2018 IEEE International Conference on Software Architecture Companion (ICSA-C 2018)

Seattle, Washington, USA
30 April – 4 May 2018
Tutorials

Message from the ICSA 2018 Tutorials Chairs 1

Patrizio Pelliccione (Chalmers University of Technology / University of Gothenburg, Sweden) and Jean-Guy Schneider (Swinburne, Australia)

Performance-Driven Software Architecture Refactoring 2

Davide Arcelli (University of L'Aquila), Vittorio Cortellessa (University of L'Aquila), and Daniele Di Pompeo (University of L'Aquila)

Modeling and Executing Software Architecture Using SysADL 4

Thais Batista (Federal University of Rio Grande do Norte), Flavio Oquendo (IRISA - CNRS), and Jair Leite (Federal University of Rio Grande do Norte)

How to Evaluate Software Architectures: Tutorial on Practical Insights on Architecture Evaluation Projects with Industrial Customers 6

Matthias Naab (Fraunhofer IESE) and Dominik Rost (Fraunhofer IESE)


IoT-ASAP 2018: Message from the Chairs 8

Romina Spalazzese (Malmö University, Sweden), Marie C. Platenius (ABB Corporate Research, Germany), Steffen Becker (University of Stuttgart, Germany), and Gregor Engels (Paderborn University, Germany)

KEYNOTE. IoT Challenges for Smart Manufacturing: Connecting a Laser Level Transmitter to the Cloud 10

Heiko Koziolek (ABB Corporate Research)

A Case Study for Workflow-Based Automation in the Internet of Things 11

Ronny Seiger (Technische Universität Dresden), Uwe Assmann (Technische Universität Dresden), and Steffen Huber (Technische Universität Dresden)

Straightforward Specification of Adaptation-Architecture-Significant Requirements of IoT-enabled Cyber-Physical Systems 19

Pablo Oliveira Antonino (Fraunhofer IESE), Andreas Morgenstern (Fraunhofer IESE), Benno Kallweit (Fraunhofer IESE), Martin Becker (Fraunhofer IESE), and Thomas Kuhn (Fraunhofer IESE)
I4.0-Device Integration: A Qualitative Analysis of Methods and Technologies Utilized by System Integrators: Implications for Engineering Future Industrial Internet of Things System  

Fabian Burzlaff (University of Mannheim) and Christian Bartelt 
(University of Mannheim)

Using Blockchain Technology to Ensure Trustful Information Flow Monitoring in CPS  

Stefan Gries (University of Duisburg-Essen), Ole Meyer (University of Duisburg-Essen), Florian Wessling (University of Duisburg-Essen), Marc Hesenius (University of Duisburg-Essen), and Volker Gruhn (University of Duisburg-Essen)

Early Career Researchers Forum

ICSA 2018 Early Career Researchers Forum: Message from the Chairs  

Grace Lewis (Carnegie Mellon Software Engineering Institute) and Romina Spalazzesse (Malmö University)

KEYNOTE. Push, Pull, Partner: A Few Models for Working with Industry  

Thomas Ball (Microsoft Research)

Traceable Threat Modeling for Safety-Critical Systems  

Johannes Geismann (Paderborn University)

Architectural Technical Debt Identification: Moving Forward  

Roberto Verdecchia (Vrije Universiteit Amsterdam)

Engineering Software Architectures of Blockchain-Oriented Applications  

Florian Wessling (Paluno, University of Duisburg-Essen) and Volker Gruhn (Paluno, University of Duisburg-Essen)

New and Emerging Ideas

New and Emerging Ideas Track 2018  

Ipek Ozkaya (Software Engineering Institute Carnegie Mellon University) and Liming Zhu (Data61 | CSIRO)

Towards a Dual Processing Perspective of Software Architecture Decision Making  

Carianne Pretorius (Eindhoven University of Technology), Maryam Razavian (Eindhoven University of Technology), Katrin Eling (Eindhoven University of Technology), and Fred Langerak (Eindhoven University of Technology)

Decision Making and Cognitive Biases in Designing Software Architectures  

Akash Manjunath (Technical University of Munich), Manoj Bhat (Technical University of Munich), Klym Shumaiev (Technical University of Munich), Andreas Biesdorf (Siemens AG - Corporate Technology), and Florian Matthes (Technical University of Munich)

Perspectives for Selecting Cloud Microservices  

Marcelo França (Federal University of Rio de Janeiro - UFRJ, IBM) and Claudia Werner (Federal University of Rio de Janeiro - UFRJ)

The Vision of Self-Aware Performance Models  

Johannes Grohmann (University of Würzburg), Simon Eismann (University of Würzburg), and Samuel Kounev (University of Würzburg)
Can Network Analysis Techniques Help to Predict Design Dependencies? An Initial Study  
J. Andres Diaz-Pace (ISISTAN, CONICET-UNICEN), Antonela Tommasel (ISISTAN, CONICET-UNICEN), and Daniela Godoy (ISISTAN, CONICET-UNICEN)

Online and Offline Analysis of Streaming Data  
Sheik Hoque (Ryerson University, Canada) and Andriy Miranskyy (Ryerson University, Canada)

Cost-Aware Stage-Based Experimentation: Challenges and Emerging Results  
Ilias Gerostathopoulos (Technical University Munich), Christian Prehofer (Technical University Munich), Lubomir Bulej (Charles University in Prague), Tomás Bureš (Charles University in Prague), Vojtech Horký (Charles University in Prague), and Petr Tuma (Charles University in Prague)

Engineering Track

ICSA 2018: Engineering Track: Message from the Chairs  
Raghvinder Sangwan (Penn State University) and Klaas-Andries de Graaf (Vrije Universiteit Amsterdam)

Bridging the Gap between Architecture Specifications and Simulation Models  
Pablo Oliveira Antonino (Fraunhofer IESE), Jasmin Jahic (Fraunhofer IESE), Benno Kallweit (Fraunhofer IESE), Andreas Morgenstern (Fraunhofer IESE), and Thomas Kuhn (Fraunhofer IESE)

Designing and Executing Software Architectures Models Using SysADL Studio  
Jair Leite (Federal University of Rio Grande do Norte), Thais Batista (Federal University of Rio Grande do Norte), Flavio Oquendo (IRISA-UMR CNRS and University of South Brittany), Eduardo Silva (Federal University of Rio Grande do Norte), Lidiane Santos (Federal University of Rio Grande do Norte), and Victor Cortez (Federal University of Rio Grande do Norte)

A Virtual Playground for Testing Smart Cyber-Physical Systems  
Danylo Khalyeyev (Charles University), Petr Hnetynka (Charles University), and Tomás Bures (Charles University)

SPARTA: Security & Privacy Architecture Through Risk-Driven Threat Assessment  
Laurens Sion (KU Leuven), Dimitri Van Landuyt (KU Leuven), Koen Yskout (KU Leuven), and Wouter Joosen (KU Leuven)

Model Driven Deployment of Auto-Scaling Services on Multiple Clouds  
Hanieh Alipour (Concordia University) and Yan Liu (Concordia University)

An Efficient Mobile-Based Middleware Architecture for Building Robust, High-Performance Apps  
Oscar J. Romero (Carnegie Mellon University) and Sushma A. Akoju (Carnegie Mellon University)

A Tool for Traceable Evolution of Process Architectures  
Vrinda Yadav (IIT Bombay), Rushikesh K. Joshi (IIT Bombay), and Sea Ling (Monash University, Australia)

Web Based Tool for Traceability from Architecture Artifacts to ATAM  
Shrikant Palkar (Costco WholeSale) and Hemali Kamani (Costco WholeSale)
Using Microservices for Rapid Creation of Remote Sensing Products
Bo Xiang (Chinese Academy of Sciences), Zheng Li (University of Concepcion, Chile), Yan Liu (Concordia University, Canada), and He Zhang (Nanjing University)

WASA: Fourth International Workshop on Automotive System/Software Architectures

Message from the WASA 2018 Organizing Committee
Darko Durisic (Volvo Car Corporation), Yaping Luo (Altran Netherlands B.V.), Miroslaw Staron (University of Gothenburg), and Yanja Dajsuren (Technical University of Eindhoven)

Modeling for Stakeholder Engagement
Tom Lusco (Iteris, Inc.), David Binkley (Iteris, Inc.), and Ron Ice (Ice and Associates)

A Standard Driven Software Architecture for Fully Autonomous Vehicles
Alexandru Constantin Serban (Radboud University), Erik Poll (Radboud University), and Joost Visser (Software Improvement Group)

Viewpoint-Based Methodology for Adaption of Automotive E/E-Architectures
Philipp Obergfell (BMW Group), Florian Oszwald (BMW Group), Matthias Traub (BMW Group), and Eric Sax (Karlsruhe Institute of Technology)

Building an Effective Software Issues Scorecard: An Action Research Report from the Automotive Domain
Rakesh Rana (University of Skövde), Tommy Lagercrantz (Volvo Car Group), and Miroslaw Staron (University of Gothenburg)

Development of a Functional Safety Software Layer for the Control of an Electric In-Wheel Motor Based Powertrain
Sebastiaan Klaasse (e-Traction), Geert Kwintenberg (e-Traction), and Ion Barosan (Eindhoven University of Technology)

Defining the C-ITS Reference Architecture
Priyanka Karkhanis (Eindhoven University of Technology), Mark G.J van den Brand (Eindhoven University of Technology), and Saurab Rajkarnikar (Eindhoven University of Technology)

Innovation Welcome: An Agile Approach to Model-Based Development of Safety-Critical Embedded Systems
John Mills (SimuQuest, Inc.), Raymond Turin (SimuQuest, Inc.), Jeremy Mangas (SimuQuest, Inc.), and Scott Ranville (MES, Inc.)

Author Index

viii