1, September 2015

All ISR technical reports are available at: <http://isr.uci.edu/publications/>

ISR STUDENT NEWS

Mengyao Zhao (D. Redmiles, advisor) presented two papers this Fall. “Strengthening Collaborative



Groups Through Art-mediated Self-expression” was presented at the IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC

2015) in Atlanta, GA. The paper was co-authored by alumnus **Yi Wang** (IBM Almaden) and Zhao’s advisor, Prof. **David Redmiles**. The second paper, “Building Teams Over Distance: A Solution Through Digital Art Mediated Practices” was presented in the VL/HCC 2015 graduate consortium.

Hosub Lee (A. Kobsa, advisor) spent his summer as an intern at Samsung Research America in Mountain



View, CA where he designed and implemented a client-server model which identifies a specific object in a image captured by Google Glass, based on deep convolutional neural

network (CNN) with transfer learning. His supervisor was Dr. Steven Eliuk.

Byron Hawkins (B. Demsky, advisor) spent his summer as an intern at Google Cambridge MA, working on DynamoRIO, a dynamic binary instrumentation framework for development



of dynamic program analysis tools, with Qin Zhao.

ate student, **Mengyao Zhao**, is serving as social media chair. She is handling Twitter (twitter.com/ICGSE), Facebook (www.facebook.com/ICGSEconference), and LinkedIn (www.linkedin.com/groups/2916097) for the conference.

The conference team has strong connections to ISR and UCI. Many of you know Redmiles and Brodbeck from past ISR events. Gersosa was a visitor to UCI during his sabbatical July 2013 to July 2014. Hildenbrand was a visitor to UCI many years ago when he was just a graduate student at the University of Mannheim. He visited August to November 2006.



Redmiles

know Redmiles and Brodbeck from past ISR events. Gersosa was a visitor to UCI during his sabbatical July 2013 to July 2014. Hildenbrand was a visitor to UCI many years ago when he was

just a graduate student at the University of Mannheim. He visited August to November 2006.

Redmiles' interest in the conference series comes from his research over the past decade in the effects of trust and awareness in collaboration among globally distributed software engineers. Increased trust allows teams to overcome difficulties that might arise in the course of a



Gerosa

project and encourages other positive benefits. However, developing trust is tricky when collaborators may never have met face to face. Gerosa has researched awareness in distributed

collaborations and most recently has examined the factors that affect – both positively and negatively – newcomers becoming a part of open source projects. Newcomers are the lifeblood of



Hildenbrand

many projects; without them, projects might languish and end. Hildenbrand, currently at SAP SE Headquarters in Germany, is responsible for business model innovation in development. For

ISR EVENT SCHEDULE

Mark your calendars!

<http://isr.uci.edu/isr-events/>



Devanbu

January 22, 2016

ISR Distinguished Speaker: Prof. Prem Devanbu

University of California, Davis

“Millions and Billions of SLOC”

February 5, 2016

ISR Distinguished Speaker: Judith Bishop, Ph.D.

Microsoft Research

“Open Source Software and Industry:
Exploring the Reality”



Bishop

March 11, 2016

ISR Distinguished Speaker: Prof. Gregg Rothermel

University of Nebraska-Lincoln

“Improving Regression Testing in Continuous Integration
Development Environments”



Rothermel

April 8, 2016

ISR Distinguished Speaker: Prof. Margaret-Anne Storey

University of Victoria

“Lies, Damned Lies and Software Analytics:
Why Big Data Needs Thick Data”



Storey



February 29, 2016 - March 3, 2016

Ground System Architectures Workshop (GSAW 2016)

Held in cooperation with ISR. <http://gsaw.org>



August 2-5, 2016

International Conference on Global Software Engineering (ICGSE 2016)

Supported by ISR. <http://www.icgse.org>

his dissertation, he researched the traceability of different kinds of software-related artifacts by means of collaboration and visualization techniques in globally distributed software development projects.

Please consider submitting papers or attending the conference or becoming a sponsor. Contact Debra Brodbeck (brodbeck@ics.uci.edu) or David Redmiles (redmiles@ics.uci.edu) for more information, or go to the conference website:

<http://www.icgse.org>

SPECIAL THANKS

The UCI Institute for Software Research is generously supported by:

**Bloomberg
The Aerospace Corporation**

ISR

To receive the *ISR Connector*, send an email request to: isr@uci.edu

ISR news, including the *ISR Connector*, is available at the ISR website: isr.uci.edu

For more information, contact:

Debra A. Brodbeck
Assistant Director
brodbeck@uci.edu, (949) 824-2260

UCI University of
California, Irvine