Final program

Wednesday

09:00 10:30	**WICSA/CompArch Opening**	Refettorio
	Keynote: Building Theories is Building Value	
	George Fairbanks (Google)	
10:30 11:00	Coffee break	

Empirical Study of Software Architecture Refettorio

A Multiple Case Study on Continuous Architecting: Current Gaps and the CAFFEA Framework
Antonio Martini and Jan Bosch

Empirical Research in Software Architecture - How Far Have We Come?
Matthias Galster and Danny Weans

Exploring the Understandability of Components in Architectural Component Models using Component Level Metrics and Participants' Experience
Srdjan Stevanetic and Uwe Zdun

Performance Analysis San Marco

Estimating Response Time Percentiles of Cloud-based Tiered Web Applications in presence of VM failures
Olivia Das and Arindam Das

11:00 12:30

Using Performance Models for Planning the Redeployment to Infrastructure-as-a-Service Environments: A Case Study
Sebastian Lehrig and Steffen Becker

Retargetable Communication for Distributed Programs
Oren Freiberg, Mahdi Eslamimehr and Jens Palsberg

Architectural Refactoring De Barbari

Experience Report on Detecting and Repairing Software Architecture Erosion
Francesca Arcelli Fontana, Riccardo Roveda, Marco Zanoni, Claudia Raibulet and Rafael Capilla

Characterizing Implicit Communal Components as Technical Debt in Automotive Software Systems
Andreas Vogelsang, Henning Femmer and Maximilian Junker

Missed Architectural Dependencies: The Elephant in the Room
Robert Nord, Raghvinder Sangwan, Julien Delange, Peter Feiler, Luke Thomas and Ipek Ozkaya

12:30 14:00	Lunch

Design Decisions 1 Refettorio

A Decision Model for Cyber-Foraging Systems
Grace Lewis, Patricia Lago and Paris Avgeriou

Distilling Architectural Design Decisions and their Relationships using Frequent Item-Sets
Stefan Sobernig and Uwe Zdun

Creating Software Modernization Roadmaps: The Architecture Options Workshop
Neil Ernst, Mary Popeck, Felix Bachmann and Patrick Donohoe

Modeling for Quality 1 San Marco

AQAF: an Architecture Quality Assurance Framework for Systems Modeled in AADL
Andreas Johnsen, Kristina Lundqvist, Kaj Hänninen, Paul Pettersson and Martin Torelm

14:00 15:30

Modeling the Failure Pathology of Software Components
Joao M. Franco, Frederico Cerveira, Raul Barbosa and Mário Zenha-Rela

Flow Sensitive Slicing for MATLAB/Simulink Models
Thomas Gerlitz and Stefan Kowalewski

Reverse Architecting into Models 1 De Barbari

Software Architecture Pattern Morphology in Open-Source Systems
Neil Harrison, Erich Gubler and Danielle Skinner

Automated Extraction of Rich Software Models from Limited System Information
Michael Langhammer, Arman Shahbazian, Nenad Medvidović and Ralf Reussner

System Architecture Recovery based on Software Structure Model
Adam Darvas and Raimund Konnerth

15:30 16:00	Coffee break

Design Decisions 2 Refettorio

16:00 17:30

Defeasible Argumentation of Software Architectures
José Miguel Cañete-Valdeón, Antonio Ruiz Cortés and Miguel Toro Bonilla

---

Considering Not-quantified Quality Attributes in an Automated Design Space Exploration
Axel Busch and Anne Koziolek

On the Architecture of Liquid Software: Technology Alternatives and Design Space
Andrea Gallidabino, Cesare Pautasso, Ville Ilvonen, Tommi Mikkonen, Kari Systä, Jari-Pekka Voutilainen and Antero Taivalsaari

Architectural Knowledge for Technology Decisions in Developer Communities: An Exploratory Study with StackOverflow
Mohamed Soliman, Matthias Galster, Amr Rekaby Salama and Matthias Riebisch

Working Session: Modeling for Quality 2 San Marco

An Architecture-aware Approach to Hierarchical Online Failure Prediction
Teerat Pitakrat, Dušan Okanović, André van Hoorn and Lars Grunske

16:00 17:30

Model-Driven Observability for Big Data Storage
John Klein, Ian Gorton, Laila Ahmoud, Joel Gao, Caglayan Gemici, Rajat Kapoor, Prasanth Nair and Varun Saravagi

Specifying Architecture Behavior with SysADL
Flavio Oquendo, Jair Leite and Thais Batista

Working Session: Reverse Architecting into Models 2 De Barbari

Continuous Architecting of Stream-Based Systems
Damian Andrew Tamburri, Marcello Maria Bersani, Francesco Marconi, Pooyan Jamshidi and Andrea Nodari

Behavior-based Architecture Reconstruction and Conformance Checking
Ana Nicolaescu and Horst Lichter

Modeling of Legacy Distributed Embedded Systems at Vehicle Abstraction Level
Saad Mubeen, Thomas Nolte, Mikael Sjödin, John Lundbäck, Mattias Gålnander and Kurt-Lennart Lundbäck

18:00 19:00	Welcome reception

Thursday

09:00 10:30	Keynote: Challenges in Architecting Cyber-physical Spaces	Refettorio
	Carlo Ghezzi (Politecnico di Milano)	
10:30 11:00	Coffee break	

Cloud Computing Refettorio

Fuzzy Self-Learning Controllers for Elasticity Management in Dynamic Cloud Architectures
Pooyan Jamshidi, Amir Sharifloo, Claus Pahl, Hamid Arabnejad, Andreas Metzger and Giovani Estrada

Increasing the Throughput of Pipe-and-Filter Architectures by Integrating the Task Farm Parallelization Pattern
Christian Wulf, Christian Claus Wiechmann and Wilhelm Hasselbring

Architectural Tactics for the Design of Efficient PaaS Cloud Applications
David Gesvindr and Barbora Buhnova

Cyber-Physical Systems San Marco

On the Use of Component-Based Principles and Practices for Architecting Cyber-Physical Systems
Ivica Crnkovic, Ivano Malavolta, Henry Muccini and Mohammad Sharaf

11:00 12:30

Statistical Approach to Architecture Modes in Smart Cyber Physical Systems
Tomas Bures, Petr Hnetynka, Jan Kofron, Rima Al Ali and Dominik Skoda

Towards Safe Execution of Reconfigurations in Cyber-Physical Systems
David Schubert, Christian Heinzemann and Christopher Gerking

Sustainability and Beyond De Barbari

OccuRE: an Occupancy REasoning Platform for Occupancy-driven Applications
Mikkel Baun Kjærgaard, Aslak Johansen, Fisayo Sangogboye and Emil Holmegaard

Relating Architectural Decay and Sustainability of Software Systems
Duc Minh Le, Carlos Carrillo, Rafael Capilla and Nenad Medvidovic

The Blockchain as a Software Connector
Xiwei Xu, Cesare Pautasso, Liming Zhu, Vincent Gramoli, Shiping Chen, Alexander Ponomarev and An Binh Tran

12:30 14:00	Lunch

Software Components Deployability 1 Refettorio

14:00 15:30

KevoreeJS: Enabling Dynamic Software Reconfiguration in the Browser
Maxime Tricoire, Olivier Barais, Manuel Leduc, Francois Fouquet, Gerson Sunyé, Brice Morin, Grégory Nain, Ludovic Mouline and Johann Bourcier

Towards a HTML-UI-Compositor by introducing the Wayland-Protocol into a Browser-Engine
Tobias Holstein, Bastian Weißbach and Joachim Wietzke
Considering Transient Effects of Self-Adaptations in Model-Driven Performance Analyses
Christian Stier and Anne Koziolek

Embedded Systems — San Marco
Extending the Rubus Component Model with GPU-aware Components
Gabriel Campeanu, Jan Carlson, Séverine Sentilles and Saad Mubeen
Extra-Functional Properties Composability for Embedded Systems Partitioning
Gaetana Sapienza, Severine Sentilles, Ivica Crnkovic and Tiberiu Seceleanu
Modern Software Architecture for Embedded Real-Time Devices: High Value, Little Overhead
Aurelien Monot, Manuel Oriol, Camille Schneider and Michael Wahler

Industry Track 1 — De Barbari
Variability Handling for Mobile Banking Apps on iOS and Android
Jens Bæk Jørgensen, Bjarne Knudsen, Lennert Sloth, Johan Rugager Vase and Henrik Bærbak Christensen
Introducing Software Product Lines in Model-Based Design Processes: an Industrial Experience
Domenico Amalfitano, Vincenzo De Simone, Anna Rita Fasolino, Mario Lubrano and Stefano Scala
Invited Presentation - Nubomedia: an Elastic Multimedia Cloud Platform to Enhance Smart Spaces
Fabio Mondin (TIM - Telecom Italia)

14:00 15:30

15:30 16:00 Coffee break

Working Session: Software Components Deployability 2 — Refettorio
A Component Model for Defining Software Product Families with Explicit Variation Points
Simone Di Cola, Kung-Kiu Lau, Cuong M. Tran, Chen Qian and Michael Schulze
Deploying Stateful Web Components on Multiple Devices with Liquid.js for Polymer
Andrea Gallidabino and Cesare Pautasso
VISCTE: Runtime Exploration of Component-Based Systems
André Santos and Ivo Albuquerque
Analysing Evolution of Work and Load
Gunnar Brataas, Erlend Stav and Sebastian Lehrig

Tool Demos — San Marco
BUDGET: a Tool for Supporting Software Architecture Traceability Research
Joanna C. S. Santos, Mehdi Mirakhorli, Ibrahim Mujhid and Waleed Zogaan
MUSA: A Scalable Multi-Touch and Multi-Perspective Variability Management Tool
Muhammad Garba, Adel Noureddine and Rabih Bashroush
Architectural Analysis of MATLAB/Simulink Models with Artshop
Thomas Gerlitz and Stefan Kowalewski
Capturing Design Decision Rationale in Program-Level Aspects
Oliver Kopp and Olaf Zimmermann

Industry Track 2 — De Barbari
A Reference Architecture for Software Protection
Bjorn De Sutter, Paolo Falcarin, Brecht Wyseur, Cataldo Basile, Mariano Ceccato, Jerome D Annoville and Michael Zunke
An Evaluation of Design Rule Spaces as Risk Containers
Andrew Leigh, Michel Wermelinger and Andrea Zisman
Best Practices to Minimize Architectural Refactoring in Agile Software Projects in Micron Technology
Daniele Spinosi (Micron Technology)

16:00 17:30

19:00 22:00 Conference dinner

Friday

09:00 10:30 Keynote: The Art of Visualising Software Architecture — Refettorio
Simon Brown (independent consultant)

10:30 11:00 Coffee break

Internet of Things — Refettorio
Building Dynamic and Dependable Component-based Internet-of-Things Applications with Dawn
Gowri Sankar Ramachandran, Nelson Matthys, Wilfried Daniels, Wouter Joosen and Danny Hughes
Energy-aware Adaptive Techniques for Information Diffusion in Ungoverned Peer-to Peer Networks
Lorenzo Pagliari, Raffaela Mirandola, Diego Perez-Palacin and Catia Trubiani
A Generative Middleware for Heterogeneous and Distributed Services
Knut Eilif Husa, Brice Morin, Olivier Barais and Franck Fleurey

11:00 12:30

Security and Testing — San Marco
Mining Software Component Interactions to Detect Security Threats at the Architectural Level
Eric Yuan and Sam Malek
Towards an Architecture-centric Approach to Security Analysis
Qiong Feng, Rick Kazman, Yuanfang Cai, Ran Mo and Lu Xiao
Improving Testing in an Enterprise SOA with an Architecture-based Approach
Georg Buchgeher, Claus Klammer, Wolfgang Heider, Martin Schütz and Heinz Huber

11:00 12:30

12:30 14:00 Lunch

Working Session: Software Ecosystems and Variability — Refettorio
Optimization of Deployment Topologies for Distributed Enterprise Applications
Felix Willnecker and Helmut Krcmar
Architecture-Violation Management for Internal Software Ecosystems
Klaus-Benedikt Schultis, Christoph Elsner and Daniel Lohmann
Semantic Model of Variability and Capabilities of IoT Applications for Embedded Software Ecosystems
Matúš Tomlein and Kaj Grønbæk

14:00 15:30

15:30 16:00 WICSA/CompArch Closing — Refettorio

Colocated events

Tuesday

Tutorials
- Designing Software Architectures Using ADD 3.0 — Libreria
Workshops
- Workshop on Automotive System / Software Architectures — San Marco
- Architecture Centric Virtual Integration Workshop — Rialto
- Workshop on Decision Making in Software ARCHitecture — De Barbari
Young Researchers Forum — Refettorio

09:00 12:30

Tutorials
- Designing Software Architectures Using ADD 3.0 — Libreria
- Speed, Data and EcoSystems: The Future of Software Engineering — Rialto
- Dependability Analysis in the context of Component-based System Architectures — De Barbari
Workshops
- Workshop on Automotive System / Software Architectures — San Marco
Young Researchers Forum — Refettorio

14:00 17:30

Friday

11:00 15:30 **Workshops**
- Qualitative Reasoning about Software Architectures — De Barbari

Organization

General Co-Chairs
Luciano Baresi, Politecnico di Milano, Italy
Vittorio Cortellessa, Università dell'Aquila, Italy
WICSA Program Committee Chairs
Henry Muccini, Università dell'Aquila, Italy
K. Eric Harper, ABB, USA
CBSE Program Committee Chairs
Noel Plouzeau, Inria
Olaf Zimmermann, HSR FHO, Switzerland
QOSA Program Committee Chairs
Jan Bosch, Chalmers University
Robert Heinrich, KIT, Karlsruhe
Publicity Chair
Damian Tamburri, Politecnico di Milano, Italy
Workshop Chairs
Uwe Zdun, University of Vienna, Austria
Patrizio Pelliccione, Chalmers, Sweden
Tutorial Chairs
Alexander Egyed, Johannes Kepler University, Austria
Industrial Track Chair
Massimo Valla, Telecom Italia, Italy
Ian Gorton, Northeastern University, USA
Young Researchers Forum
Barbora Buhnova, Masaryk University, Czech Republic
Remco de Boer, ArchiXL, Netherlands
Tool Demonstrations
Danny Weyns, Linnaeus University, Sweden
Webmaster
Sam Guinea, Politecnico di Milano, Italy
Local Organizer
Elaiza Pampagnin, Nexa Italy