# Software Technology Track (ST)

Co-Chairs: Gul Agha and Rick Kazman

## Agile and Lean: Organizations, Products and Development

Minitrack Chair: Daniel Greening, Jeff Sutherland, John Tripp

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<tr>
<th>ST 1</th>
<th>Grand Ballroom 4</th>
<th>Wednesday, 8:00 - 9:30 am</th>
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<tr>
<td>Adapting Agile in a Globally Distributed Software Development</td>
<td>Rajeev Kumar Gupta, Prabhulinga ManikReddy</td>
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<td>Transition of Software Maintenance Teams from Scrum to Kanban</td>
<td>Muhammad Ovais Ahmad, Pasi Kuvaja, Markku Oivo, Jouni Markkula</td>
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<tr>
<td>Kaizen Cookbook: The Success Recipe for Continuous Learning and Improvements</td>
<td>Osama Al-Baik, James Miller</td>
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<td>Agile Base Patterns in the Agile Canon</td>
<td>Daniel R Greening</td>
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<tr>
<td>Seeking Technical Debt in Critical Software Development Projects: An Exploratory Field Study</td>
<td>Hadi Ghanbari</td>
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<td>Agile Big Data Analytics Development: An Architecture-Centric Approach</td>
<td>Hong-Mei Chen, Rick Kazman, Serge Haziyev</td>
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<td>Pair Programming vs. Solo Programming: What Do We Know After 15 Years of Research?</td>
<td>Carolina Alves de Lima Salge, Nicholas Berente</td>
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<tr>
<td>Sensemaking and Complexity in Large-Scale Lean-Agile Transformation: A Case Study from Cisco</td>
<td>Ken Power</td>
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<td>Open Forum: Agile/Lean Research Challenges and Opportunities</td>
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## Big Data Engineering

Minitrack Chairs: Hong-Mei Chen, Ian Gorton

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<tr>
<td>Big Data as a Service: A Neo-Metropolis Model Approach for Innovation</td>
<td>Hong-Mei Chen, Rick Kazman, Serge Haziyev, Valentyn Kropov, Dmitri Chtchourov</td>
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** Best Paper Nomination
EPIC-OSM: A Software Framework for OpenStreetMap Data Analytics
Jennings Anderson, Robert Soden, Kenneth M. Anderson, Marina Kogan, Leysia Palen

Detection and Visual Inspection of Highly Obfuscated Plagiarisms
Andreas Schmidt, Sören Bühler, Robert Senger, Steffen Scholz, Markus Dickerhof

** Cybercrimes, Cyber-Physical Innovations, and Emerging Investigation Challenges **
Minitrack Chairs: Brad Glisson, Raymond Choo

ST 6 Garden Isle 1 Wednesday, 4:00 - 5:30 pm

Service Set Identifier Geolocation for Forensic Purposes: Opportunities and Challenges
Maxim Chernyshev, Craig Valli, Peter Hannay

Capture the Flag as Cyber Security Introduction
Lucas McDaniel, Erik Talvi, Brian Hay

Utilizing the Cloud to Store Hijacked Camera Images
Christos Kynigos, William Bradley Glisson, Todd Andel, Todd McDonald

** Cybersecurity and Software Assurance **
Minitrack Chairs: Luanne Goldrich, Rick Linger, Richard George

ST 7 Grand Ballroom 1 Friday, 1:00 - 2:30 pm

Policy Generator (PG): A Heuristic-Based Fuzzer
Alejandro Felix, Andrew F. Tappenden, James Miller

A Unified Model for System Security Engineering Support
Thomas Llansó, Patrick Engebretson

Exploring a Systematic Approach to Malware Threat Assessment
Michele Maasberg, Myung Ko, Nicole L. Beebe

ST 8 Grand Ballroom 1 Friday, 3:00 - 4:30 pm

**SBoxScope: A Meta S-box Strength Evaluation Framework for Heterogeneous Confusion Boxes
Abrar Ahmad, Muddassar Farooq, Amin

Online Signature Verification Based on Biometric Features
Nan Li, Jiafen Liu, Qing Li, Xubin Luo, Jiang Duan

Using the eR&D Approach to Pilot Deployment and Assessment in DHS
AJ Risko, Luanne Goldrich, Nykia Jackson, Robert Gatlin, Brian Gattoni, Richard Linger

** CyberWarfare: Offensive and Defensive Software Technologies **
Minitrack Chairs: Brian Hay, Steven LaFountain

ST 9 Grand Ballroom 5 Wednesday, 8:00 - 9:30 am

** Strategic Implications of Offense and Defense in Cyberwar
Wade L. Huntley

** Best Paper Nomination
Mobile Konami Codes: Analysis of Android Malware Services Utilizing Sensor and Resource-Based State Changes
Jacob Boomgaard, Joshua Corney, Holly Whittaker, George Dinolt, John McEachen

Defensive Cyber Operations in a Software-Defined Network
Thomas Parker, Jeremy Jones, Joshua Mayberry, Gassium Chanman, Zachary Staples, John McEachen, Murali Tummala

**ST 10**
**Grand Ballroom 5**
**Wednesday, 10:00 - 11:30 am**

Mitigating 0-days through Heap Techniques - An Empirical Study
Lucas McDaniel, Kara Nance

Open Forum with a panel of experts including Steven LaFountain, Richard M. (Dickie) George, and Victor Piotrowski

- Digital Forensics - Education, Research, and Practice
  Minitrack Chairs: Kara Nance, Matt Bishop

**ST 11**
**Grand Ballroom 1**
**Thursday, 8:00 - 9:30 am**

Using Multimedia Presentations to Enhance the Judiciary's Technical Understanding of Digital Forensic Concepts: An Indonesian Case Study
Niken Dwi Wahyu Cahyani, Ben Martini, Kim-Kwang Raymond Choo

- An Android Social App Forensics Adversary Model
  Abdullah Azfar, Kim-Kwang Raymond Choo, Lin Liu

- Text-based Document Similarity Matching Using sdtext
  Clay Shields

- **IS Risk and Decision-Making**
  Minitrack Chairs: Dan Port, Joe Wilf

**ST 12**
**Kauai 2**
**Thursday, 2:00 - 3:30 pm**

Which IT Security Investments Will Pay Off for Suppliers? Using the Kano Model to Determine Customers' Willingness to Pay
Rabea Sonnenschein, André Loske, Peter Buxmann

- A User-Centered Approach to Phishing Susceptibility: The Role of a Suspicious Personality in Protecting Against Phishing
  Brynne Harrison, Arun Vishwanath, Raghav Rao

- Optimizing Business Processes Compliance Using an Evolvable Risk-Based Approach
  Sérgio Guerreiro, Rui Pedro Marques, Khaled Gaaloul

**ST 13**
**Kauai 2**
**Thursday, 4:00 - 5:30 pm**

Project Risk Management Incorporating Knight, Ellsberg & Kahneman
John Prpić

- Developing a Value-Based Methodology for Satisfying NASA Software Assurance Requirements
  Daniel Port, Joel Wilf, Madeline Diep, Carolyn Seaman, Martin Feather

**Best Paper Nomination**
Decisions and Disasters: Modeling Decisions that Contribute to Mishaps
Joel Wilf, Dan Port

**Mobile App Development**
Minitrack Chairs: Tim A. Majchrzak, Henning Heitkoetter

ST 14 Garden Isle 5 Thursday, 8:00 - 9:30 am

** Developing Apps for Visually Impaired People: Lessons Learned from Practice **
Eduardo Ghidini, Wagner D. L. Almeida, Isabel H. Manssour, Milene S. Silveira

MAscOT: Self-adaptive Opportunistic Offloading for Cloud-Enabled Smart Mobile Applications with Probabilistic Graphical Models at Runtime
Nayyab Zia Naqvi, Jonas Devlieghere, Davy Preuveneers, Yolande Berbers

An Investigation of Usability of Push Notifications on Mobile Devices for Novice and Expert Users
Wen Yong Chua, Klarissa T.T. Chang

ST 15 Garden Isle 5 Thursday, 10:00 - 11:30 am

Mobile Application Developers’ Platform Choice Model
Abhinay Puvvala, Amitava Dutta, Rahul Roy, Priya Seetharaman

Meeting Quality Standards for Mobile Application Development in Businesses: A Framework for Cross-Platform Testing
Tor-Morten Groenli, Gheorghita Ghinea

Towards a Reference Architecture for Model-Driven Business Apps
Sören Evers, Jan Ernsting, Tim A. Majchrzak

**Modern Trends in Parallel Computing**
Minitrack Chairs: Peter Salhofer

ST 16 Garden Isle 5 Thursday, 2:00 - 3:30 pm

Tuning OpenCL Applications with the Periscope Tuning Framework
Enes Bajrovic, Robert Mijakovic, Jiri Dokulil, Siegfried Benkner, Michael Gerndt

OpenMP is Not as Easy as It Appears
Rogério Gonçalves, Marcos Amaris, Thiago Okada, Pedro Bruel, and Alfredo Goldman

Open Forum

**Securing the Cloud and the Internet of Things**
Minitrack Chairs: William J. Yeager, Jean-Henry Morin

ST 17 Kuhio Theater Friday, 1:00 - 2:30 pm

Security in Internet of Things: Challenges, Solutions and Future Directions
Sathish Alampalayam Kumar, Tyler Vealey, Harshit Srivastava

Securing D2D Wireless Links by Continuous Authenticity with Legitimacy Patterns
Ibrahim Abualhaol, Steven Muegge

** Best Paper Nomination
Software Product Lines: Engineering, Services, and Management
Minitrack Chairs: Timo Käkölä, Andrea Leitner

ST 18  Grand Ballroom 7  Friday, 1:00 - 2:30 pm

XANA: An End User Software Product Line Framework for Smart Spaces
Vasilios Tzeremes, Hassan Gomaa

**Understanding How Social-Behavioural Science Theory Can Explain the Design of Software Websites**
Arun Vishwanath, Brynne Harrison, Yu Jie Ng

Generating App Product Lines in a Model-Driven Cross-Platform Development Approach
Jan C. Dageförde, Tobias Reischmann, Tim A. Majchrzak, Jan Ernsting

ST 19  Grand Ballroom 7  Friday, 3:00 - 4:30 pm

Feature-based Variability Management for Scalable Enterprise Applications: Experiences with an E-Payment Case
Davy Preuveneers, Thomas Heyman, Yolande Berbers, Wouter Joosen

OntoSoft Process: Towards an Agile Process for Ontology-based Software
Joice B. Machado, Seiji Isotani, Ellen F. Barbosa, Judson Bandeira, Williams Alcantara, Armando Barbosa, Ig Bittencourt

Evaluation Framework for Analyzing the Applicability of Criteria Lists for the Selection of Requirements Management Tools Supporting Distributed Software Product Line Requirements Management
Maria Florencia Santillan, Timo Käkölä

**Wireless Network**
Minitrack Chairs: Edoardo Biagioni, John McEachen, Murali Tummala

ST 20  Garden Isle 5  Thursday, 4:00 - 5:30 pm

**Cellular Synchronization Assisted Refinement (CeSAR): A Method for Accurate Geolocation in LTE-A Networks**
John D. Roth, Murali Tummala, James W. Scrofani

Cluster Head Selection in Wireless Mobile Ad Hoc Networks Using Spectral Graph Theory Techniques
Thomas Parker, John McEachen

Constructing A Shortest Path Overhearing Tree With Maximum Lifetime In WSNs
Wael Y. Alghamdi, Hui Wu, Wenguang Zheng, Salil S. Kanhere

Experimenting Broadcast Storm Mitigation Techniques in FANETs
Rayner de Melo Pires, Sergio Zumpano Arnosti, Alex Sandro Roschildt Pinto, Kalinka R L J C Branco

** Best Paper Nomination