

2017 International Conference on Intelligent Environments (IE 2017)

**Seoul, South Korea
21-25 August 2017**



**IEEE Catalog Number: CFP1750K-POD
ISBN: 978-1-5386-1921-6**

**Copyright © 2017 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP1750K-POD
ISBN (Print-On-Demand):	978-1-5386-1921-6
ISBN (Online):	978-1-5386-1920-9
ISSN:	2469-8792

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
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2017 13th International Conference on Intelligent Environments

IE 2017

Table of Contents

Preface	ix
Conference Organization	xi
Program Committee	xiii
Sponsors	xv
Keynotes	xvi

Regular Papers

Design and Implementation of Location Service Based on Signal Strength Difference	1
<i>Jing Haifeng and Wang Bin</i>	
Parades Aiding System (PAR.AID.S): Intelligent Management of Carnival Parades	6
<i>Zois Koukopoulos and Dimitrios Koukopoulos</i>	
Chronic Heart Failure Detection from Heart Sounds Using a Stack of Machine-Learning Classifiers	14
<i>Martin Gjoreski, Monika Simjanoska, Anton Gradišek, Ana Peterlin, Matjaž Gams, and Gregor Poglajen</i>	
An Application to Enrich the Study of Auditory Emotion Recognition	20
<i>Renato Rodrigues, Augusto J. Mendes, Davide Carneiro, Maria Amorim, Ana P. Pinheiro, and Paulo Novais</i>	
IoT-based System to Forecast Crop Frost	28
<i>M.Ángel Guillén-Navarro, Fernando Pereñíguez-García, and Raquel Martínez-España</i>	
An Approach for Hybrid Indoor/Outdoor Navigation	36
<i>Stephan Wagner, Ngewi Fet, Marcus Handte, and Pedro José Marrón</i>	

Searching for Behavior Patterns of Students in Different Training Modalities through Learning Management Systems	44
<i>Magdalena Cantabella, Elisabeth Domínguez de la Fuente, Raquel Martínez-España, Belén Ayuso, and Andrés Muñoz</i>	
A More Realistic K-Nearest Neighbors Method and Its Possible Applications to Everyday Problems	52
<i>José M. Cadenas, M. Carmen Garrido, Raquel Martínez-España, and Andrés Muñoz</i>	
Computational Sustainability for Smart City Design	60
<i>Fábio Andre Souto da Silva, and Cesar Analide de Freitasé Silva da Costa Rodrigues</i>	
A Predictive Model for Automatic Detection of Social Isolation in Older Adults	68
<i>Alicia Martinez, Virginia Ortiz, Hugo Estrada, and Miguel Gonzalez</i>	
Management of Physical, Mental and Environmental Stress at the Workplace	76
<i>Božidara Cvetković, Martin Gjoreski, Jure Šorn, Martin Frešer, Maciej Bogdański, Katarzyna Jackowska, Michał Kosiedowski, Aleksander Stroiński, and Mitja Luštrek</i>	
A Reliable and Efficient Wireless Sensor Network System for Water Quality Monitoring	84
<i>Dung Nguyen and Phu H. Phung</i>	
vIRONy: A Tool for Analysis and Verification of ECA Rules in Intelligent Environments	92
<i>Claudia Vannucchi, Michelangelo Diamanti, Gianmarco Mazzante, Diletta Romana Cacciagrano, Flavio Corradini, Rosario Culmone, Nikos Gorogiannis, Leonardo Mostarda, and Franco Raimondi</i>	
Improved Multi-user Interaction in a Smart Environment Through a Preference-Based Conflict Resolution Virtual Assistant	100
<i>Kenzhegali Nurgaliyev, Dario Di Mauro, Nawaz Khan, and Juan Carlos Augusto</i>	
Utilizing Dynamics Patterns of Trust for Recommendation System	108
<i>Hoang Long Nguyen and Jason J. Jung</i>	
Understanding Collaboration in Global Software Engineering (GSE) Teams with the Use of Sensors: Introducing a Multi-sensor Setting for Observing Social and Human Aspects in Project Management	114
<i>Georgios Dafoulas, Cristiano Maia, Almaas Ali, Juan Carlos Augusto, and Victor Lopez-Cabrera</i>	

Special Session on Representation Learning for Networks

Linking Virtual Identities across Service Domains: An Online Behavior Modeling Approach	122
<i>Yan Wu, Qiujuan Lv, Yuanyuan Qiao, and Jie Yang</i>	
An Adaptive Sentence Representation Learning Model Based on Multi-gram CNN	130
<i>Chunyun Zhang, Sheng Gao, Baolin Zhao, Lu Yang, Xiaoming Xi, Chaoran Cui, and Yilong Yin</i>	
A Simulator for Performance Comparison of Four Color Allocation	136
<i>ShinHeon Kim, KyuJin Kim, and ChongGun Kim</i>	
Relation Extraction via Position-Enhanced Convolutional Neural Network	142
<i>Weiwei Shi and Sheng Gao</i>	

Short and Poster Papers

A Realtime Spatiotemporal Data Acquisition System for Precision Agriculture	149
<i>Seong-Hun Lee, Messaoudi Oumaima, Su-Hyeon Ryu, and Jaehwa Park</i>	
Towards Affective Lifelogging with Information Fusion	153
<i>Jason J. Jung, Minsung Hong, O-Joun Lee, Jaehong Park, and Chang Choi</i>	
The Forex Market as an Elastic Network Model	155
<i>Antonio V. Contreras, Sergio Navarro, Antonio Llanes, Andrés Muñoz, Horacio Pérez-Sánchez, and José M. Cecilia</i>	
A Novel Power Allocation Method for Non-orthogonal Multiple Access in Cellular Uplink Network	157
<i>Ziqi Sheng, Xin Su, and Xuewu Zhang</i>	
Cipo_00 [Laterna — Stencil Grapher]: For Radical Nomadic Robotic Performance	160
<i>Daflos E. Kostas</i>	
Understanding Your History: Multi-dimensional Data Stream Visualization of Personal Lifelogging Data	164
<i>Minsung Hong and Jason J. Jung</i>	
Cooperative Game Theoretic Approach for Distributed Resource Allocation in Heterogeneous Network	168
<i>Khac-Hoai Nam Bui and Jason J. Jung</i>	
Discretizing Numerical Values by a Fuzzy Clustering Technique	172
<i>Andrés Bueno-Crespo, Raquel Martínez-España, Isabel Timón, and Jesús Soto</i>	
Packet Damage-Resistant Analysis Using a Data Mining Mechanism in Wireless Sensor Networks	176
<i>Jinsuk Baek and Paul S. Fisher</i>	

Intelligent System to Assist the Independent Living of the Elderly	180
<i>Jani Bizjak, Anton Gradišek, Luka Stepančič, Hristijan Gjoreski, Matjaž Gams, and Karmen Goljuf</i>	
Demos and Videos Papers	
MADMACS - Multiadaptive Dialogue Management in Cyber-Physical Environments	184
<i>Yannick Körber, Vanessa Hahn, Mohammad Mehdi Moniri, Tim Schwartz, and Michael Feld</i>	
Author Index	188