



ICSEA 2017

The Twelfth International Conference on Software Engineering Advances

October 8 - 12, 2017

Athens, Greece

ICSEA 2017 Editors

Luigi Lavazza, Università dell'Insubria - Varese, Italy

Roy Oberhauser, Aalen University, Germany

Radek Koci, Brno University of Technology, Czech Republic

Stephen Clyde, Utah State University, USA

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (4239) by International Academy, Research, and Industry Association (IARIA)
Please refer to the Copyright Information page.

Printed by Curran Associates, Inc. (4239)

International Academy, Research, and Industry Association (IARIA)
412 Derby Way
Wilmington, DE 19810

Phone: (408) 893-6407
Fax: (408) 527-6351

petre@iaria.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

Table of Contents

A Teaching Method for Software Measurement Process based on Gamification <i>Lennon Sales Furtado and Sandro Ronaldo Bezerra Oliveira</i>	1
A Harmonization with CMMI-SVC Practices for the Implementation of the ITIL Service Design Coordination Process <i>George Hamilton Barbosa Fernandes Ota and Sandro Ronaldo Bezerra Oliveira</i>	9
Automatic Documentation of the Development of Numerical Models for Scientific Applications using Specific Revision Control <i>Martin Zinner, Karsten Rink, Rene Jakel, Kim Feldhoff, Richard Grunzke, Thomas Fischer, Rui Song, Marc Walther, Thomas Jejkal, Olaf Kolditz, and Wolfgang E. Nagel</i>	18
The Blockchain-based Internet of Things Development: Initiatives and Challenges <i>Sergio Mendonca, Joao Silva Junior, and Fernanda Alencar</i>	28
Authentication and the Internet of Things: A Survey Based on a Systematic Mapping. <i>Emidio Silva, Wallace Lima, Felipe Ferraz, and Francisco Ribeiro</i>	34
CLIPS: Customized Levels of IoT Privacy and Security <i>Rohith Yanambaka Venkata and Krishna Kavi</i>	41
Sustainability and Diversity of Open Source Software Communities: Analysis of the Android Open Source Project <i>Remo Eckert and Andreas Mueller</i>	48
Extracting Executable Architecture From Legacy Code Using Static Reverse Engineering <i>Rehman Arshad and Kung Kiu Lau</i>	55
Analyse Agile Software Development Teamwork Productivity using Qualitative System Dynamics Approach <i>Israt Fatema and Kazi Muheymin Sakib</i>	60
Accuracy Evaluation of Model-based COSMIC Functional Size Estimation <i>Luigi Lavazza</i>	67
Measuring Differences to Compare sets of Models and Improve Diversity in MDE <i>Adel Ferdjoukh, Florian Galinier, Eric Bourreau, Annie Chateau, and Clementine Nebut</i>	73
Proposal of a Computer Supported Collaborative Work Model for E-Commerce Web Sites Based on a Quality Guiding Framework <i>Hedia Jegham and Sonia Ghannouchi</i>	82
Developing Architecture in Volatile Environments - Lessons Learned from a Biobank IT Infrastructure Project	95

Jarkko Hyysalo, Gavin Harper, Jaakko Sauvola, Anja Keskinarkaus, Ilkka Juuso, Miikka Salminen, and Juha Partala

Unifying Definitions for Modularization, Abstraction, and Encapsulation as a Step Toward Foundational Multi-Paradigm Software Engineering Principles <i>Stephen Clyde and Jorge Edison Lascano</i>	105
iMobile: A Framework to Implement Software Agents for the iOS Platform <i>Pedro Miranda, Andrew Diniz, and Carlos Lucena</i>	114
Software Architecture Modeling for Legacy Health Information Systems Using Polyglot Persistence and Archetypes <i>Andre Araujo, Valeria Times, Marcus Silva, and Carlos Bezerra</i>	122
Evaluating Enterprise Resource Planning Analysis Patterns using Normalized Systems Theory <i>Ornchanok Chongsombut and Jan Verelst</i>	128
A Survey and Analysis of Reference Architectures for the Internet-of-things <i>Hongyu Pei Breivold</i>	132
Improving Run-Time Memory Utilization of Component-based Embedded Systems with Non-Critical Functionality <i>Gabriel Campeanu and Saad Mubeen</i>	139
From Language-Independent Requirements to Code Based on a Semantic Analysis <i>Mariem Mefteh, Nadia Bouassida, and Hanene Ben-Abdallah</i>	145
GMAP: A Generic Methodology for Agile Product Line Engineering <i>Farima Farmahini Farahani and Raman Ramsin</i>	157
A Benchmarking Criteria for the Evaluation of OLAP Tools <i>Fiaz Majeed</i>	167
A Precondition Calculus for Correct-by-Construction Graph Transformations <i>Amani Makhoulouf, Christian Percebois, and Hanh Nhi Tran</i>	172
FANTASIA: A Tool for Automatically Identifying Inconsistency in AngularJS MVC Applications <i>Md Rakib Hossain Misu and Kazi Sakib</i>	178
Scope Management on Software Projects - An Updated Approach to Maturity Levels and Services in the Gaia Scope Framework <i>Darlan Dalsasso and Rodolfo Miranda de Barros</i>	185

IoT Caching in Information Centric Networks: A Systematic Mapping <i>Higgor L. S. Valenc?a, Felipe S. Ferraz, and Francisco I. N. Ribeiro</i>	192
Survey on Microservice Architecture - Security, Privacy and Standardization on Cloud Computing Environment <i>Luciano Aguiar, Washington Almeida, Raphael Hazin, Anderson Lima, and Felipe Ferraz</i>	199
Function-as-a-Service X Platform-as-a-Service: Towards a Comparative Study on FaaS and PaaS <i>Lucas Francisco Albuquerque Jr, Felipe Silva Ferraz, Sergio Mario Lins Galdino, and Rodrigo F. A. P. Oliveira</i>	206
Architectural Programming with MontiArcAutomaton <i>Arvid Butting, Oliver Kautz, Bernhard Rumpe, and Andreas Wortmann</i>	213
Which API Lifecycle Model is the Best for API Removal Management? <i>Dung-Feng Yu, Cheng-Ying Chang, Hewijin Christine Jiau, and Kuo-Feng Ssu</i>	219
Evaluating an Application Ontology for Recommending Technically Qualified Distributed Development Teams <i>Larissa Barbosa and Gledson Elias</i>	225
Validation of Specification Models Based on Petri Nets <i>Radek Koci and Vladimir Janousek</i>	232
An OO and Functional Framework for Versatile Semantics of Logic-Labelled Finite State Machines <i>Callum McColl, Vladimir Estivill-Castro, and Rene Hexel</i>	238
A Reusable Adaptation Component Design for Learning-Based Self-Adaptive Systems <i>Kishan Kumar Ganguly and Kazi Sakib</i>	244
Immersive Coding: A Virtual and Mixed Reality Environment for Programmers <i>Roy Oberhauser</i>	250