

2013 8th International Symposium on Software Engineering for Adaptive and Self-Managing Systems

(SEAMS 2013)

**San Francisco, California, USA
20-21 May 2013**



**IEEE Catalog Number: CFP1380C-POD
ISBN: 978-1-4673-4399-2**

Contents

Preface

Message from the Chairs	iii
Committees	v

Keynotes

Science in the Cloud (Keynote) Joe Hellerstein — <i>Google, USA</i>	1
A 10-Year Perspective on Software Engineering Self-Adaptive Systems (Keynote) David Garlan — <i>CMU, USA</i>	2

Evaluation

Do External Feedback Loops Improve the Design of Self-Adaptive Systems? A Controlled Experiment Danny Weyns, M. Usman Iftikhar, and Joakim Söderlund — <i>Linnaeus University, Sweden</i>	3
Evolving an Adaptive Industrial Software System to Use Architecture-Based Self-Adaptation Javier Cámara, Pedro Correia, Rogério de Lemos, David Garlan, Pedro Gomes, Bradley Schmerl, and Rafael Ventura — <i>University of Coimbra, Portugal; University of Kent, UK; CMU, USA; Critical Software, Portugal</i>	13
Requirements and Architectural Approaches to Adaptive Software Systems: A Comparative Study Konstantinos Angelopoulos, Vítor E. Silva Souza, and João Pimentel — <i>University of Trento, Italy; UFES, Brazil; UFPE, Brazil</i>	23

Services

On Estimating Actuation Delays in Elastic Computing Systems Alessio Gambi, Daniel Moldovan, Georgiana Copil, Hong-Linh Truong, and Schahram Dustdar — <i>TU Vienna, Austria; University of Lugano, Switzerland</i>	33
Self-Adaptive and Sensitivity-Aware QoS Modeling for the Cloud Tao Chen and Rami Bahsoon — <i>University of Birmingham, UK</i>	43
QoS-Aware Fully Decentralized Service Assembly Vincenzo Grassi, Moreno Marzolla, and Raffaella Mirandola — <i>University of Rome Tor Vergata, Italy; University of Bologna, Italy; Politecnico di Milano, Italy</i>	53

Learning and Updates

Formalizing Correctness Criteria of Dynamic Updates Derived from Specification Changes Valerio Panzica La Manna, Joel Greenyer, Carlo Ghezzi, and Christian Brenner — <i>Politecnico di Milano, Italy; University of Paderborn, Germany</i>	63
Run-Time Adaptation of Mobile Applications using Genetic Algorithms Gustavo G. Pascual, Mónica Pinto, and Lidia Fuentes — <i>University of Málaga, Spain</i>	73
Guaranteeing Robustness in a Mobile Learning Application using Formally Verified MAPE Loops Didac Gil de la Iglesia and Danny Weyns — <i>Linnaeus University, Sweden</i>	83

Case Studies and Decision-Making

Engineering Adaptation with Zanshin: An Experience Report Genci Tallabaci and Vítor E. Silva Souza — <i>University of Trento, Italy; UFES, Brazil</i>	93
--	----

Diagnosing Architectural Run-Time Failures	
Paulo Casanova, David Garlan, Bradley Schmerl, and Rui Abreu — <i>CMU, USA; University of Porto, Portugal</i>	103
Dynamic Decision Networks for Decision-Making in Self-Adaptive Systems: A Case Study	
Nelly Bencomo, Amel Belaggoun, and Valerie Issarny — <i>INRIA, France</i>	113
Qualities	
Self-Adaptive Containers: Building Resource-Efficient Applications with Low Programmer Overhead	
Wei-Chih Huang and William J. Knottenbelt — <i>Imperial College London, UK</i>	123
Synthesizing Self-Adaptive Connectors Meeting Functional and Performance Concerns	
Antinisca Di Marco, Paola Inverardi, and Romina Spalazzese — <i>University of L'Aquila, Italy</i>	133
High-Quality Specification of Self-Adaptive Software Systems	
Markus Luckey and Gregor Engels — <i>University of Paderborn, Germany</i>	143
Evolution	
Improving Context-Awareness in Self-Adaptation using the DYNAMICICO Reference Model	
Gabriel Tamura, Norha M. Villegas, Hausi A. Müller, Laurence Duchien, and Lionel Seinturier — <i>Icesi University, Colombia; University of Victoria, Canada; INRIA, France; University of Lille, France</i>	153
Law and Adaptivity in Requirements Engineering	
Silvia Ingolfo and Vítor E. Silva Souza — <i>University of Trento, Italy; UFES, Brazil</i>	163
Towards Run-Time Testing of Dynamic Adaptive Systems	
Erik M. Fredericks, Andres J. Ramirez, and Betty H. C. Cheng — <i>Michigan State University, USA</i>	169
RPC Automation: Making Legacy Code Relevant	
Andreas Bergen, Yağız Onat Yazır, Hausi A. Müller, and Yvonne Coady — <i>University of Victoria, Canada</i>	175