



INTELLI 2015

The Fourth International Conference on Intelligent Systems and Applications

InManEnt 2015

The International Symposium on Intelligent Manufacturing Environments

October 11 - 16, 2015

St. Julians, Malta

INTELLI 2015 Editors

Ingo Schwab, University of Applied Sciences Karlsruhe, Germany

Leo van Moergestel, Utrecht University of Applied Sciences, The Netherlands

Gil Gonçalves, Faculty of Engineering, University of Porto, Portugal

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© (2015) by International Academy, Research, and Industry Association (IARIA)
Please refer to the Copyright Information page.

Printed by Curran Associates, Inc. (2015)

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

INTELLI 1: INTELLIGENT HUMAN-COMPUTER INTERACTION SYSTEMS

| | |
|---|----|
| Modelling Communicative Space: From Human Communication to Conversational Agents | 1 |
| <i>Mare Koit, Haldur Oim</i> | |
| Low-level Automation as a Pathway to Appropriate Trust in an Intelligent PED Enterprise: Design of a Collaborative Work Environment..... | 6 |
| <i>Michael P. Jenkins, Arthur Wollocko, Martin Voshell, Mike Farry</i> | |
| Evaluation of Visual Impression of Delayed Movement of Avatar while Exercising..... | 10 |
| <i>Taeko Tanaka, Hiroshi Hashimoto, Sho Yokota</i> | |

INTELLI 2: INTELLIGENT APPLICATIONS AND SYSTEMS

| | |
|---|----|
| On the Robustness of Regression Type Classifiers | 16 |
| <i>Olgierd Hryniwicz</i> | |
| Bio-inspired Design of High-speed Transmission Line: High Signal Integrity Design for Printed Circuit Board Traces in GHz Domain | 23 |
| <i>Moritoshi Yasunaga, Ikuo Yoshihara</i> | |
| Evaluation and Monitoring for Disaster Management..... | 26 |
| <i>Alexander Ryjov</i> | |
| G-Form: A New Approach for Visual Interpretation of Deep Web Form as Galaxy of Concepts | 32 |
| <i>Radhouane Boughammoura, Lobna Hlaoua, Mohamed Nazih Omri</i> | |

INTELLI 3: INTELLIGENT AGENTS

| | |
|---|----|
| Experimental Analysis of Black Virus Decontamination by DisJ..... | 40 |
| <i>Jie Cai</i> | |
| Multi-Agent Technology in Real-time Intelligent Resource Management Systems | 49 |
| <i>Igor Mayorov, Petr Skobelev</i> | |
| Modeling the Dynamics of Insulin-Glucose Subsystem Using a Multi-agent Approach Based on Knowledge Communication | 55 |
| <i>Sebastian Meszynski, Oleksandr Sokolov</i> | |
| Multicast Routing for High-Quality Multimedia Environments: Deployment and New Problems..... | 61 |
| <i>Pavel Troubil, Hana Rudova, Petr Holub</i> | |

INTELLI 4: FORMAL ONTOLOGY AND SEMANTICS

| | |
|--|----|
| An Iterative Method for Enhancing Text Comprehension by Automatic Reading of References | 66 |
| <i>Amal Babour, Fatema Nafa, Javed I. Khan</i> | |
| Crowdsourcing-Based Multi-Layer Automated Ontology Matching: An Approach and Case Study | 74 |
| <i>Alexander Smirnov, Nikolay Shilov, Nikolay Teslya, Alexey Kashevnik</i> | |
| Object-Oriented Communication Model for an Agent-Based Inventory Operations Management..... | 80 |
| <i>Rafal Cupek, Adam Ziebinski, Lukasz Huczala, Daniel Grossmann, Markus Bregulla</i> | |
| Granular Meta-Ontology and Extended Allen's logic: Some Theoretical Background and Application to Intelligent Product Lifecycle Management Systems..... | 86 |
| <i>Valery B. Tarassov, Alena V. Fedotova, Rainer Stark, Baurzhan S. Karabekov</i> | |

INTELLI 5: INTELLIGENT ROBOTICS

| | |
|--|----|
| A Lightweight Simulator for Autonomous Driving Motion Planning Development..... | 94 |
| <i>Tianyu Gu, John M. Dolan</i> | |
| A NAO-based Intelligent Robotic System for a Word Search-like Game..... | 98 |
| <i>Vitor Lobato-Rios, Angelica Munoz-Melendez, Jose Martinez-Carranza</i> | |

| | |
|--|-----|
| LQG Control of a Two-Wheeled Mobile Pendulum System | 105 |
| <i>Akos Odry, Ervin Burkus, Peter Odry</i> | |

INTELLI 6: HYBRID ARTIFICIAL INTELLIGENT SYSTEMS

| | |
|---|-----|
| Estimation of Nuclear Reactor Vessel Water Level in Severe Accidents Using Cascaded Fuzzy Neural Networks..... | 113 |
| <i>Dong Yeong Kim, Kuae Hwan Yoo, Geon Pil Choi, Man Gyun Na</i> | |
| Prediction of Golden Time Using SVM for Recovering SIS in Severe Post-LOCA Circumstances | 118 |
| <i>Kuae Hwan Yoo, Dong Yeong Kim, Ju Hyun Back, Man Gyun Na</i> | |
| Automatic Trigger Speed for Vehicle Activated Signs using Adaptive Neuro fuzzy System and ClassificationRegression Trees | 124 |
| <i>Diala Jomaa, Siril Yella, Mark Dougherty</i> | |

INMANENT 1: OPTIMIZATION AND CONTROL OF PRODUCTION SYSTEMS AND LINES I

| | |
|---|-----|
| Process Chain Optimization using Universal State and Control Features..... | 126 |
| <i>Melanie Senn, Ingo Schwab, Norbert Link</i> | |
| Application of Task-to-Method Transform to Laser Seam Welding..... | 128 |
| <i>Jurgen Pollak</i> | |
| Globally Optimized Production by Co-operating Production Agents Based on Bellmans Principle..... | 134 |
| <i>Norbert Link</i> | |
| SMARTLAM - A Modular, Flexible, Scalable, and Reconfigurable System for Manufacturing of Microsystems..... | 140 |
| <i>Steffen Scholz, Tobias Mueller, Matthias Plasch, Hannes Limbeck, Tobias Iseringhausen, Markus Dickerhof, Andreas Schmidt, Christian Woegerer</i> | |

INMANENT 2: OPTIMIZATION AND CONTROL OF PRODUCTION SYSTEMS AND LINES II

| | |
|--|-----|
| Process State Observation Using Artificial Neural Networks and Symbolic Regression..... | 142 |
| <i>Susanne Fischer</i> | |
| Efficient Implementation Of Network-enabled Devices Into Industrial Environment: Implementation Criterias and Practical Business Processes for Integrating Intelligent Network-enabled Devices..... | 148 |
| <i>Martin Kasperezyk, Eileen Ridders</i> | |
| Optimizing Product Paths in a Production Grid..... | 150 |
| <i>Leo Van Moergestel, Erik Puik, Daniel Telgen, John-Jules Meyer</i> | |

INMANENT 3: COOPERATION AND COMMUNICATION IN MANUFACTURING ENVIRONMENTS

| | |
|---|-----|
| Self-organising Smart Components in Advanced Manufacturing Systems | 157 |
| <i>Rui Pinto, Joao Reis, Ricardo Silva, Vitor Sousa, Gil Goncalves</i> | |
| Self-Diagnosis and Automatic Configuration of Smart Components in Advanced Manufacturing Systems | 164 |
| <i>Rui Pinto, Joao Reis, Vitor Sousa, Ricardo Silva, Gil Goncalves</i> | |
| Comparing Knowledge Representation Forms in Empirical Model Building..... | 170 |
| <i>Hao Wang, Ingo Schwab, Michael Emmerich</i> | |
| Test Platform for the Performance Evaluation of OPC-UA Servers for Fast Data Transfer Between Intelligent Equipment..... | 179 |
| <i>Flavio González Vázquez</i> | |
| Author Index | |