Dear Colleague:

ISSRE is the technology world’s leading forum on software reliability engineering. An intensive four day technical program provides an unmatched opportunity to expand your skills and competencies. Meet and interact with experts in your area from different industry verticals and geographies. We have grown into a unique forum with participants almost evenly distributed between Industry and Academia - a rare accomplishment for any conference.

Mysuru, India puts you in direct contact with one of the fastest growing, and now huge, software centers in the world. Infosys has offered free room and board for up to 350 participants at their new residential training center in Mysuru. With these subsidies our estimates indicate that attending ISSRE in India, including the cost of air tickets, can be less expensive than this conference was last year in Seattle.

The program is designed with parallel tracks so different skill groups (such as, testing, process, reliability prediction, architecture, analysis) can concurrently attend sessions and make the best use of their time.

We look forward to your participation.

Ram Chillarege
General Chair, ISSRE 2009
Highlights

Keynotes from Industry leaders
Panels discuss and challenge hot topics
Over 90 globally sourced technical presentations
4 Workshops - organized by industry groups
9 Tutorials - taught by world-class experts
21 Research Papers - peer reviewed, very selective
25 Industry Papers - peer reviewed by industry committee
26 Fast Abstracts - lightly reviewed - new ideas
11 Student Papers - lightly reviewed - young blood
Tools Fair - IBM, Microsoft, and several others

Why attend ISSRE?

ISSRE bridges Industry and Academia. 2008 was held at Microsoft, 2009 is at Infosys and 2010 will be at Cisco

- Engage with a unique, almost even, mix of industry and academia
- Learn and critique successful industry practices and methods
- Expand your skills and competencies through tutorials and workshops
- Meet experts from your technical area across different industry verticals
- Join the leading companies who regularly send their top talent to ISSRE

Parallel Tracks offer a greater variety of sessions best suited to your interests:
- Research Papers
- Industry Papers
- Workshops
- Tutorials
- Tools Fairs
Create your own program by choosing sessions across the four days. Focus on Workshops or Papers for some days and pick Tutorials for others. Explore new areas!
In-Process Measurement
Industrial strength software development enforces numerous processes to deliver the product on time. To improve software quality, including reliability, processes are often modified. However, it is often difficult to understand the impact of any one process change or addition on overall software reliability, since it can frequently take many months to get sufficient feedback from the field. If software measurements made early in the lifecycle can be found to predict ultimate release quality, we can then effectively isolate the influence of specific processes/practices and tune them appropriately to improve the resulting quality.

Quality in Requirements
The goal of this workshop is to advance quality in requirements by answering some of the following questions and additional ones proposed by participants:

1. What are critical lessons learned or problems experienced in practice?
2. What are techniques and tools that help assure complete and accurate requirements?
3. What are effective measures of the quality of requirements?
4. How do we determine the Return on Investment (ROI) of improving the quality of requirements?

Synergy in Process Models
The objective of this workshop is to explore the landscape of Process models currently in use in the Software Industry and provide an exponential outlook as to which models are better suited for what type of software context (e.g., Service vs. Product, Small / medium vs. large, - Enterprise applications vs Embedded applications, generic versus Industry-specific etc.). It also provides an outlook as to how these Process models are poised to evolve to cater to the emerging Software Industry needs.

This workshop is expected to bring together Process Model experts who not only have an in-depth knowledge of various process models, but also, have learnt a number of lessons first hand.

Embeded Software Reliability ESR 2009
This workshop will bring together experts, providers, and users of tools and technologies for developing and evolving embedded software systems. The users include makers of home appliances, televisions, telephones, automobiles, aircrafts, and heavy machinery, as well as government organizations for space exploration and defense.

The providers include software companies and experts from consulting companies, universities and other research organizations working with design and development of tools and methods for achieving higher reliability and greater efficiency.

An excellent opportunity to connect with the community and learn about new tools, methods and issues.

ISSRE Workshops have begun forming special interest subgroups that meet every year. The ESR Workshop is now in its third consecutive year.

Four Workshops

Breakout sessions discuss issues in the latter part of the workshop and report them towards the end of the day. Sam Keene and Stefan Christiernin report results from their discussion group at ESR 2008 last year in Seattle, USA.
9 Tutorials from Experts

ISSRE Tutorials are taught by some of the best known people in the area, drawing from a world community of experts.

2009 has broken from the past in its mechanism of selecting tutorials. We now have an Industry Workgroup that advises us on topics of current interest and need.

Tutorials are not entry level. They are meant for the seasoned professional who wants to advance their expertise.

- Each tutorial is a half day
- We have distributed them across all four days of the conference.
- On the fourth day, Thursday, we currently have three tutorials scheduled. We have also kept the afternoon open, in case there is a lot of interest in some of the tutorials and we have an opportunity to run them again - provided the instructor is willing and available.

Model Based Testing of Control Systems

A survey of verification tools for software reliability

Testing Program Security Vulnerabilities

Automation to Improve Reliability and Productivity - Tools

Model-based Development in Practice: Successful Selection and Deployment

A Methodology for Architecture-Based Software Availability Analysis

Structured Safety and Assurance Cases: Concepts, Practicalities and Research Directions

Orthogonal Defect Classification (ODC) A 10x for Root Cause Analysis

Establishing an Effective Industrial Test Program selecting the best Methods and Metrics
Formal Model Based Methodology for Developing Controllers for Nuclear Applications, Bhabha Atomic Research Centre

Application of Fault Tree Analysis in the interface of complex medical device data systems, Medtronic, Inc.

Blind Men and the Elephant: Piecing Together Hadoop for Diagnosis, Carnegie Mellon University

Finding Dependencies from Defect History, Wipro, Microsoft Corporation

Software Defect Prediction Via Operating Characteristic Curves, Concordia University, SAP

Nonlinear trends for several software metrics, Cisco Systems

A sequential model approach to improve software assurance, Cisco Systems

Applying Software Defect Prediction Model for reliable product quality, Alcatel-Lucent

Model Driven Testing with Timed Usage Models in the Automotive Domain, Audi

The Goals and Challenges of Click Fraud Penetration Testing Systems, Google, Inc.

Reliability : A Software Engineering Perspective, Philips Electronics India Ltd

Orthogonal Defect Classification (ODC) in Agile Development, IBM

Challenges and solutions in test automation of medical visualization applications, Philips Electronics India Ltd

Software Reliability Prediction in Philips Healthcare – An Experience Report, Philips

Design of safety-critical systems with ASCET, ETAS Automotive India Pvt. Ltd

Process for improving the quality and reliability of fixes for customer reported defects,

Introduction of Developer Testing in an Embedded Environment, Cisco Systems,

Static Analysis in Medical Device Firmware and Software Development - Reliability and Productivity, Medtronic

Architecting for Reliability – Detection and Recovery Mechanisms, Alcatel-Lucent

Automated Verification of Enterprise Load Tests, Queen’s University

ODC Product Profiling, Chillarege Inc., CAT Electronics

ODC Deployment - A Case Study at Caterpillar, Chillarege Inc., CAT Electronics

Software Fault Injection, Cisco Systems

Visualizing the Results of Field Testing, Queen’s University

Application of the Architectural Analysis and Design Language (AADL) for Quantitative System Reliability and Availability Modeling, Aerospace Corp.

25 Industry Papers

ISSRE has an Industry committee specially designed to review industry papers. While many industry authors also submit into the Research track, we also have an Industry track to better suit industry needs.

All industry papers are peer reviewed, but by the industry committee that is more familiar with the style of work and results that industry cares about.

This year 25 industry papers were selected from ~45 submissions.
ISSRE Research papers are subjected to one of the most stringent peer review processes. Each paper is reviewed by 4 or more experts who each write a page long review. These reviews are discussed in a face-to-face program committee which met this June in Raleigh NC. ISSRE maintains a published code of ethics and conflict of interest policy. PC members leave the room when discussions occur on any paper where there is any potential conflict of interest.

Authors typically submit their best papers to ISSRE. This year, we selected 21 from over 80 submissions.
Minimally Invasive Data Concealment in NTFS
Operational Profile-based Test Suite Generation using a Genetic Algorithm
Software Reliability Assessment for a Gearbox Controller by Analysis of Operating Experience
Estimation of Software Testing Effort: An Intelligent Approach
Business Rules Separation and Reuse Using MDA, OWL and AspectJ
Early Software Reliability Prediction Using ANN for Process Oriented Development at Prototype Level
Application of Virtual Machine in Embedded Software Simulation Testing
Verification of Safety-Critical Software Requirement Based on Petri-Net Model Checking
Random Testing with Dynamically Updated Test Profile
Comparative study on threat identification techniques for dependability requirements
Survivability Model for Voice over Internet Protocol using Markov Regenerative Process
A User Friendly Software Reliability Analysis Tool based on Development Process to Iteratively Manage Software Reliability
A Resource Allocation Framework for the Predictable Continuity of Mission-Critical Network Services
Software Testing Technique Based on an Extended Pushdown Automaton for Undo/Redo Functions
Control theoretic approach for the Reduction of RTT in a distributed system
Software Assurance Arguments vs. Formal Mathematical Arguments – A Complementary Role
Integrating the content security with the QoS in data networks
Data Network performance modeling and control through prediction feedback
OS Driver Test Effort Reduction via Operational Profiling
Impact of Error Models on OS Robustness Evaluations
A Test Generation Algorithm for 3-Way Software Testing
Using software health and quality indicators
Constrained Covering Arrays: Resolving invalid level combination constraints
Micro Process Adherence for Delivering Reliable Software
Effective Unit test Design and Automated Debugging
A Study on SFMEA method for UML-based Software

26 Fast Abstracts

A Fast Abstract is a lightly reviewed, two-page technical article that requires a short talk at the conference. The goal is to promote current work, research, practices, opinions, experiences, and issues. This is an early communication of technical work and does not always require completed results like that of a journal publication. Authors can introduce new ideas to the community or state positions on controversial issues.
11 Student Papers

- Exploring AdaBoosting Algorithm for Combining Software Reliability Models
- Automated Stress Testing of Windows Mobile GUI Applications
- Method for Reliability Estimation of COTS components based Software Systems
- An Analytical Framework of Survivability Model for VoIP
- A Study on Software Reliability Engineering Present Paradigms and its Future Considerations
- A Rule Set to Detect Interference of Runtime Enforcement Mechanisms
- A comparison of three alternative means for safety critical control
- Combining Multiple Learners Induced on Multiple Datasets for Software Effort Prediction
- Selection of Fuzzy Logic Mechanism for Qualitative Software Reliability Prediction
- SRS_AODV: SECURE ROUTING SCHEME FOR AODV
- Researches on the Multi-ontology based Avionics Electronics Systems Software Requirements Elicitation Method

Tools Fair

- IBM (Rational, Appscan & Telelogic)
- Parasoft (Code Quality, Security, SOA tools)
- Quest Software (Database tools)
- Serena (Agile Project Management)
- Armorize (focused on Application Security)
- Collabnet focused on Open Source
- Microsoft
- ETAS (part of Bosch)
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Andrew Podgurski, Case Western Reserve, USA

Finance Chair
Mladen Vouk, North Carolina State University, USA

Industry Chair
Mod Marathe, Cisco Systems, USA

Fast Abstract Chair
Michel Cukier, University of Maryland, USA

Student Papers
Michel Cukier, Chair, University of Maryland, USA
HR Vishwakarma, Vice Chair, VIT University, India

Tutorial Chair
Veena Mendiratta, Alcatel-Lucent, USA

Tools Fair
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Infosys - Offers free rooms to ISSRE

Infosys has generously offered us a limited number of rooms (with two beds) at their residential training facility. These will be available free to participants, should you choose to stay on campus. During your registration process, please indicate if you choose to elect this option. We will confirm availability after your registration.

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<tr>
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World-wide registration includes a ride-share taxi from Bengaluru airport (BLR) to Mysuru. If your travel requires a private taxi, then that can be arranged for an additional charge.

Infosys has also provide the foreign traveller a few extra days of stay, free on their residential campus. Read details on the website.

Register at www.issre2009.org