HOT RESEARCH

A New Perspective on Software Testing

A stubborn challenge of software engineering has been how to incorporate the complex range of stakeholder goals, purposes and potential uses into the systems developed for and delivered to those users. This problem spans most if not all software development activities, from user goals to requirements engineering, through software architecture and design to implementation and testing.

A group of ISR researchers at UC Irvine is tackling this problem with a comprehensive approach that combines elements from stakeholder goal analysis through specification-based testing. The group is led by ISR faculty member Debra J. Richardson, Dean of the UC Irvine School of Information and Computer Sciences (ICS), and includes ISR faculty members Thomas Alspaugh, ICS faculty member and ISR Alumnus Hadar Ziv, several graduate student researchers, and systems, components must be analyzed not only independently but also in the context of their connection to other systems. The work includes development of the language itself, tools for authoring and viewing scenarios, oracles that cover specification-level structures, and specification-based test oracles that enable automatic tests to be generated from the specification. The research is of interest not only to software engineers but also to researchers in other domains who have a stake in ensuring that systems are developed in a way that meets the needs of their users.

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4 Alumni Briefs
5 Visiting Researchers
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7 ISR Events
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New ISIR awards include grants for: “Better Science through Benchmarking: Theory Validation and Application to Software” ($270,000, Susan Elliott Sim) from the NSF Division of Computing and Communication Foundations; researching the technology needs of ecologists ($15,000, Bonnie Nardi and Susan Elliott Sim) from the Newkirk Center for Science and Society for more information on these grants and on Sim see Focus on Faculty article on p. 3); “Self-Adaptive Software” ($270,000, Richard N. Taylor) from NSF Computing and Communication Foundations; a supplement to the NSF ITR grant “An Integrated Social and Technical Approach to the Development of Distributed, Inter-Organizational Applications” ($90,900, Alfred Kobsa); and a grant from NASA Jet Propulsion Laboratory, as subcontract to the University of Southern California ($80,130, Nenad Medvidovic and Richard N. Taylor).

Crista Lopes was among a select few of the nation’s brightest young scientists nominated by peers and invited to participate in the prestigious National Academy of Engineering’s 18th annual Frontiers of Engineering symposium. The event, held in September at the National Academies’ Beckman Center on the UC Irvine campus, brought together a diverse group of innovative engineers in industry, academia and government who perform cutting-edge research and technical work.

David Redmiles has been named Chair of the Department of Informatics, succeeding the department’s first Chair Richard N. Taylor. Redmiles is General Chair of the ASE 2005: 20th IEEE/ACM International Conference on Automated Software Engineering in Long Beach (see article on p. 8).

Paul Dourish has been named Associate Director of Research for the UC Irvine division of the California Institute for Telecommunications and Information Technology (CITI). Dourish will foster interdisciplinary collaborations as he develops research agendas for the Division.

More Research Briefs on page 2.

THANKS

The UCI Institute for Software Research is generously supported by:

The Aerospace Corporation
The Boeing Company
Fujitsu Laboratories, Ltd.
IBM
Intel Corporation
NASA Jet Propulsion Laboratory

University of California, Irvine

Institute for Software Research

ISR Gives Back to the Software Community through Conference Support

ISR is currently active in supporting several major software conferences. This kind of community service has long been a tradition of ISR and its predecessor IRUS, entailing principal roles by both faculty and staff. For example, ISR Director Richard N. Taylor was Program Co-Chair of the 1997 International Conference on Software Engineering (ICSE ’97). Debra J. Richardson was General Chair of the 16th IEEE International Conference on Automated Software Engineering (ASE 2001). Taylor serves on the ICS Steering Committee, and both Richardson and Prof. David Redmiles serve on the ASE Steering Committee.

This year, Director Richard Taylor is General Chair of SIGSOFT 2004/ICSE-12 in Newport Beach. The high-light of the conference is FSE—the International Symposium on Software Engineering—one of two premier annual conferences in soft- ware engineering, the other being the International Conference on Software Engineering (ICSE). FSE provides a strong platform for researchers and practitioners to discuss results of theoretical, empirical, and experi- mental work, as well as experience with tech- nology transition. This year’s FSE (November 2-4, 2004) features keynote speakers Alexander L. Wolf of the University of Lugano, Switzerland and the University of Colorado at Boulder, speaking on security engineering; Joe Marks, Director of Mitsubishi Electric Research Laboratories, talking about ScenarioML, an XML-based language for specifying requirements using scenarios. The work includes development of the language itself, tools for authoring and viewing scenarios, which enable automatic tests to be generated from the specification. The research is of interest not only to software engineers but also to researchers in other domains who have a stake in ensuring that systems are developed in a way that meets the needs of their users.

Débra has recently been tapped to be External Relations Director for the 28th International Conference on Software Engineering (ICSE), to be held May 20-28, 2006, in Shanghai, China. Débra excels in such roles and has a long history of confer- ence support with both ISR and IRUS, including service activities for a number of past ICSE and FSE confer- ences. Working with former IRUS Director Looin J. Osterweil of the University of Massachusetts, she and ISR graduate student Justin Erenkrantz, ICS Webmaster have posted preliminary information about ICSE 2006 at http://www.isr.uci.edu/ICSE2006/.

Thomas Standish, ICS Professor Emeritus, Professor Richardson pioneered specification-based testing, an improved approach to soft- ware testing driven by the specification of expected behavior—thereby testing what a system should accomplish rather than simply the code. Her research addresses specifica- tion-based testing and analysis—viewing testing as a critical partner in software testing driven by the specification of expected behavior—thereby testing what a system should accomplish rather than simply the code. Her research addresses specifica- tion-based testing and analysis—viewing testing as a critical partner in software testing driven by the specification of expected behavior—thereby testing what a system should accomplish rather than simply the code. 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RESEARCH BRIEFS

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Marcio Dias (Ph.D. expected December 2004), and support from DARPA and NSF, Richardson developed Argus-I, a comprehensive set of tools for architecture-based testing and analysis. ARGUS-I facilitates iterative and evolvable analysis during architectural specification and component implementation, supporting both structural and behavioral analysis. The current version of ARGUS-I works with C2 style architectures (described in XADL) augmented with component behavior specification in StateCharts. (See the ARGUS-I Technical Bulletin at http://www.ics.uci.edu/~djr/research.html for more details.) With visiting researcher Henry Muzzoni of the Dipartimento di Informatica, University of L'Aquila, Italy, the team has also been using software architecture as a reference model for code conformance testing, to check if an implementation conforms to its specification at the architectural level.

Aspect-oriented testing

Aspect-Oriented Programming (AOP) provides new tools and ways to handle crosscutting concerns in programs. AOP fully realizes the potentials of aspect-oriented software development: modular code reuse; improving testing; and new ways to identify crosscutting concerns earlier in the lifecycle, such as by stakeholder goal analysis. A recent paper by graduate student Yuewei "Joanna" Zhou, Richardson and Ziv presented at NetObject Days 2004 (a prominent international conference for Internet-based technologies) describes a first step toward a practical way of testing aspects and aspect-oriented programs. By combining testing with aspect weaving, the proposed approach includes an algorithm to select test cases that are relevant to aspects under test and a testing coverage definition to specify test sufficiency for a tested aspect. Future collaborative efforts in this area include a project with ISR faculty member Christa Lopes (the "mother" of AOP); on testing aspects expressed in her new aspect language AML, and with ISR faculty member van der Hoek's team extending architecture-based testing to aspect-oriented architectures.

Douglas Grimes (G. Mark, advisor) is working this year on an interdisciplinary project that examines the use of Koba’s, an engineering class-room with state of the art visualization equipment. The research team includes Associate Professor Mark Warschauer, who holds joint appointments in the Departments of Education and Informatics, and two engineering professors who develop and integrate the technologies, Prof. Tara Hutchinson and Falko Kuester.

Keri Carpenter (G. Mark, advisor) has received an Achievement Rewards for College Scientists (ARCS) Fellowship from the National ARCS Foundation, Inc., a unique volunteer organization of women dedicated to providing scholarships to outstanding students contributing to the worldwide advancement of science and technology.

Victor M. Gonzalez has been awarded a UC MEXUS (University of California Institute for Mexico and the United States) dissertation research grant. His project, "A Software Framework to Integrate High and Low Level Perspectives in the Management of Multiple Activities," was featured at the ISR Forum (see http://www.isr.uci.edu/events/Research-Forum-2004/) in presentations by advisor Gloria Mark and company collaborator Eric Smith, and entails research involving local companies State Street IMS West and Altera Corporation.

For more information on students:

http://www.isr.uci.edu/people.html

FALL/WINTER 2004
FOCUS ON FACULTY

Meet Susan Elliott Sim, Community Maven

Susan Elliott Sim<br>Meet Susan Elliott Sim, Community Maven<br><br>Susan Elliott Sim<br><br>Susan was a key member of a multinational creation team that gave us GXL, the Graph eXchange Language, which facilitates sharing of graphical and other data between software tools. Originally developed for the reverse engineering, graph transformation and graph drawing communities, GXL has expanded beyond these venues to support many of research labs around the world in diverse fields such as statistical and genomic analyses. (A full list of applications can be found at http://www.gupro.de/GXL). Susan's current work in this field, funded in part by IBM, seeks to strengthen GXL and its research-grade innovations with the industrial strength Eclipse framework, which provides a unified and expandable development environment.

With ISR colleague Bonnie Nardi (see ISR Connector article, Fall/Winter 2003 issue), Susan is facilitating collaboration in an inter-disciplinary digital work environment. Ecologists, who study interrelationships between the earths' organisms and their environment, need better technical tools as they integrate results across studies to form global models. With support from The Newell Center for Science and Society, Susan and Bonnie will provide new technologies for the collection, integration, and distribution of ecological data, based on a deep understanding of ecologists' work practices.

Susan can be reached at ses@ics.uci.edu, (949) 824-2373.

IS R Grad Students: "How I Spent My Summer"

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The Aerospace Corporation<br>El Segundo, California<br>Working with Aerospace scientist Michael Girard of Aerospace's Computer Systems Research, John Georgias (R. Taylor, advisor) developed an experimental, all-digital, distributed system intended for application in rocket launches. The system was designed and built using the principles of distributed incrementalism, a development method applying open-source software and commodity hardware components, combined with protocol-based interactions in the REST architectural style (look for an article on REST in the next issue of the ISR Connector). Georgias and Girard have collaborated on submissions to the Ground Systems Applications Workshop (GSAW) 2005 titled "The Programmatic Considerations of Hyperperspensional Change," and are continuing their work in the context of satellite ground systems.

Scott Hendrickson (R. Taylor, advisor) worked with Senior Engineer Phillip Schmid and the Aerospace Software Architecture and Engineering Department to create and implement an Eclipse based REACT environment. REACT is an architecture-centric assessment tool whose goal is the early identification of architectural risk using aspect-oriented assessment techniques. Hendrickson is continuing his work at Aerospace part-time. The company is interested in placing additional ISR students during the coming year.

Scott Hendrickson
**ISRFall/Winter2004**

### ISR ALUMNI NEWSBRIEFS

**Danyel Fisher** (D. Pourish, advisor) received his Ph.D. in August 2004. His dissertation was titled “Social and Temporal Structures in Everyday Collaboration.” Fisher has accepted a position with the Community Technologies group at Microsoft Research. [http://research.microsoft.com/~msmahan/](http://research.microsoft.com/~msmahan/). For ongoing and current information on Fisher’s research and commentary, check his blog named “Made Out of People” at [http://danasv~s/madeoutofpeople](http://danasv~s/madeoutofpeople). Under the direction of Li-Tie Cheng, CUE researcher and intern coordinator, Cleidson de Souza (D. Redmiles, advisor) worked on the JAZZ collaborative software development project, conducting a field study of a distributed software development team.

**Chris Lüer** (A. van der Hoek, advisor), who defended his dissertation in August 2004, has accepted an Assistant Professor position in Computer Science at Ball State University in Muncie, Indiana. More information on his dissertation, “User-Centric Digital Library Support in a Component Platform,” and other research can be found at [http://www.ischool.washington.edu/wdmlab/csicw04/](http://www.ischool.washington.edu/wdmlab/csicw04/).

**Suzanne Schaefer** (G. Mark, Advisor) received her Ph.D. in August 2004. Her dissertation is titled “Informing Information Technology (IT) Design with Sensory-Motor Articulations.” Suzanne is a currently a post-doc research at UC/IRC.

**DID YOU KNOW?**

Did you know that Prof. Taylor and Richardson are five members of both ISR and its predecessor, the Irvine Research Unit in Software (IRUS)?

Sharing in Software Engineering.” Meanwhile, Silva Filho has developed a robust and highly readable, and his team has already released a Software\thttp://www.ischool.washington.edu/wdmlab/csicw04/.

### News from ISR

**ISR Welcomes Visiting Researchers**

Each year ISR hosts multiple visiting international scholars who stay in residence for up to two years. This fall we are fortunate to have three such researchers. In September Paul Dourish welcomed visiting scientist Akira Karasudani of Fujitsu Laboratories Ltd. Japan for a one-year visit. Look for an article on Karasudani’s visit in the next newsletter. As reported in the Spring/Summer 2004 ISR Connector, graduate student Leonardo Murta from the University of Rio de Janeiro, Brazil, is visiting with André van der Hoek and working with David Redmiles and Paul Dourish for the next year or more. An in-depth look at DePaula’s ISR connection illustrates one way our researchers expand their way to ISR—through research synergies.
DID YOU KNOW?

- Did you know that Prof. Taylor and Richardson are founding members of both ISR and its predecessor, the Irvine Research Unit in Software (IRUS)?

WORKING WITH ISR

- 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.

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FALL/WINTER 2004

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DePaula graduated as an electrical engineer in 1993 from the Federal University of Minas Gerais, Brazil, and worked for the following three years in a Brazilian telecommunications and information systems company as part of a software development team that also became involved in hardware design. In the process of understanding client needs...
New ISR Technical Reports

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. All ISR technical reports are available in PDF on the ISR web site.

The most recent reports include:

- "A Need Hierarchy for Teams" by Anita Sarma and André van der Hoek, UCI-ISR-04-9, October 2004
- "The Aspect Oriented Markup Language and its Support of Aspect Plugins" by Cristina Valenzuela-López and Trung Chi Ngo, UCI-ISR-04-8, October 2004
- "Preserving Versatility in Event-Based Middleware" by Roberto Silveira Silva Filho and Fred R. M. Redmiles, UCI-ISR-04-7, October 2004
- "A Survey of Trust Management and Resource Discovery Technologies in Peer-to-Peer Applications" by Girish Suryanarayana and Richard N. Taylor, UCI-ISR-04-6, July 2004
- "An Automatic and Generic Framework for Ranking Research Institutions and Scholars based on Publications" by Jie Ren and Richard N. Taylor, UCI-ISR-04-5, June 2004

For more information, contact:
Debra A. Brodbbeck
Technical Relations Director
brodbbeck@uci.edu, (949) 824-2280

through field work, DePaula's interests shifted—ed from a purely technical focus toward the "softer" side of computing. He moved to the University of Colorado, Boulder, where he received an M.S. in Telecommunications in 1998, followed by a Ph.D. in Computer Science earlier this year. His advisor there was Gerhard Fischer. Fischer's research interests in human-computer interaction, design, and software engineering led to multiple collaborations with ISR faculty.

In the past four years, DePaula's research interests focused on the design, development and use of innovative and collaborative technologies, including the social science-based evaluations of software tools, that is, for understanding and creating benchmarks. In addition to producing two widely used benchmarks (the xfig Challenge for program comprehension tools, andCppETs for fact extractors), Susan's research has generated a key theory (called the 2004 REST architectural style) that has been embraced enthusiastically by the software engineering community and has improved the quality of information technology.

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Susan's ongoing benchmarking research is currently being funded by the National Science Foundation and has attracted the interest of an international audience. She recently received an invitation to present her research at the National Institute of Standards and Technology and the Open University in Milton Keynes, UK; to be an outside expert to the European Science Foundation; and to co-chair a workshop in Japan on comparative evaluation.

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The following list of internships and other positions served by ISR students in the summer of 2004 attests to the breadth of these valuable experiences, including the lasting benefits for everyone—students, their faculty advisors, ISR and other research affiliates, the mentors, and the many companies who come to know ISR and our students.

The Aerospace Corporation
El Segundo, California
Working with Aerospace scientist Michael Georgas, a graduate of Aerospace’s Computer Systems Research, John Georgas (R. Taylor, advisor) developed an experimental, all-digital, distributed system for the Mariner 9 mission.

Scott Hendrickson (R. Taylor, advisor) worked with Senior Engineer Phillip Schmidt and the Aerospace Software Architecture and Engineering Group. He was currently funded by the National Science Foundation and has attracted the interest of an international audience. He recently received an invitation to present her research at the National Institute of Standards and Technology and the Open University in Milton Keynes, UK; to be an outside expert to the European Science Foundation; and to co-chair a workshop in Japan on comparative evaluation.

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Two of Alfred Kobsa’s research projects in the USA and in China have been featured in the news lately. The journal he founded in 1991, User Modeling and User-Adapted Interaction: The Journal of Personalization Research, was recently ranked 6th among 451 international computer science journals, based on Thompson Scientiﬁc’s Impact Factor, calculated annually in cooperation with the Information Science Institute. In addition to his Editor-in-Chief role, Kobsa has been noticed for human-computer interaction studies. In May, he presented results of a joint study with Humboldt University (Berlin) at the 4th Workshop on Privacy Enhancing Technologies in Tokyo. According to the study, titled “Contextualized Communication of Privacy Practices and Personalisation Beneﬁts: Impacts on Users. Data Sharing Behavior,” online shoppers buy 33% more products when they adopt Kobsa’s privacy disclosure system, as compared with standard privacy policy statements. The research paper, which contains an example of a web design template, is available at http://www.isr.uci.edu/~kobsa/papers/2004-05-03-ebay.pdf.

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Aspects-oriented testing

Aspect-Oriented Programming (AOP) provides new tools and ways to handle crosscutting concerns in programs. Fully realizing the potentials of aspect-oriented software development requires new techniques for testing and new ways to identify crosscutting concerns earlier in the lifecycle, such as by stakeholder goal analysis. A recent paper by graduate student Yuesei “Joanna” Zhou, Richardson and Ziv presented at NetObject Days 2004 (a prominent international conference for Internet-based technologies) describes a first step toward a practical way of testing aspects and aspect-oriented programs by combining testing with aspect weaving. The proposed approach includes an algorithm to select test cases that are relevant to aspects under test and a testing coverage definition to specify test sufficiency for a tested aspect. Future collaborative efforts in this area include a project with ISR faculty member Cieta Lopes (the “mother” of AOP) on testing aspects expressed in her new aspect language AML, and with ISR faculty member Aron van der Hoek’s team extending architecture-based testing to aspect-oriented architectures.

Specification-based regression testing

Regression testing is expensive, but a critical activity throughout software evolution to ensure that modified versions of the system do not “regress.” As software evolves, it is likely that both the implementation and the system specifications will change. Richardson has been working with graduate student Liu Xia, Marcio 1.0, and Henry Muccini on ways use CASE tools to track these changes and improve regression testing. Using system specifications to guide regression testing is arguable to be more accurate and cost effective than code-based regression testing. The team is exploring how the reuse of earlier architecture-based tests can be used to test a modified implementation for conformance with the architecture. An alternative approach uses model checking to reason between two versions of software specifications and generate safe and minimal regression tests for the updated software specifications. The researchers are working towards extending this body of work to scenario-based regression testing.

Specification-based residual testing

Richardson and graduate student Leilaa Naslavsky are exploring residual (post-release) testing as a means of improving the quality software that is released before it has been adequately tested. Residual testing keeps track of system execution in the user environment; the researchers’ goal is to consolidate monitoring across huge collections of multiple deployment for extended test coverage as well as other information that can be used to improve the product. This is based on specifications-based test coverage criteria so as to avoid undue performance degradation on the deployed applications. With David Redmiles’ group, Richardson and Naslavsky are also exploring expectation-driven residual testing, which will support comparisons of actual and expected use as defined by scenarios. This will require enhanced monitoring capabilities and key event specification, such as provided by Dias’ MonArch system.

Traceability

To be useful, the comprehensive approach described above must support forward and backward traceability between the elements, tracing from goals to user scenarios to test-scenarios to test cases and test results, and from user-scenarios to soft-ware architectures, designs, and implementa-tions. Collaborations with van der Hoek’s team for data conﬁguration management control system can be used to manage requirements conﬁgura-tions (speciﬁcally, usage scenarios), and to link these scenarios to other managed artifacts such that both artifacts and their relationships are under conﬁguration management control.

For more information on ISR testing and analysis research, see:

http://www.isr.uci.edu/research-analysis.html
http://www.isr.uci.edu/~dyresearch.html
http://www.isr.uci.edu/~rosatea/

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Thomas Alspaugh can be reached at alspaugh@ics.uci.edu.

Doug Grimes (G. Mark, advisor), is working this year on an interdisciplinary project that examines the use of advanced, an engineering class-room based on the art of visualization equipment. The research team includes Associate Professor Mark Wachshetz, who holds joint appointments in the Departments of Education and Informatics, and two engineering researchers who developed the technologies, Prof. Tara Hutchinson and Falko Kuester.

Keri Carpenter (G. Mark, advisor), has received an Achievement Rewards for College Scientists (ARCS) Fellowship from the Orange County Chapter of the ARCS Foundation. Carpenter is a unique volunteer organization of women dedicated to providing scholarships to female students contributing to the worldwide advancement of science and technology.

Victor M. Gonzalez has been awarded a UC-MEXUS (University of California Institute for Mexico and the United States) dissertation research grant. His project, “A Software Framework to Integrate High and Low Level Perspectives in the Management of Digital Activities,” was featured at the ISR Forum (see http://www.isr.uci.edu/events/Research-Forum-2004/ in presentations by advisor Gloria Mark and company collaborator Eric Smith, and entails research involving local companies State Street IMS West and Altercor Corporation.

For more information on students:

http://www.isr.uci.edu/people.html

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IS R E V E N T S C H E D U L E

October 22, 2004

Distinguished Speaker: Joseph A. Konstan
Department of Computer Science and Engineering, University of Minnesota
“Bridging Computer Science and Behavioral Science: Research Examples”
2:00-3:30 p.m., McDonnell Douglas Auditorium

January 14, 2005

Distinguished Speaker: John C. Knight
Department of Computer Science, University of Virginia
“Situated Formalisms: Combining Software Function and Context”
1:00-2:30 p.m., McDonnell Douglas Auditorium

January 28, 2005

Distinguished Speaker: Geoffrey C. Bowker
Center for Science, Technology and Society, Santa Clara University
“Cyberinfrastructures for the Ages”
2:00-3:30 p.m., McDonnell Douglas Auditorium

February 11, 2005

Distinguished Speaker: Thomas P. Moran
IBM Almaden Research Center
“Unifying Activity as a Paradigm for Supporting Collaboration”
2:00-3:30 p.m., McDonnell Douglas Auditorium

May 6, 2005

Distinguished Speaker: Alexander L. Wolf
University of Lugano, Switzerland and University of Colorado at Boulder
“Context-Based Network: A New Communication Service”
2:00-3:30 p.m., McDonnell Douglas Auditorium

June 3, 2005

ISR Research Forum

McDonnell Douglas Auditorium

For more information:

http://www.isr.uci.edu/events.html

IS R P L A Y S A L E A D R O L E I N U P C O M I N G C O N F E R E N C E S

October 31-November 5, 2004

Hyatt Newporter Hotel, Newport Beach, California
http://www.isr.uci.edu/ISF-12/

November 7-13, 2004

Long Beach, California
http://www.isr.uci.edu/aiset2005/

May 20-28, 2006

28th International Conference on Software Engineering (ICSE)
Padong, Shanghai, China
http://www.isr.uci.edu/ICSE2006/
ISR Gives Back to the Software Community through Conference Support

ISR is currently active in supporting several major software conferences. This kind of community service has long been a tradition of ISR and its predecessor IRUS, entailing principal roles by both faculty and staff. For example, ISR Director Richard N. Taylor was Program Co-Chair of the 1997 International Conference on Software Engineering (ICSE ’97); Debra J. Richardson was General Chair of the 16th IEEE International Conference on Automated Software Engineering (ASE 2001); Taylor serves on the ASE Steering Committee; and both Richardson and Prof. David Redmiles serve on the ASE Steering Committee.

This year, Director Richard Taylor is General Chair of SIGSOFT 2004/FSE-12 in Newport Beach. The high-light of the conference is FSE—the International Symposium on the Foundations of Software Engineering—one of two premier annual conferences in software engineering, the other being the International Conference on Software Engineering (ICSE). FSE provides a strong platform for researchers and practitioners to discuss results of theoretical, empirical, and experimental work, as well as experience with technology transition. This year’s FSE (November 2–4, 2004) features keynote speakers Alexander L. Wolf of the University of Lugano, Switzerland and the University of Colorado at Boulder, speaking on security engineering; Joe Marks, Director of Mitsubishi Electric Research Laboratories, who will address usability and software engineering; and Nancy Leveson of MIT, the 2004 SIGSOFT Outstanding Research Award winner, who will focus on software safety and systems theory. SIGSOFT 2004 is rounded out by a student research forum, tutorials organized through an Educator’s Grant Program, and four outstanding workshops.

More information about the conference can be found at http://www.isr.uci.edu/FSE-12/. ISR’s David Redmiles is General Chair of ASE 2005: 24th IEEE/ACM International Conference on Automated Software Engineering, ASE, as it is known, is a specialty conference bringing together researchers and practitioners to share ideas on state of the art problems to solutions that involve automated tasks. The conference often focuses on key problems the community is facing. For example, the emphasis for several years was on Microsoft and NASA’s interests in testing and analysis of automated software. The 2004 conference in Austria attracted more than 230 delegates from over 30 countries. Next year’s conference in Long Beach will draw not only from the international community, but have a strong Southern California presence. The conference website, which is managed by ISR graduate student Jie Ren, can be found at http://www.ics.uci.edu/ase2005/.

A key ingredient in ISR’s success as a provider of conference support has been the talent of Debra A. Brodbeck, ISR Technical Relations Director. Debra has been with the Institute and its predecessor research unit (IRUS) for 13 years. She graduated from UC Irvine with a B.S. in Mathematics, computer science, and a B.S. in Information and Computer Science, Phi Beta Kappa. She earned an M.S. in Computer Science from the University of Pittsburgh. When she’s not working on conferences or on systems, she is involved in a wide variety of ISR activities, including proposal management, writing major reports, managing the ISR web site and email lists, and serving as a resource for technical information about the Institute. Debra has recently been tapped to be External Relations Director for the 28th International Conference on Software Engineering (ICSE), to be held May 20–28, 2006, in Shanghai, China. Debra excels in such roles and has a long history of conference support with both ISR and IRUS, including service activities for a number of past ICSE and FSE conferences. Working with former IRUS Director Leon J. Osterweil of the University of Massachusetts, she and ISR graduate student Justin Enokrantz, ICSE 2006 Webmaster have posted preliminary information about ICSE 2006 at http://www.isr.uci.edu/ICSE2006/.

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