QRS 2015 Session Schedule

Monday, August 3, 2015		
07:30~08:20	Registration	Foyer
08:20~08:30	Opening Ceremony • Steering Committee Chair: Professor W. Eric Wong (University of Texas at Dallas, USA) • General Chair: Professor Christian Hansen (President, IEEE Reliability Society) • Program Chair: Professor Jian Zhang (Chinese Academy of Sciences, China)	Coastal Mountain Ballroom
08:30~09:30	• Keynote Speech I Professor Lionel Briand (University of Luxembourg, Luxembourg)	Coastal Mountain Ballroom
09:30~10:30	• Keynote Speech II Professor Elisa Bertino (Purdue University, USA)	Coastal Mountain Ballroom
10:30~11:00	Coffee Break	Foyer
11:00~12:00	• Session I-A: Fault Injection • Session I-B: Software Quality Prediction I • Session I-C: Software Quality Prediction II • Session I-D: Program Analysis and Verification	Blackcomb Cypress Grouse Seymour
12:00~13:30	Lunch Break	Whistler + Foyer
13:30~15:30	• Session II-A: Software Reliability • Session II-B: Security I • Session II-C: Information Assurance Workshop I • Session II-D: Trustworthy Computing Workshop I	Blackcomb Cypress Grouse Seymour
15:30~16:00	Coffee Break	Foyer
16:00~18:00	• Session III-A: Software Testing I • Session III-B: Formal Modeling • Session III-C: Information Assurance Workshop II • Session III-D: Trustworthy Computing Workshop II	Blackcomb Cypress Grouse Seymour
18:30~20:00	Conference Reception	Whistler + Foyer

Tuesday, August 4, 2015		
07:30~08:30	Registration	Foyer
08:30~09:30	• Keynote Speech III Professor Jifeng He (East China Normal University, China)	Coastal Mountain Ballroom
09:30~10:30	• Keynote Speech IV Professor Shaoying Liu (Hosei University, Japan)	Coastal Mountain Ballroom
10:30~11:00	Coffee Break	Foyer
11:00~12:00	• Session IV-A: Security II • Session IV-B: Software Testing II • Session IV-C: User Authentication and Race Condition	Blackcomb Cypress Grouse
12:00~13:30	Lunch Break	Seymour + Whistler
13:30~15:30	• Session V-A: Empirical Studies • Session V-B: Software Fault Localization • Tutorial I: Professor Karthik Pattabiraman (The University of British Columbia)	Blackcomb Cypress Grouse
15:30~16:00	Coffee Break	Foyer
16:00~18:00	• Session VI-A: MVV Workshop • Session VI-B: SSCPS Workshop	Blackcomb Cypress

	• Tutorial I: Professor Karthik Pattabiraman (The University of British Columbia)	Grouse
18:30~20:00	Conference Banquet & Award Presentation	Seymour + Whistler

Wednesday, August 5, 2015		
07:30~08:30	Registration	Foyer
08:30~09:30	• Keynote Speech V Professor T. Y. Chen (Swinburne University of Technology, Australia)	Coastal Mountain Ballroom
09:30~10:30	• Plenary Panel on Security of IoT (Internet of Things) Professor Steve Yau (Arizona State University) Dr. Jeff Voas (NIST) Professor Elisa Bertino (Purdue University) Dr. Tim Grance (NIST)	Coastal Mountain Ballroom
10:30~11:00	Coffee Break	Foyer
11:00~12:00	• Session VII-A: Fast Abstract • Session VII-B: Data Mining and Obfuscation • Tutorial II: Dr. Baljeet Malhotra (SAP Canada Inc.)	Blackcomb Cypress Grouse
12:00~13:30	Lunch Break	Seymour
13:30~15:30	• Session VIII-A: HSASQ Workshop • Session VIII-B: SEKM Workshop • Tutorial II: Dr. Baljeet Malhotra (SAP Canada Inc.)	Blackcomb Cypress Grouse

QRS 2015 Final Program

Monday, August 3, 2015	
07:30~08:20	**Registration** (Foyer)
08:20~08:30	**Opening Ceremony** Coastal Mountain Ballroom • Steering Committee Chair: Professor W. Eric Wong (University of Texas at Dallas, USA) • General Chair: Professor Christian Hansen (President, IEEE Reliability Society) • Program Chair: Professor Jian Zhang (Chinese Academy of Sciences, China)
08:30~09:30	• **Keynote Speech I** Coastal Mountain Ballroom *Scalable Software Testing and Verification through Heuristic Search and Optimization: Experiences and Lessons Learned* Professor Lionel Briand (University of Luxembourg, Luxembourg)
09:30~10:30	• **Keynote Speech II** Coastal Mountain Ballroom *Data Protection from Insider Threats − Concepts and Research Issues* Professor Elisa Bertino (Purdue University, USA)
10:30~11:00	**Coffee Break** (Foyer)
11:00~12:00	• **Session I-A: Fault Injection** Chair: W. K. Chan Room: Blackcomb o *Hovac: A Configurable Fault Injection Framework for Benchmarking the Dependability of C/C++ Applications* Lena Herscheid, Daniel Richter, and Andreas Polze o *LLFI: An Intermediate Code-Level Fault Injection Tool for Hardware Faults* Qining Lu, Mostafa Farahani, Jiesheng Wei, Anna Thomas, and Karthik Pattabiraman
11:00~12:00	• **Session I-B: Software Quality Prediction I** Chair: Anneliese Andrews Room: Cypress o *Deep Learning for Just-In-Time Defect Prediction* Xinli Yang, David Lo, Xin Xia, Yun Zhang, and Jianling Sun o *Predicting Vulnerable Components Via Text Mining or Software Metrics? An Effort-aware Perspective* Yaming Tang, Fei Zhao, Yibiao Yang, Hongmin Lu, Yuming Zhou, and Baowen Xu
11:00~12:00	• **Session I-C: Software Quality Prediction II** Chair: Deron Liang Room: Grouse

	○ *An Empirical Study of Dynamic Incomplete-case Nearest Neighbor Imputation in Software Quality Data* Jianglin Huang, Hongyi Sun, Yan-Fu Li, and Min Xie ○ *Cross-project Aging Related Bug Prediction* Fangyun Qin, Zheng Zheng, Chenggang Bai, Yu Qiao, Zhenyu Zhang, and Cheng Chen
11:00~12:00	• **Session I-D: Program Analysis and Verification** Chair: Birgit Hofer Room: Seymour ○ *Abstracting Program Dependencies Using the Method Dependence Graph* Haipeng Cai and Raul Santelices ○ *Node-set Analysis for Linked Recursive Data Structures* Zhenhao Tang, Hanfei Wang, Bin Li, Juan Zhai, Jianhua Zhao, and Xuandong Li
12:00~13:30	**Lunch Break** (Whistler + Foyer)
13:30~15:30	• **Session II-A: Software Reliability** Chair: Junhua Ding Room: Blackcomb ○ *A New Framework and Application of Software Reliability Estimation Based on Fault Detection and Correction Processes* Yu Liu, Min Xie, Jianfeng Yang, and Ming Zhao ○ *Robustness of Non-homogeneous Gamma Process-based Software Reliability Models* Yasuhiro Saito and Tadashi Dohi ○ *Fine-Grained Software Reliability Estimation Using Software Testing Inputs* Hiroyuki Okamura, Yuki Takekoshi, and Tadashi Dohi ○ *On the Viability of Using SRGMs for IT Help Desk Incident Predictions* Anneliese Andrews and Joseph Lucente
13:30~15:30	• **Session II-B: Security I** Chair: Steve Yau Room: Cypress ○ *Assessing Security to Compare Architecture Alternatives of Component-Based Systems* Axel Busch, Misha Strittmatter, and Anne Koziolek ○ *An Anomaly Detection System Based on Ensemble of Detectors with Effective Pruning Techniques* Amirreza Soudi, Wael Khreich, and Abdelwahab Hamou-Lhadj ○ *System Call-based Detection of Malicious Processes* Raymond Canzanese, Spiros Mancoridis, and Moshe Kam ○ *An Approach for Authenticating Smartphone Users Based on Histogram Features* Chien-Cheng Lin, Chin-Chun Chang, and Deron Liang

13:30~15:30	• **Session II-C: Information Assurance Workshop I** Chair: Yu-Lun Huang Room: Grouse o *Analyzing Packet Forwarding Schemes for Selfish Behavior in MANETs* Asad Raza, Haider Abbas, and Mohammed Siddique o *Assessing Real-time Malware Threats* Matthias Gander, Clemens Sauerwein, and Ruth Breu o *An AST-based Approach to Classifying Defects* Changsong Liu, Yanagyang Zhao, Yibiao Yang, Hongmin Lu, Yuming Zhou, and Baowen Xu o *Selective Regression Testing of Safety-Critical Systems: A Black Box Approach* Anneliese Andrews, Salwa Elakeili, and Ahmed Alhaddad
13:30~15:30	• **Session II-D: Trustworthy Computing Workshop I** Chair: Jing Tian Room: Seymour o *An Adaptive Control Strategy for Resource Allocation of Service-based Systems in Cloud Environment* Siqian Gong, Beibei Yin, Wenlong Zhu, and Kaiyuan Cai o *Detecting Security Threats Using Mobile Devices* J. Jenny Li, Peter Abbate, and Brian Vega o *PURITY: A Planning-based secURITY Testing Tool* Josip Bozic and Franz Wotawa o *Software Network Models Based on Dynamic Execution for Fault Propagation Research* Linzhi Huang, Jun Ai, and Hanyu Pei
15:30~16:00	**Coffee Break** (Foyer)
16:00~18:00	• **Session III-A: Software Testing I** Chair: Min Xie Room: Blackcomb o *PORA: Proportion-Oriented Randomized Algorithm for Test Case Prioritization* Bo Jiang, W. K. Chan, and T. H. Tse o *Combinatorial Testing for Tree-Structured Test Models with Constraints* Takashi Kitamura, Akihisa Yamada, Goro Hatayama, Cyrille Artho, Eun-Hye Choi, Ngoc Thi Bich Do, Yutaka Oiwa, and Shinya Sakuragi o *How Effective Are Code Coverage Criteria?* Hadi Hemmati o *Multi-Perspective Regression Test Prioritization for Time-constrained Environments* Dusica Marijan

16:00~18:00	• **Session III-B: Formal Modeling** Chair: Tadashi Dohi Room: Cypress o *Formalizing Semantic Differences between Combining Algorithms in XACML 3.0 Policies* Dianxiang Xu, Yunpeng Zhang, and Ning Shen o *An Event-based Formal Framework for Dynamic Software Update* Shengwei An, Xiaoxing Ma, Chun Cao, Ping Yu, and Chang Xu o *A Case Study on Code Generation of an ERP System from Event-B* Nestor Catano and Tim Wahls o *HSD: Hybrid MARTE Sequence Diagram* Lulu Yao, Jing Liu, Yan Zhang, Yuejun Wang, Haiying Sun, Qingsheng Wang, Dehui Du, and Xiaohong Chen
16:00~18:00	• **Session III-C: Information Assurance Workshop II** Chair: Xiao Xiao Room: Grouse o *Efficiently Testing Intelligent Transportation System in Simulation Environment* Xu Zhao and Yan Wang o *A Fault Propagation Model for Embedded Software* Yan Xiaobo, Wang Yichen, Zhu Anzhi, and Wang Yikun o *Feature Selection and Analysis of Diffraction Images* Sai Kiran Thati, Junhua Ding, Dongmei Zhang, and Xin Hua Hu o *An Attributes-based Allocation Approach of Software Trustworthy Degrees* Yujing Ma, Yixiang Chen, and Bin Gu
16:00~18:00	• **Session III-D: Trustworthy Computing Workshop II** Chair: Karthik Pattabiraman Room: Seymour o *Securing Scientific Workflows* Donghoon Kim and Mladen A. Vouk o *On the Effect of Counters in Guard Conditions When State-based Multi-objective Testing* Nesa Asoudeh and Yvan Labiche o *An Adjustable Risk Assessment Method for a Cloud System* Chi-An Chih and Yu-Lun Huang o *Diagnosing SDN Network Problems by Using Spectrum-based Fault Localization Techniques* Hsia-Hsiang Chen, Han-Lin Lu, Shih-Kun Huang, Ruizhi Gao, and W. Eric Wong
18:30~20:00	**Conference Reception** (Whistler + Foyer)

Tuesday, August 4, 2015	
07:30~08:30	**Registration** (Foyer)
08:30~09:30	• **Keynote Speech III** Coastal Mountain Ballroom *A Hybrid Relational Modeling Language* Professor Jifeng He (East China Normal University, China)
09:30~10:30	• **Keynote Speech IV** Coastal Mountain Ballroom *Integrating Specification Animation with Specification-Based Program Testing and Inspection for Software Quality Assurance* Professor Shaoying Liu (Hosei University, Japan)
10:30~11:00	**Coffee Break** (Foyer)
11:00~12:00	• **Session IV-A: Security II** Chair: Dianxiang Xu Room: Blackcomb o *Potential Component Leaks in Android Apps: An Investigation into a New Feature Set for Malware Detection* Li Li, Kevin Allix, Daoyuan Li, Alexandre Bartel, Tegawendé Bissyandé, and Jacques Klein o *Machine Learning based Hybrid Behavior Models for Android Malware Analysis* Hsin-Yu Chuang and Sheng-De Wang
11:00~12:00	• **Session IV-B: Software Testing II** Chair: James Wessel Room: Cypress o *Attack Pattern-Based Combinatorial Testing with Constraints for Web Security Testing* Josip Bozic, Bernhard Garn, Ioannis Kapsalis, Dimitris Simos, Severin Winkler, and Franz Wotawa o *On the Relationship between Model Coverage and Code Coverage Using MATLAB's Simulink* Yunwei Dong, Zhe Li, and Dave Towey
11:00~12:00	• **Session IV-C: User Authentication and Race Condition** Chair: Tolga Ayav Room: Grouse o *An Effective Approach to Continuous User Authentication for Touch Screen Smart Devices* (invited paper) Arun Balaji Buduru and Stephen S. Yau o *Uncertainty Analysis of Race Conditions in Real-time Systems* Shan He, Sizhao Li, Yan Chen, and Donghui Guo
12:00~13:30	**Lunch Break** (Seymour + Whistler)
13:30~15:30	• **Session V-A: Empirical Studies** Chair: Tim Grance Room: Blackcomb

	○ *Known XML Vulnerabilities Are Still a Threat to Popular Parsers and Open Source Systems* Sadeeq Jan, Cu D. Nguyen, and Lionel Briand ○ *Are Anti-patterns Coupled? An Empirical Study* Wanwangying Ma, Lin Chen, Yuming Zhou, Baowen Xu, and Xiaoyu Zhou ○ *Comparing and Evaluating CVSS Base Metrics and Microsoft Rating System* Awad Younis and Yashwant. K. Malaiya ○ *An Empirical Study of Highly-impactful Bugs in Mozilla Projects* Le An and Foutse Khomh
13:30~15:30	• **Session V-B: Software Fault Localization** Chair: Yunwei Dong Room: Cypress ○ *ASR: Abstraction Subspace Reduction for Exposing Atomicity Violation Bugs in Multithreaded Programs* Shangru Wu, Chunbai Yang, and W. K. Chan ○ *Fault Localization in the Light of Faulty User Input* Birgit Hofer and Franz Wotawa ○ *A Fault-Localization Approach Based on the Coincidental Correctness Probability* Xiaoli Zhou, Hanfei Wang, and Jianhua Zhao ○ *Is Learning-to-rank Cost-effective in Recommending Relevant Files for Bug Localization?* Fei Zhao, Yaming Tang, Yibiao Yang, Hongmin Lu, Yuming Zhou, and Baowen Xu
13:30~15:30	• **Tutorial I:** *Modern Web Applications' Reliability Engineering* Room: Grouse Professor Karthik Pattabiraman The University of British Columbia, Canada
15:30~16:00	**Coffee Break** (Foyer)
16:00~18:00	• **Session VI-A: MVV Workshop** Chair: Zhenyu Chen Room: Blackcomb ○ *Automated Detection of Information Flow Vulnerabilities in UML State Charts and C Code* Paul Muntean, Adnan Rabbi, Andreas Ibing, and Claudia Eckert ○ *Boolean Differentiation for Formalizing Myers' Cause-Effect Graph Testing Technique* Tolga Ayav and Fevzi Belli ○ *On Proposing a Test Oracle Generator Based on Static and Dynamic Source Code Analysis* Alessandro Arantes, Valdivino A. de Santiago Junior, and Nandamudi L. Vijaykumar

16:00~18:00	• **Session VI-B: SSCPS Workshop** Chair: Yixiang Chen Room: Cypress o *Code Generation for Abstract Data Types based on Program Analysis* LI Bin, LIU Jun, and ZHAO Jianhua o *PSTEP: A Novel Probabilistic Event Processing Language for Uncertain Spatio-Temporal Event Streams of Internet of Vehicles* Huiyong Li, Yuanrui Zhang, and Yixiang Chen o *The Legitimacy Detection for Multilevel Hybrid Cloud Algorithm Based Data Access* Na LI, Yunwei Dong, Che Tianwei, Chao WANG, and Yang GAO o *A Model Language for Describing Spatio-Temporal Changes* Xinghua Yao and Jie Zhou
16:00~18:00	• **Tutorial I:** *Modern Web Applications' Reliability Engineering* Room: Grouse Professor Karthik Pattabiraman The University of British Columbia, Canada
18:30~20:00	**Conference Banquet & Award Presentation** (Seymour + Whistler)

Wednesday, August 5, 2015	
07:30~08:30	**Registration** (Foyer)
08:30~09:30	• **Keynote Speech V** Coastal Mountain Ballroom *Metamorphic Testing: A Simple Method for Testing Non-Testable Programs* Professor T. Y. Chen (Swinburne University of Technology, Australia)
09:30~10:30	• **Plenary Panel on** *Security of IoT (Internet of Things)* Coastal Mountain Ballroom Professor Steve Yau (Arizona State University) Dr. Jeff Voas (NIST) Professor Elisa Bertino (Purdue University) Dr. Tim Grance (NIST)
10:30~11:00	**Coffee Break** (Foyer)
11:00~12:00	• **Session VII-A: Fast Abstract** Chair: Jing Liu Room: Blackcomb o *Software Intensity Function Prediction by Haar Wavelet Regression* Xiao Xiao o *A Preliminary Analysis and Case Study of Feature-based Software Customization* Yufei Jiang, Can Zhang, Dinghao Wu, and Peng Liu o *Critical Nodes Evaluation in Large-Scale Software Based on Static Structure and Runtime Information* Ye Qian, Lu Minyan, and Li Luyi

	○ *Towards Transformation from UML to Event-B* Hu Siyuan and Zhang Hong
11:00~12:00	• **Session VII-B: Data Mining and Obfuscation** Chair: Hadi Hemmati Room: Cypress ○ *Mining Potential Information for Multiclass Microarray Data Using Centroid-based Dimension Reduction* Shun Guo and Donghui Guo ○ *Data Obfuscation for Privacy and Confidentiality in Cloud Computing* Khaled M. Khan and Mahboob Shaheen
11:00~12:00	• **Tutorial II:** *Good Governance of Open Source Software and Services at Enterprises: Some Key Principles* Room: Grouse Dr. Baljeet Malhotra SAP Canada Inc., Canada
12:00~13:30	**Lunch Break** (Seymour)
13:30~15:30	• **Session VIII-A: HSASQ Workshop** Chair: Ziyuan Wang Room: Blackcomb ○ *UT-LDA Based Similarity Computing in Microblog* Weifeng Zhang, Tianhao Pan, Yun Wang, Ziyuan Wang, and Lei Xu ○ *An Empirical Study of Developer Quality* Yilin Qiu, Weiqiang Zhang, Weiqin Zou, Jia Liu, and Qin Liu ○ *Case Study of Requirements-based Test Case Generation on an Automotive Domain* Jeong Soo Eo, Hae Ryong Choi, Ruizhi Gao, Shou-yu Lee, and W. Eric Wong ○ *A Test Data Generation Approach for Automotive Software* Jungui Zhou, Zhiyi Zhang, Peizhang Xie, and Jingyu Wang
13:30~15:30	• **Session VIII-B: SEKM Workshop** Chair: Jianwen Xiang Room: Cypress ○ *Facilitating Information Management in Integrated Development Environments through Visual Interface Enhancements* Haipeng Cai ○ *A Refined Algorithm for Reachability Analysis of Updatable Timed Automata* Bingbing Fang, Guoqiang Li, Ling Fang, and Jianwen Xiang ○ *A Survey on Knowledge Management in Software Engineering* Shanmuganathan Vasanthapriyan, Jing Tian, and Jianwen Xiang ○ *Service Systems Development Based on a Knowledge Synthesis Methodology* Y. Nakamori, F. Meng, M. Kosaka, J. Tian, and J. W. Xiang
13:30~15:30	• **Tutorial II:** *Good Governance of Open Source Software and Services at Enterprises: Some Key Principles* Room: Grouse Dr. Baljeet Malhotra SAP Canada Inc., Canada