



# QSIC 2008

8th International Conference on  
**Quality Software**

## **Technical Program**

**August 12–13, 2008**

**St. Edmund Hall, Queen's Lane  
Oxford, England**

## QSIC 2008 Programme Overview

<b>11 August 2008</b>			
3:30-6:30	Registration		
<b>12 August 2008</b>			
8:30-9:30	Registration		
9:30-9:50	Opening Session.		
9:50-10:50	Keynote 1. Lionel Claude Briand: Novel Applications of Machine Learning in Software Testing		
10:50-11:20	Coffee break		
11:20-1:00	Session 1: Software Testing Poces	Session 2: Security	Session 3: Formal Methods
1:00-2:00	Lunch		
2:00-3:30	Session 4: Testing Techniques	Session 5: Static and Dynamic Analysis	Workshop: ISEAT
3:30-4:00	Tea Break		
4:00-5:50	Session 6: Specification-based Testing	Session 7: Evolution and Software Process	Tutorial 1: Adaptive Random Testing
6:00-8:00	Social Event: Punting on Cherwell River		
8:00-10:00	Conference Banquet		
<b>13 August 2008</b>			
9:30-10:30	Keynote 2. Rob Hierons: Testing in The Distributed Test Architecture		
10:30-11:00	Coffee break		
11:00-12:40	Session 8: Software Reuse and Regression Testing	Session 9: Measurement, Metrics and Assessment 1	Tutorial 2: Architecture-based Assessment of Software Reliability
12:40-2:00	Lunch		
2:00-3:00	Session 10: Sevice Orientation	Session 11: Measurement, Metrics and Assessment 2	
3:00-3:30	Tea Break		
3:30-5:50	Session 12: Software Architecture	Session 13: Faults and Failures	Special Track on Formalisation of UML and Design Patterns
6:00-8:00	Social Event: Oxford City Science Walk		
8:00-10:00	Victory Party (PC members and invited delegates)		

# QSIC 2008 Technical Programme

11 August 2008 (Monday) Afternoon

3:30-6:30 **Registration**

12 August 2008 (Tuesday) Morning

8:30-9:30 **Registration**

9:30-9:50 **Opening Session. Chair: Marie-Claude Gaudel, Université de Paris-Sud, France**

Message from the General Chair. Marie-Claude Gaudel

Message from the Program Chair. Hong Zhu

9:50-10:50 **Plenary Session**

**Keynote 1: Chair: Marie-Claude Gaudel, Université de Paris-Sud, France**

**Novel Applications of Machine Learning in Software Testing**

Lionel Claude Briand, Simula Research Laboratory and University of Oslo, Norway

10:50-11:20 **Coffee break**

11:20-1:00 **Parallel Sessions**

**Session 1: Software Testing Process. (11:20 -- 1:00, Room A)**

*Chair: Aiman Hanna, Concordia University, Canada*

**Optimizing Test Process Action Plans by Blending Testing Maturity Model and Design of Experiments**

Hyejin Oh, Byoungju Choi, EWHA Womans University, Korea

Hyuksoo Han, Sangmyung University, Korea

W. Eric Wong, University of Texas at Dallas, USA

**Bridging the Concept to Implementation Gap in Software System Testing**

Harry Sneed, SORING Kft., Hungary

**Session 2: Security. (11:20 -- 1:00, Room B)**

*Chair: Hongji Yang, De Montfort University, UK*

**MUSIC: Mutation-based SQL Injection Vulnerability Checking**

Hossain Shahriar and Mohammad Zulkernine, Queen's University, Canada

**An Approach for Generation of J2EE Access Control Configurations from Requirements Specification**

Lianshan Sun, Gang Huang, Yanchun Sun, Hui Song and Hong Mei, Key Laboratory of High Confidence Software Technologies, Peking University, China

**Targeting Security Vulnerabilities: From Specification to Detection** (Short paper)

*Aiman Hanna, Haizhou Ling, Jason Furlong, Zhenrong Yang and Mourad Debbabi, Computer Security Laboratory, CIISE, Concordia University, Canada*

**Session 3: Formal Methods. (11:20 -- 1:00, Room C)**

*Chair: Kenji Taguchi, National Institute of Informatics, Japan*

**Integrating Top-Down and Scenario-Based Methods for Constructing Software Specifications**

Shaoying Liu, Hosei University, Japan

**Path-Sensitive Reachability Analysis of Web Service Interfaces** (Short paper)

Xutao Du, Chunxiao Xing and Lizhu Zhou, Tsinghua University, China

**SMT-based Bounded Model Checking for Real-time Systems** (Short paper)

Liang Xu, State Key Laboratory of Computer Science, Institute of Software, Chinese Academy of Sciences, and Graduate University of Chinese Academy of Sciences, China

**Verifying Business Process Compatibility** (Short paper)

*Peter Wong and Jeremy Gibbons, University of Oxford, UK*

1:00-2:00 **Lunch**

## 12 August 2008 (Tuesday) Afternoon

### 2:00-3:30 **Parallel Sessions**

#### **Session 4: Testing Techniques and Methods. (2:00 -- 3:30, Room A)**

*Chair: Hans-Dieter Ehrich, Technische Universitaet Braunschweig, Germany*

##### **Using Machine Learning to Refine Black-Box Test Specifications and Test Suites**

*Lionel Briand, Simula Research Laboratory and University of Oslo, Norway*

*Yvan Labiche and Zaheer Bawar, Carleton University, Squall Lab, Canada*

##### **Does Adaptive Random Testing Deliver a Higher Confidence than Random Testing?**

*T.Y. Chen, Fei-Ching Kuo, Huai Liu, Swinburne University of Technology, Australia*

*W. Eric Wong, University of Texas at Dallas, USA*

##### **Greedy Heuristic Algorithms to Generate Variable Strength Combinatorial Test Suite (Short paper)**

*Ziyuan Wang, Baowen Xu and Changhai Nie, Southeast University, China*

#### **Session 5: Static and Dynamic Analysis. (2:00 -- 3:30, Room B)**

*Chair: Ian Bayley, Oxford Brookes University, UK*

##### **An Object Oriented Approach towards Dynamic Data Flow Analysis (Short paper)**

*A. Cain, T.Y. Chen, Douglas D. Grant, Fei-Ching Kuo and Jean-Guy Schneider, Swinburne University of Technology, Australia*

##### **An approach to merge results of multiple static analysis tools (Short paper)**

*Na Meng, Qianxiang Wang, Qian Wu and Hong Mei, Peking University, China*

##### **Performance Analysis of a Composition of Middleware Patterns (Short paper)**

*Paul J. Vandal and Swapna S. Gokhale, Univ. of Connecticut, USA*

##### **Abstracting Execution Logs to Execution Events for Enterprise Applications (Short paper)**

*Zhen Ming Jiang, Ahmed E. Hassan, Queen's University, Canada*

*Parminder Flora and Gilbert Hamann, Research In Motion, Canada*

#### **Workshop: ISEAT 2008 (2:00 -- 3:30, Room C)**

##### **The Third International Workshop on Integration of Software Engineering and Agent Technologies.**

*Co-chairs: Michael Winikoff, RMIT University, Australia*

*Zhi Jin, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, China*

*Hong Zhu, Oxford Brookes University, UK*

##### **An Agent-based Middleware for Adaptive Systems**

*Nauman Qureshi and Anna Perini, IRST, Italy*

##### **Dynamic Event/Fault Tree Analysis of Multi-Agent Systems using Galileo**

*Josh Dehlinger and Joanne Dugan, University of Virginia, USA*

##### **A UML Heavyweight Extension for MAS Modeling**

*Manar El-Kady, Reem Bahgat and Aly Fahmy, Cairo University, Egypt*

#### **3:30-4:00 Tea Break**

**4:00-5:50 Parallel Sessions**

**Session 6: Specification-based Testing. (4:00 -- 5:50, Room A)**

*Chair: Victor Kuliamin, Russain Academy of Sciences, Russia*

**Reachability and Propagation for LTL Requirements Testing**

*Gordon Fraser, Graz University of Technology, Austria*

*Paul Ammann, George Mason University, USA*

**Coverage Based Testing with Test Purposes**

*Martin Weiglhofer, Gordon Fraser and Franz Wotawa, Graz University of Technology, Austria*

**A Boundary Checking Technique For Testing Real-Time Systems Modeled as Timed Input Output Automata (Short paper)**

*Abdeslam En-Nouaary and Abdelwahab Hamou-Lhadj, Concordia University, Canada*

**Utilizing Formalization to Test Programs without Available Source Code (Short paper)**

*Shaoying Liu, Hosei University, Japan*

**Session 7: Evolution and Software Process. (4:00 -- 5:50, Room B)**

*Chair: Thorsten Keuler, Fraunhofer Institute for Experimental Software Engineering (IESE), Germany*

**Developing Application Specific Ontology for Program Comprehension by Combining Domain Ontology with Code Ontology**

*Hong Zhou, Feng Chen and Hongji Yang, De Montfort University, UK*

**Model-Based Quality Assurance of the SMB2 Protocol Documentation**

*Wolfgang Grieskamp, Nicolas Kicillof, Dave MacDonald, Alok Nandan, Keith Stobie, Fred Wurden and Danpo Zhang, Microsoft Corporation,*

**On the Relationship between Software Aging and Related Parameters (Short paper)**

*Yun-Fei Jia, Xiu-E Chen, Lei Zhao and Kai-Yuan Cai, Beijing University of Aeronautics and Astronautics, China*

**Web Application Development Lifecycle for Small Medium-sized Enterprises (SMEs) (Short paper)**

*Wei Huang, University of Bedfordshire, UK*

*Ru Li, Exxcom Ltd, UK*

*Carsten Maple, University of Bedfordshire, UK*

*Hongji Yang, De Montfort University, UK*

*David Foskett, and Vince Cleaver, Exxcom Ltd, UK*

**Tutorial 1: Adaptive Random Testing, (4:00 -- 5:50, Room C)**

*T. Y. Chen, Swinburne University of Technology, Australia*

**6:00-8:00 Social Event: Punting on Cherwell River**

**8:00-10:00 Conference Banquet**

## 13 August 2008 (Wednesday) Morning

**9:30-10:30** *Plenary Session*

**Keynote 2:** *Chair: T.H. Tse, The University of Hong Kong, Hong Kong*

**Testing in The Distributed Test Architecture**

Rob Hierons, Brunel University, UK

**10:30-11:00** *Coffee break*

**11:00-12:40** *Parallel Sessions*

**Session 8:** *Software Reuse and Regression Testing. (11:00 -- 12:40, Room A)*

*Chair: Shaoying Liu, Hosei University, Japan*

**Looking for more Confidence in Refactoring? - How to Assess Adequacy of Your Refactoring Tests**

Trung Dinh-Trong, Birgit Geppert, J. Jenny Li and Frank Roessler, Avaya Labs Research, USA

**On Partitioning the Domain for Test-Case Reusability** (Short paper)

Yunwei Dong, Northwestern Polytechnic University, China

Man Lau and Si-yu Lin, Australia

**An Empirical Evaluation of Test Suite Reduction for Boolean Specifications-based Testing** (Short paper)

Xiaofang Zhang, Baowen Xu, Zhenyu Chen and Leifang Li, Southeast University, Soochow University, Jiangsu Institute of Software Quality, China, China

**Creating a Test Model Library for GUI Testing of Smartphone Applications** (Short paper)

Antti Jääskeläinen, Antti Kervinen and Mika Katara, Tampere University of Technology, Finland

**Session 9:** *Measurement, Metrics and Assessment 1. (11:00 -- 12:40, Room B)*

*Chair: Qianxiang Wang, Peking University, China*

**Steering the inspection process with prescriptive metrics and process patterns**

Lasse Harjumaa, Ilkka Tervonen and Sirpa Salmela, University of Oulu, Finland

**Towards an Assessment Method for Software Reuse Capability** (Short paper)

Vinicius Cardoso Garcia, Liana Barachisio Lisboa, Silvio Romero de Lemos Meira, Recife Center for Advanced Studies and Systems, Federal University of Pernambuco, Brazil

Eduardo Santana de Almeida, Recife Center for Advanced Studies and Systems, Brazil

Daniel Lucrédio, Renata Pontin de Mattos Fortes, São Paulo University, Brazil

**How to measure quality of software developed by subcontractors** (Short paper)

Yoshihiro Iwami, Japan SPI Consortium, Japan

**Towards a Method for Evaluating the Precision of Software Measures** (Short paper)

Beatriz Marín, Nelly Condori-Fernández and Oscar Pastor Lopez, Universidad Politécnica de Valencia, Spain

**Tutorial 2:** *Architecture-based Assessment of Software Reliability, (11:00 -- 12:40, Room C)*

Swapna S. Gokhale, University of Connecticut, USA; Veena B. Mendiratta, Alcatel-Lucent, USA

**12:40-2:00** *Lunch*

## 13 August 2008 (Wednesday) Afternoon

### 2:00-3:00 **Parallel Sessions**

#### **Session 10: Service Orientation. (2:00 -- 3:00, Room A)**

*Chair: Zhi Jin, Chinese Academy of Science, China*

##### **History Heuristic Based Negotiation of Service Level Agreements For Composite Service**

Shiyang Ye, University of Science & Technology of China, and Institute of Software, the Chinese Academy of Sciences, China

Jun Wei, Institute of Software, the Chinese Academy of Sciences, China

##### **Web Service Test Case Generation Based on Decision Table (Short paper)**

Siripol Noikajana and Taratip Suwannasart, Chulalongkorn University, Thailand

#### **Session 11: Measurement, Metrics and Assessment 2. (2:00 -- 3:00, Room B)**

*Chair: Lasse Harjumaa, University of Oulu, Finland*

##### **A Method for Measuring the Size of a Component-Based System Specification**

Thareendhra Wijayasiriwardhane and *Richard Lai*, La Trobe University, Australia

##### **Importance Measures for a Modular Software System (Short paper)**

*Swapna Gokhale* and Lance Fiondella, Univ. of Connecticut, USA

### 3:00-3:30 **Tea Break**

### 3:30-5:50 **Parallel Sessions**

#### **Session 12: Software Architecture. (3:30 -- 5:50, Room A)**

*Chair: Richard Lai, La Trobe University, Australia*

##### **Architecture Compliance Checking at Runtime: An Industry Experience Report**

Dharmalingam Ganesan, Fraunhofer Center for Experimental Software Engineering (CESE), USA

*Thorsten Keuler*, Fraunhofer Institute for Experimental Software Engineering (IESE), Germany

Yutaro Nishimura, Ricoh Ltd., Japan

##### **Selecting a High-Quality Central Model for Sharing Architectural Knowledge**

*Peng Liang*, Anton Jansen and Paris Avgeriou, University of Groningen, The Netherlands

##### **Visual Software Architecture Description Based on Design Space**

Zhang Qian, National University of Defense Technology, China

##### **Mapping Software Architecture Specification to Rewriting Logic (Short paper)**

Yujian Fu, Alabama A&M University, USA

Zhijiang Dong, Middle Tennessee State University, USA

Junhua Ding, East Carolina University, USA

Xudong He, Florida International University, USA

#### **Session 13: Faults and Failures. (3:30 -- 5:50, Room B)**

*Chair: Edmonds Lau, Swinburne University of Technology, Australia*

##### **Fault Localization with Non-Parametric Program Behavior Model**

Peifeng Hu, Zhenyu Zhang, The University of Hong Kong, Hong Kong

W.K. Chan, City University of Hong Kong, Hong Kong

*T.H. Tse*, The University of Hong Kong, Hong Kong

##### **Linux Bugs: Life Cycle and Resolution Analysis**

Mohamed Ahmed and *Swapna Gokhale*, University of Connecticut, USA

##### **On Failure Propagation in Component-Based Software Systems**

Atef Mohamed and *Mohammad Zulkernine*, Queen's University, Canada

##### **Path and Context Sensitive Inter-procedural Memory Leak Detection**

Zhongxing Xu and Jian Zhang, State Key Laboratory of Computer Science, Institute of Software, Chinese Academy of Sciences, China

***Invited Special Track: Formalisation of UML and Design Patterns. (3:30 -- 5:50, Room C)***

*Chair: Kevin Lano, King's College London, UK*

**A Coalgebraic Semantic Framework for Reasoning about UML Sequence Diagrams**

Sun Meng, CWI, The Netherlands

Luis Barbosa, Department of Informatics, Minho University, Portugal

**On the Composition of Design Patterns**

Ian Bayley and Hong Zhu, Oxford Brookes University, UK

**An executable interface specification for industrial embedded system design**

Jinfeng Huang, Philips & LiteOn Digital Solutions Netherlands, Advanced Research Center, The Netherlands

Jeroen Voeten, Eindhoven University of Technology, Embedded Systems Institute, The Netherlands

Serge Wolfs, Philips & LiteOn Digital Solutions Netherlands, Advanced Research Center, The Netherlands

**Model Transformation Specification and Verification**

Kevin Lano and David Clark, King's College London, UK

***6:00-8:00 Social Event: Oxford City Science Walk***

***8:00-10:00 Victory Party (PC members and invited delegates)***