



# **ICAS 2017**

The Thirteenth International Conference on Autonomic and Autonomous Systems

May 21 - 25, 2017

Barcelona, Spain

## **ICAS 2017 Editors**

Carlos Becker Westphall, University of Santa Catarina, Brazil

Márcio Mendonça, Federal University of Technology of Paraná, Brazil

Rafael Oliveira Vasconcelos, Pontifical Catholic University of Rio de Janeiro (PUC-Rio) / University Tiradentes (UNIT), Brazil

**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© (2017) by International Academy, Research, and Industry Association (IARIA)  
Please refer to the Copyright Information page.

Printed by Curran Associates, Inc. (2017)

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

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

[petre@iaria.org](mailto: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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## **ICAS 1: AUTONOMIC COMPUTING**

<b>Towards a Framework for Applying the Visualization of Smart Monitoring Architectures to a Distributed Ubiquity Mobility Platform</b> .....	1
<i>D. Khadraoui, C. Feltus</i>	
<b>OptPLAN: Improving the Optimal Plan Calculation on Relational Databases</b> .....	7
<i>L. Orleans, M. Brito, E. Silva</i>	
<b>Detection of Runtime Normative Conflict based on Execution Scenarios</b> .....	12
<i>M. Belchior, V. Silva</i>	

## **ICAS 2: ALGORITHMS AND THEORY FOR CONTROL AND COMPUTATION**

<b>Discrete Time LQG Controller for Speed Control in a Steam Turbine Coupled to DC Generator</b> .....	19
<i>H. Acevedo, H. Acuna</i>	
<b>A Control Method for Bipedal Trunk Spring Loaded Inverted Pendulum Model</b> .....	24
<i>J. Lee, M. Vu, Y. Oh</i>	
<b>Extended LALR(1) Parsing</b> .....	30
<i>W. Yang</i>	

## **ICAS 3: ADVANCES IN SYSTEM AUTOMATION**

<b>Empirical Investigation of Changes of Driving Behavior and Usability Evaluation Using an Advanced Driving Assistance System</b> .....	36
<i>S. Matsubayashi, K. Miwa, T. Kamiya, T. Suzuki, T. Yamaguchi, R. Ikeura, S. Hayakawa</i>	
<b>Neural Network Structure with Alternating Input Training Sets for Recognition of Marble Surfaces</b> .....	40
<i>I. Topalova, M. Uzunova</i>	
<b>Design and Development of the 24 GHz FMCW Radar Sensor for Blind Spot Detection and Lane Change Assistance Systems</b> .....	45
<i>Y. Ju, S. Kim, Y. Jin, J. Lee</i>	

## **ICAS 4 / FUCOMA: FUZZY COGNITIVE MAPS**

<b>Simplified Fuzzy Dynamic Cognitive Maps Applied to the Maintenance Management of Electric Motors</b> .....	48
<i>P. Soares, L. Souza, M. Mendonca, I. Chrun, M. Rocha</i>	
<b>Dynamic Fuzzy Cognitive Maps Embedded and Classical Fuzzy Controllers Applied in Industrial Process</b> .....	54
<i>L. Souza, R. Barros, M. Mendonca, E. Papageorgiou</i>	
<b>Fuzzy Cognitive Maps and Weighted Classic Fuzzy Applied on Student Satisfaction Level</b> .....	60
<i>L. Souza, R. Barros, P. Soares, J. Ferreira</i>	
<b>Empirical Comparison of Fuzzy Cognitive Maps and Dynamic Rule-based Fuzzy Cognitive Maps</b> .....	66
<i>A. Mourhir, E. Papageorgiou</i>	

## **ICAS 5 / IOIT I: INTERNET OF INTELLIGENT AND AUTONOMIC THINGS I**

<b>Smart Driving Behavior Analysis Based on Online Outlier Detection: Insights from a Controlled Case Study</b> .....	73
<i>I. Vasconcelos, R. Vasconcelos, B. Olivieri, M. Endler, M. Colaco Jr.</i>	
<b>Development of a Lean Information and Communication Tool to Connect and Digitize Company Departments in Small and Medium-Sized Enterprises</b> .....	79
<i>R. Muller, M. Vette, L. Horauf, C. Speicher, D. Burkhard</i>	

**ICAS 6 / IOIT II: INTERNET OF INTELLIGENT AND AUTONOMIC THINGS II**

**UAV Integration Into IoIT: Opportunities and Challenges** ..... 86  
*M. Rodrigues, D. Pigatto, J. Fontes, A. Pinto, J. Diguet, K. Branco*

**D-Joseph: An Efficient Approach for Dynamic Software Reconfiguration in Data Stream Processing Systems** ..... 92  
*R. Vasconcelos, I. Vasconcelos, M. Endler*

**Author Index**