

2017 IEEE 15th International Symposium on Intelligent Systems and Informatics (SISY 2017)

**Subotica, Serbia
14-16 September 2017**



**IEEE Catalog Number: CFP1784C-POD
ISBN: 978-1-5386-3856-9**

**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:	CFP1784C-POD
ISBN (Print-On-Demand):	978-1-5386-3856-9
ISBN (Online):	978-1-5386-3855-2
ISSN:	1949-047X

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

Table of Contents

Committees	9
Data Analytics for Clouds Health-Care and Risk Predictions based on Ensemble Classifiers and Subjective Projection.....	11
Hamido Fujita • <i>Iwate Prefectural University, Japan</i>	
The Entanglement of Control and IT in 21st Century: Intelligent Systems.....	13
Okay Kaynak • <i>Bogazici University, Turkey; and Harbin Institute of Technology (HIT), China</i>	
CyberMedical Systems: Challenges and Possibilities	15
Levente Kovács • <i>Óbuda University, Budapest, Hungary</i>	
LPV-based Control of Nonlinear Compartmental Model with Input Uncertainty	17
György Eigner, Árpád Varga, Miklós Mezei, Levente Kovács • <i>Óbuda University, Budapest, Hungary</i>	
Trends in Software Maintenance Tasks Distribution among Programmers: A Study in a Micro Software Company	23
Zeljko Stojanov, Jelena Stojanov, Dalibor Dobrilovic, Nikola Petrov <i>University of Novi Sad/Technical faculty "Mihajlo Pupin", Zrenjanin, Serbia</i>	
Program Guide and Data Management Software System for Theaters	29
István Bege, Melinda Tóth, Károly Simon • <i>Babes-Bolyai University, Cluj-Napoca, Romania</i> Zoltán Szilágyi, Levente Kintzel • <i>Codespring, Cluj-Napoca, Romania</i>	
FPGA-based Low-Cost Real-Time Face Recognition.....	37
Laszlo Schaffer, Zoltan Kincses, <i>University of Szeged</i> Szilveszter Pletl, <i>Collage of Applied Sciences, Subotica Tech, Subotica, Serbia</i>	
Competency-based Learning Model in Practice	39
Larisa Dedović, Denis Mušić • <i>University "Džemal Bijedić" of Mostar, Mostar, BiH</i>	
Industrial Acoustic Signal Processing with Graph-based Features	45
Tibor Dobján • <i>John von Neumann University, Kecskemét, Hungary</i> Péter Kardos, Gábor Németh • <i>University of Szeged, Szeged, Hungary</i>	
FaceTime – Deep Learning-based Face Recognition Attendance System	51
Marko Arsenovic, Srdjan Sladojevic, Andras Anderla, Darko Stefanovic <i>University of Novi Sad, Novi Sad, Serbia</i>	
Constructing World Sustainability Models – the Challenge of the Future	57
Eva Pataki *, Andor Sagi **, Anita Sabo* * <i>Subotica Tech - College of Applied Sciences, Subotica, Serbia</i> ** <i>General Hospital of Subotica, Subotica, Serbia</i>	
Modern Feature Extraction Methods and Learning Algorithms in the Field of Industrial Acoustic Signal Processing.....	63
Tibor Dobján and Elvira D. Antal • <i>John von Neumann University, Kecskemét, Hungary</i>	
Classification of Hotel Guests by Predicted Additional Spending with ANN Decision Support System	69
Vladimir Bugarski, Dragan Matić, Filip Kulić • <i>University of Novi Sad, Novi Sad, Serbia</i>	

The Economic Impact of Diabetes.....	75
Zsolt Fézer, Levente Kovács • <i>Óbuda University, Budapest, Hungary</i>	
Distance Function Associated With the g-integral With Respect to the Interval-valued \oplus-measure.....	81
Slavica Medić, Nataša Duraković, Vesna Bogdanović, Tatjana Grbić, Ivana Lončarević, Ljuba Budinski-Petković <i>University of Novi Sad, Novi Sad, Serbia</i>	
Fixed Point Results of Suzuki Type	85
Tatjana Došenović, Dušan Rakić, Aleksandar Takači • <i>University of Novi Sad, Novi Sad, Serbia</i>	
On Solutions of Distributivity Equations for Mayor's Aggregation Operators.....	91
Dragan Jočić* and Ivana Štajner-Papuga** * <i>Nova Sad Business School, Nova Sad, Serbia</i> ** <i>University of Nova Sad, Nova Sad, Serbia</i>	
Generalized Minkowski type Inequality for Pseudo-Integral	97
Biljana Mihailović, Mirjana Štrboja • <i>University of Novi Sad, Novi Sad, Serbia</i>	
Overview of Taxi Database from Viewpoint of Usability for Traffic Model Development: a Case Study for Budapest	103
Árpád Varga, György Eigner, Levente Kovács, Imre Felde, Miklós Mezei <i>Óbuda University, Budapest, Hungary</i>	
State Estimation for UAVs Using Sensor Fusion.....	109
Zsófia Bodó*, Béla Lantos** * <i>Budapest University of Technology and Economics, Hungary</i> ** <i>MTA-BME Control Engineering Research Group, Budapest, Hungary</i>	
Complementary Functions for Intelligent Wheelchair Head Tilts Controller	115
Mohammed Faeik Ruzaij Al-Okby*,**, Sebastian Neubert*, Norbert Stoll*, Kerstin Thurov* * <i>University of Rostock, Rostock, Germany</i> ** <i>Al-Furat Al-Awsat Technical University (ATU), Babylon, Iraq</i>	
Soft-Computing-based Classification and Design of Quantum Dot Nanostructures on GaAs Substrate	121
Antal Ürmös, Zoltán Farkas, Tamás Sándor, Ákos Nemcsics <i>Óbuda University, Budapest, Hungary</i>	
Solution of the Repetitive Control Circuit Using W–Transform.....	127
M. Tóthová*, J. Piteľ*, M. Balara** * <i>Technical University of Košice, Prešov, Slovakia</i> ** <i>J. M. Petzval Society, Prešov, Slovakia</i>	
Dispositional Trust – Do We Trust Autonomous Cars?.....	131
Kornelia Lazanyi, Gréta Maráczsi <i>Óbuda University, Budapest, Hungary</i>	
Creating Smart, Sustainable and Safe Cities	137
Dániel Tokody, Imre János Mezei <i>Óbuda University, Budapest, Hungary</i>	
The Role of IT in International Student Mobility: The Y-Generation Case	143
Péter Holicza, Pál Fehér-Polgár <i>Óbuda University, Budapest, Hungary</i>	

Selection of Unmanned Aerial Vehicle for Precision Agriculture with Multi-Criteria Decision Making Algorithm	149
Imre Petkovics*, János Simon**, Ármin Petkovics***, Zlatko Čović*	
* University of Novi Sad, Subotica, Serbia; ** Subotica Tech – College of Applied Sciences, Subotica, Serbia	
*** Budapest University of Technology and Economics, Budapest, Hungary	
Human Action Recognition with Hidden Markov Models and Neural Network Derived Poses.....	155
Egbert Gedat, Pascal Fechner, Richard Fiebelkorn, Ralf Vandenhoueten	
Wildau Technical University of Applied Sciences, Wildau, Germany	
Minimum-Time Path Tracking for Robots with Non-Convex Constraints	161
Ákos Nagy, István Vajk	
Budapest University of Technology and Economics	
MTA-BME Control Engineering Research Group, Budapest, Hungary	
Synthesis of the Proportional Integral Controller for a Minimum Phase High Order System by using the Lambert W Function.....	167
Radmila Gerov*, Zoran Jovanović**	
* School of Agriculture with a student's dormitory Rajko Bosnić, Negotin, Serbia	
** University of Niš, Niš, Serbia	
Uniform Dispersal of Silent Oblivious Robots	173
Attila Hideg*, Lukovszki Tamás**, Bertalan Forstner*	
*Budapest University of Technology and Economics, Budapest, Hungary	
** Eötvös Loránd University, Budapest, Hungary	
Software as a Service in Cloud-based ERP Change Management	177
István Orosz, Tamás Orosz	
Óbuda University /AMK, Székesfehérvár, Hungary	
A Prescription-based Automatic Medical Diagnosis System using a Stacking Method	183
Shiva Kazempour Dehkordi, Hedieh Sajedi • University of Tehran, Tehran, Iran	
Data Packet Header Actions in Fault Tolerance of Persistent Routing Sessions	187
Stefano-Niko Orzen, Sorin Babii • Politehnica University of Timișoara, Timișoara, Romania	
Differentiation of Identical Actinobacterial Strains by Wavelet Transform and Artificial Neural Network	193
Seyyed Amir Hosein Rahimi, Hedieh Sajedi, Fatemeh Mohammadipanah	
University of Tehran, Tehran, Iran	
Comparison of Maintenance Experts' Opinions.....	199
László Pokorádi, József Gáti, Csaba Fenyvesi, Gábor Ágoston • Óbuda University, Budapest, Hungary	
A Case Study of a Hybrid Flow Shop with No-Wait and Limited Idle Time to Minimize Material Waste....	205
Houda Harbaoui*,**, Soulef Khalfallah**, Odile Bellenguez-Morineau*	
* Institut Mines Telecom Atlantique, Nantes Cedex 3, France	
** Université de Sousse, Hammam Sousse, Tunisia	
Model-based Evaluation and Inspection of an Advanced Driver Assistance System-based Spatial Image Acquisition Sensor	211
M. Szántó • Budapest University of Technology and Economics, Budapest, Hungary	
Diagnostic Measurement and Data Evaluation for the Effective Performance of Motor Vehicles with Free Acceleration	217
István Lakatos, Péter Őri • Széchenyi István University, Győr, Hungary	

Review of Predictive Analytics Vendors for Transport Management Systems	223
Albert Nagy, József Tick • <i>Óbuda University, Budapest, Hungary</i>	
Soft-Computing Methods Applied in Parameter Analysis of Educational Models.....	229
Igor Bagány*, Márta Takács**,*	
* <i>Óbuda University, Budapest, Hungary</i>	
** <i>University of Novi Sad/Hungarian Language Teacher Training Faculty, Subotica, Serbia</i>	
Fixed Point Transformation-based Adaptive Optimal Control Using NLP	235
Hamza Khan, Ágnes Szeghegyi and József K. Tar • <i>Óbuda University, Budapest, Hungary</i>	
Tube Model Predictive Control based on Laguerre Functions with an Auxiliary Sliding Mode Controller	241
Miodrag Spasic*, **, Darko Mitic*, Morten Hovd**, Dragan Antic*	
* <i>University of Nis, Serbia</i> ; ** <i>Norwegian University of Sciences and Technology, Trondheim, Norway</i>	
A New Lexicon Learning Algorithm for Sentiment Analysis of Big Data	247
Hamidreza Keshavarz, Mohammad Saniee Abadeh, Mehrdad Almasi	
<i>Tarbiat Modares University, Tehran, Iran</i>	
Cognitive Intelligent Robust Control System based on Quantum Fuzzy Inference for Robotics and Mechatronics	251
S. V. Ulyanov, A. G. Reshetnikov • <i>Dubna State University, Moscow Region, Russia</i>	
Comparison of Time- and Frequency-Domain Features for Movement Classification using Data from Wrist-Worn Sensors	257
Peter Sarcevic*, Szilveszter Pletl**, Zoltan Kincses*,**	
* <i>University of Szeged, Szeged, Hungary</i> ; ** <i>Subotica Tech, Subotica, Serbia</i>	
Age Prediction based on Brain MRI Images using Feature Learning.....	263
Nastaran Pardakhti, Hedieh Sajedi • <i>University of Tehran, Tehran, Iran</i>	
Novel Alignment Method for DNN TTS Training using HMM Synthesis Models	271
Siniša Suzić*, Tijana Delić*, Darko Pekar**, Vladimir Ostojić*	
* <i>University of Novi Sad, Novi Sad, Serbia</i> ; ** <i>AlfaNum Speech Technologies, Novi Sad, Serbia</i>	
Evaluation of Machine Learning Algorithms for Intrusion Detection System	275
Mohammad Almseidin*, Maen Alzubi*, Szilveszter Kovacs*, Mouhammd Alkasassbeh**	
* <i>University of Miskolc, Miskolc, Hungary</i> , ** <i>Mutah University, Amman, Jordan</i>	
Duplicated Control Unit Based Embedded Faultmasking Systems	279
György Györök, Bertalan Beszédes • <i>Óbuda University, Székesfehérvár, Hungary</i>	
Cybersecurity Issues of Pension Payments.....	285
Zsolt Szabó • <i>Óbuda University, Budapest, Hungary</i>	
Human Security Training, Development Possibility in the Context of the Safety Risks in Hungary	291
Gyula Csege, Tamás Gall • <i>Óbuda University, Budapest, Hungary</i>	
Fuzzy-Voting Systems in Smart Cities	297
Anna Barbara Szabó*, Péter Balázs Soproni**	
* <i>Óbuda University, Budapest, Hungary</i> ,	
** <i>Budapest University of Technology and Economics, Budapest, Hungary</i>	
Intellectual Visualization of Complex Maps and Schemes.....	303
Stanislav Belyakov, Marina Savelyeva, Marina Belyakova, Sergey Zubkov	
<i>Southern Federal University, Taganrog, Russia</i>	

Measuring Team Member Performance in Scrum - Case Study	309
Robert Pinter, Sanja Maravić Čisar, Petar Čisar	
<i>Subotica Tech – College of Applied Science</i>	
<i>Academy of Criminalistic and Police Studies, Belgrade-Zemun, Serbia</i>	
Clustering with a Model of Sub-Mixtures of Different Distributions	315
Ivan Nagy*, **, Evgenia Suzdaleva*, Matej Petrouš*	
* <i>The Institute of Information Theory and Automation of the Czech Academy of Sciences, Prague, Czech Republic</i>	
** <i>Czech Technical University, Prague, Czech Republic</i>	
The Role of Wikipedia in Transmitting Knowledge based on Higher Education – Focusing on a Possible Value of Formal and Informal Learning Dimensions	321
György Molnár, Zoltán Szűts	
<i>Budapest University of Technology and Economics, Budapest, Hungary</i>	
A Expert System for Stomach Cancer Images with Artificial Neural Network by using HOG Features and Linear Discriminant Analysis: HOG_LDA_ANN	325
Sevcan Aytaç Korkmaz*, Hamidullah Binol**, Ayşegül Akçiçek*, Mehmet Fatih Korkmaz*	
* <i>Firat University, Elazığ, Turkey</i> ; ** <i>Istanbul Technical University, Istanbul, Turkey</i>	
Computational Relaxations for Affine Tensor Product Model Transformation.....	331
József Kuti, Péter Galambos • <i>Óbuda University, Budapest, Hungary</i>	
Recognition of the Stomach Cancer Images with Probabilistic HOG Feature Vector Histograms by using HOG Features	335
Sevcan Aytaç Korkmaz*, Ayşegül Akçiçek*, Hamidullah Binol**, Mehmet Fatih Korkmaz*	
* <i>Firat University, Elazığ, Turkey</i>	
** <i>Istanbul Technical University, Istanbul, Turkey</i>	
Labor Market Risks of Industry 4.0, Digitization, Robots and AI.....	341
Zoltán Rajnai*, István Kocsis**	
* <i>Óbuda University, Budapest, Hungary</i> ; ** <i>Ministry for National Economy, Budapest, Hungary</i>	
Security Systems: The Introduction of Biometric Technology as a Smart Solution.....	347
Lourdes Cecilia Ruiz Salvador • <i>Óbuda University, Budapest, Hungary</i>	
Info-Communication Areas of Modernizing Field C2 Systems and Command Posts in the Interest of Successful Home Defense- Peace Operations- and Disaster-Management Tasks	353
Tibor Farkas • <i>National University of Public Service, Budapest, Hungary</i>	
Erika Hronyecz • <i>Óbuda University, Budapest, Hungary</i>	
The Review of the External Risk Factors during the Operation Training Plan of the Security Guards	359
Anikó Szabó, Zoltan Rajnai • <i>Óbuda University, Budapest, Hungary</i>	
Answers to the 21st Century Challenges at a University with Technical Training.....	363
Franciska Hegyesi, Gyula Kártyás, József Gáti	
<i>Óbuda University, Budapest, Hungary</i>	