

**3<sup>rd</sup> International Workshop on Context-aware,  
Autonomous and Smart Architecture  
CASA@ECSA 2020**

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### **Workshop Description**

The CASA@ECSA 2020 workshop aims to bring together researchers and practitioners interested in modern systems implementing the required features for managing context-awareness, dynamicity, autonomy, and smart behaviour. These features may be associated with small devices such as mobile phones and their related applications, as well as with big systems concerning transportation, airports, and cities. They are useful for a wide range of application domains including healthcare, e-government communication and social networks, smart grids, energy management systems, finance, conference management systems and learning, just to make some examples.

The development of such solutions involves interdisciplinary and trendy concepts and skills concerning context-awareness, autonomy, adaptiveness, machine learning, Internet-of-Things, Big Data, integration and communication, networks, green and efficient energy consumption, user-friendly access. In this context, software architectures play a fundamental role in the quality of development of such systems and the success of their deployment.

This workshop aims to discuss the fundamental principles of context-aware, autonomous, and smart solutions, the current architectural trends, the future issues and challenges to be addressed at the architectural level. The workshop invites experts from industry and academic environments to share their solutions, ideas, visions, and questions about the design of software architectures for such solutions. We aim to enable discussions, partnerships, and collaborations among the software architects working on these topics.

CASA@ECSA 2020 has received very interesting contributions from authors belonging to 7 distinct countries, and the four best papers have been accepted to be presented during this virtual event in September 2020 in the context of the 14<sup>th</sup> European Conference on Software Architecture.

The first paper entitled “State of the Practice Survey: Predicting the Influence of AI Adoption on System Software Architecture in Traditional Embedded Systems” is authored by Jasmin Jahic and Robin Roitsch. It investigates the perception of the Artificial Intelligence in industry and its impact, especially in embedded systems from an architectural point of view. The authors have interviewed various practitioners in different companies for the proposed survey.

The second paper entitled “Composition Algorithm Adaptation in Service Oriented Systems” is authored by Niranjana Deshpande and Naveen Shamma. It proposes the adaptation of composition techniques of services in Service Oriented Architectures. The adaptation is performed for each user request. This solution leads to significant resource savings at runtime.

The third paper entitled “A Statistical Approach for Context-Awareness of Mobile Applications” is authored by Mai Abusair, Mohammad Sharaf, Antinisca Di Marco e Paola Inverardi. It focuses on determining contextual situations that require adaptation in mobile contexts. The approach monitors the context, models the states of its variables, and determines whether a state requires or not an adaptation based on transition probabilities among states and the system quality.

The fourth paper entitled “A Reference Architecture for Personalized and Self-adaptive e-Health Apps” is authored by Eoin Martino Grua, Martina De Sanctis, and Patricia Lago. It proposes a reference architecture that enables Artificial Intelligence-based personalization and self-adaptation for mobile apps for e-Health. The architecture is based on multiple MAPE (Monitor, Analyze, Plan, Execute) loops operating at different levels of granularity and for different purposes.

The workshop program is enriched by the invited talk entitled “Handling Conflicting Requirements: a Primer” given by Prof. Paolo Ceravolo from Università degli Studi di Milano, Italy.

We would like to thank all the authors of the submitted contributions for their valuable proposals and the program committee members for their timely and accurate reviews. We would like to thank the ECSA 2020 Workshops Co-Chairs Anne Koziolok and Mauro Caporuscio for their constant collaboration. Last but not least, we would like to thank the ECSA 2020 General Chair Henry Muccini for his great work especially in this special2020.

July 2020



# Organization

## Workshop Chairs

Claudia Raibulet	Università degli Studi di Milano-Bicocca, Italy
Khalil Drira	LAAS-CNRS, CNRS, Université Toulouse, France
Maria grazia Fugini	Politecnico di Milano, DEIB, Italy
Patrizio Pelliccione	Chalmers   University of Gothenburg, Sweden and University of L'Aquila, Italy
Genaína N. Rodrigues	University of Brasilia, Brasil

## Program Committee

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