



ICONS 2014

The Ninth International Conference on Systems

February 23 - 27, 2014

Nice, France

ICONS 2014 Editors

Marko Jäntti, University of Eastern Finland, Finland

Gary Weckman, Ohio 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© (2014) by International Academy, Research, and Industry Association (IARIA)
Please refer to the Copyright Information page.

Printed by Curran Associates, Inc. (2014)

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: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

ICONS 1: EMBEDDED SYSTEMS AND SYSTEMS-ON-THE-CHIP

A New Design Process to Reduce Resource Usage in SDR Systems	1
<i>S. Yassin, I. Kamel, H. Tawfik</i>	
Efficient FPGA-Based Architecture for Spike Sorting Using Generalized Hebbian Algorithm	6
<i>W. Hwang, C. Ke, S. Lai, J. Wu</i>	
Icy-Core Framework for Simulating Thermal Effects of Task Migration Algorithms on Multi- and Many-Core Architectures	12
<i>M. Becher, F. Pacull, S. Bensalem</i>	
Comparison of Receiver Architecture in Terms of Power Consumption and Noise Figure for Cochlear Implants Application	18
<i>U. Cerasani, W. Tatinian, P. Ndungidi, C. Dualibe, C. Valderrama</i>	

ICONS 2: SYSTEMS' THEORY AND PRACTICE

A Cartesian Methodology for an Autonomous Program Synthesis System	22
<i>M. Franova</i>	
An Electricity Flow Optimization Problem for Effective Operation of Storage Devices in Microgrid	28
<i>H. Aoki, N. Shinomiya</i>	
Construction Principles for Well-behaved Scalable Systems	32
<i>P. Ochsenschlager, R. Ricke</i>	
Analytical Model of an Eddy Current Retarder with Consideration of Nonlinear Magnetization Characteristics of its Ferromagnetic Material	40
<i>S. Park, K. Park, C. Yoo, J. Hwang</i>	

ICONS 3: COMPUTER VISION AND COMPUTER GRAPHICS

Optimization of HDF5 Performance for Virtual Reality Objects Enhanced by Implicit Features	48
<i>A. Tzokev, A. Bacharov, S. Maleshkov</i>	
A New Method for Haar-Like Features Weight Adjustment Using Principal Component Analysis for Face Detection	55
<i>R. Magalhaes, C. Lima</i>	
Recognition of Haemolytic Transfusion Bags	63
<i>P. Rajmanova, P. Nudzikova</i>	

ICONS 4: APPLICATION-ORIENTED SYSTEMS

LonMaps: An Architecture of a Crime and Accident Mapping System based on News Articles	67
<i>H. Ito</i>	
Generic Self-Learning Context Sensitive Solution for Adaptive Manufacturing and Decision Making Systems	73
<i>D. Stokic, S. Scholze, O. Kotte</i>	
A Matching Problem in Electricity Markets using Network Flows	79
<i>R. Hase, N. Shinomiya</i>	
Telemetric Data Visualization of Vehicle's Crew in Geographic Context	83
<i>P. Nudzikova, P. Rajmanova</i>	

ICONS 5: SYSTEM INSTRUMENTATION

Smart Metering based on Wireless Networks for Improved Water Management	89
<i>H. Lee, S. Hong, G. Shin</i>	
Support System for Caregivers with Optical Fiber Sensor and Cleaning Robot	94
<i>J. Ichikawa, T. Kon, K. Watanabe, N. Shinomiya</i>	

Remote Monitoring System with Optical Fiber Sensors and the Internet-Standard Protocol	98
<i>K. Fuchigami, L. Goh, N. Shinomiya</i>	

ICONS 6: ADVANCED SYSTEMS

Still Picture Internet Broadcasting System with Audience-oriented Bandwidth Control for Smartphone Broadcasters	102
<i>Y. Nakano, Y. Saito, Y. Murayama</i>	
Towards Organizational Modules and Patterns based on Normalized Systems Theory	106
<i>P. Bruyn, H. Mannaert, J. Verelst</i>	
SmartModels – A Framework for Generating On-line Assessment Systems	116
<i>E. Tundra</i>	

ICONS 7: SPECIALIZED SYSTEMS

Electrical Adjustable Beds Testing Automation to Identify Mechanical and Electrical Defects	123
<i>M. Rayes, T. Nassef, T. Tawfik</i>	
A Robust Wind Estimation Scheme for Simple Tethersonde	128
<i>H. Nam, S. Choi, D. Kim, S. Yang</i>	
Mobile Agent Synchronizer for a Real-time Architecture	132
<i>A. Esserhir, F. Mourlin</i>	
Dynamic Pattern Utilization for Automatic UAV Control Support	140
<i>F. Segor, C. Sung, R. Schonbein, I. Tchouchenkov, M. Kollmann</i>	

ICONS 8: COMPLEX SYSTEMS

A Tool Architecture for Diagnostic in Power Electric Network Using Method Engineering and Multi Agent Systems	145
<i>J. Lienou, M. Nkenlifack, T. Noulamo, E. Tanyi</i>	
Decision Support System for Offers of Fleet Availability Services	150
<i>A. Pozzetti, I. Bilegan, D. Duvivier, B. Matrat, S. D'Arco, S. Forato, A. Artiba</i>	
Authoritative Authors Mining within Web Discussion Forums	154
<i>K. Machova, M. Sendek</i>	
Formal Methods for Comparing Behavior of Procedures in Different Languages	160
<i>D. Musliner, M. Boldt, M. Pelican, D. Geschwender</i>	

ICONS 9: SECURITY AND PROTECTION SYSTEMS

Out-of-Step Protection System Testing by Means of Communication Network Emulator	166
<i>A. Sauhats, A. Dolgicers, A. Utans, D. Antonovs, G. Pashnin</i>	
A Novel Technique for Retrieving Source Code Duplication	172
<i>Y. Udagawa</i>	
An Intrusion Detection Approach Using An Adaptative Parameter-Free Algorithm	178
<i>M. Daoudi, M. Ahmed-Nacer</i>	
SSICC: Sharing Sensitive Information in a Cloud-of-Clouds	185
<i>R. Souza, H. Netto, L. Lung, R. Custodio</i>	
Sensitive Information Protection on Mobile Devices Using General Access Structures	192
<i>T. Hyla, J. Pejas, I. Fray, W. Mackow, W. Chocianowicz, M. Szulga</i>	

ICONS 10: SYSTEMS ENGINEERING I

IT Service Management in Multiple Actor Network: Service Support from Customer's Point of View	197
<i>A. Lahtela, M. Janitti</i>	
Using Reference Traces for Validation of Communication in Embedded Systems	203
<i>F. Langer, E. Oswald</i>	

Towards to an Agent-Oriented Meta-Model for Modeling Vehicular Systems with Multi-Configuration Ability	209
<i>M. Garoui, B. Mazigh, A. Koukam, B. Ayeb</i>	

ICONS 11: SYSTEMS ENGINEERING II

A Semantic Platform Infrastructure for Requirements Traceability and System Assessment	215
<i>P. Delgoshaei, M. Austin, D. Veronica</i>	
Improving Change Management Systems and Processes	220
<i>M. Jantti, J. Niskala</i>	
A Branch-and-Cut Algorithm to Solve the Container Storage Problem.....	226
<i>N. Ndiaye, I. Diarrassouba, A. Yassine</i>	
Towards Interoperability to the Implementation of RESTful Web Services: A Model Driven Approach	234
<i>N. Tavares, S. Vale</i>	
Author Index	