## 2016 13th Symposium on Neural Networks and Applications (NEUREL 2016)

Belgrade, Serbia 22 – 24 November 2016



**IEEE Catalog Number: ISBN:** 

CFP16481-POD 978-1-5090-1531-3

## Copyright © 2016 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 publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP16481-POD

 ISBN (Print-On-Demand):
 978-1-5090-1531-3

 ISBN (Online):
 978-1-5090-1530-6

## **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



## **TABLE OF CONTENTS**

Sessio	on 1: Neural Networks in Biomedical Applications			
IL.1	Artificial vs. Natural Neural Networks (Invited Lecture)	1		
	Dan L. Lacrama, Loredana Ileana Viscu, Cornelia Victoria Anghel Drugarin			
S1.1	Deep Prediction Model: The Case of Online Adaptive Prediction of Subcutaneous Glucose Marko V. Jankovic, Samuel Mosimann, Lia Bally, Cristoph Stettler, Stavroula Mougiakakou	3		
S1.2	On Bioresonant Patterns-Qua-Attractors and Healing Boundary Conditions within Quantum-Holographic Psychosomatics	9		
	Dejan Raković			
S1.3	Predictive Modeling of Robot Movements in Drug Development	15		
	Ljubinka Sandjakoska, Ana Madevska Bogdanova, Nevena Ackovska			
<b>S1.4</b>	Temporal Pattern Based Classification of Independent Components in Resting State fMRI	21		
	Simona Đurić, Tatjana Lončar-Turukalo, David Dabić, Katarina Koprivšek, Miloš Lučić, Olivera Šveljo			
S1.5	Mathematical Models for Bone Density Assessment	25		
	Vesna Zeljkovic, Ivana Vucenik, Pedro Mayorga, Julio Valdez, Claude Tameze, Joseph P. Stains, Christopher Druzgalski			
S1.6	Improved Computer Aided TDT Analysis	31		
	Florentina A. Pintea, Tiberiu M. Karnyanszky, Simona A. Apostol			
S1.7	Hand Gesture Recognition Using Neural Network Based Techniques	35		
	Vladislava Bobić, Predrag Tadić, Goran Kvaščev			
S1.8	Serious Gaming Based on Kinect Technology for Autistic Children in Serbia	39		
	Miloš Roglić, Vladislava Bobić, Milica Djurić-Jovičić, Mirjana Djordjević, Nataša Dragašević, Boško Nikolić			
Session 2: Algorithms and Models				
IL.2	Multi-Agent Reinforcement Learning (Invited Lecture)	43		
	Milos Stankovic			
S2.1	Implementation of Perceptron Algorithm Using DataFlow Paradigm	45		
	Milos Kotlar, Zoran Babovic, Veljko Milutinovic			
S2.2	Solving Fuzzy Linear Systems With EP Matrix Using a Block Representation of Generalized Inverses	51		
	Vera Miler-Jerković, Milica M. Janković, Branko Malešević, Biljana Mihailović			

S2.3	Emulation of Artificial Intuition Using Random Choice and Logic  Aleksa Srdanov, Nada Ratković Kovačević, Selena Vasić, Dragan Milovanović	57
S2.4	Sparse Signal Recovery Based on Concentration Measures and Genetic Algorithm Miloš Brajović, Budimir Lutovac, Irena Orović, Miloš Daković, Srdjan Stanković	63
S2.5	Feedforward Neural Network for Controlling Qbmove Maker Pro Variable Stiffness Actuator  Branko Z. Lukić, Kosta M. Jovanović, Goran S. Kvaščev	67
S2.6	Noise Reduction by Using Autoassociative Neural Networks Nataša Vlahović, Goran Kvaščev	71
S2.7	A Note on Order Reduction in Frequency Selective Systems Liviu Goras, Stefan Viorel Savinescu	77
Sessio	on 3: Different Applications of Neural Networks	
IL.3	Sequential Estimation and Diffusion of Information Over Networks (Invited Lecture) Petar M. Djurić	81
S3.1	Prediction of Retention at Historically Black College/University Using Artificial Neural Networks	83
	David D. Pokrajac, Kimberly R. Sudler, Phyllis Y. Edamatsu, Teresa Hardee	
S3.2	Application of Artificial Neural Networks for Slope Stability Analysis in Geotechnical Practice	89
	Srđan Kostić, Nebojša Vasović, Kristina Todorović, Andreja Samčović	
S3.3	Neural Networks Application to Neretva Basin Hydro-Meteorological Data Miloš Daković, Tijana Ružić, Tanja Rogač, Miloš Brajović, Budimir Lutovac	95
S3.4	An Evolved Convex Hull Self Organizing Map for the Travelling Salesman Problem Imaculate Mosha	N/A
S3.5	The Music Effect Differentiation in Physiological Signals Milan S. Milivojević, Ana M. Gavrovska, Irini S. Reljin	105
S3.6	Video Traffic Variability in H.265/HEVC Video Encoded Sequences Ana Gavrovska, Milan S. Milivojević, Goran Zajić, Irini S. Reljin	109
S3.7	Performance Metrics for Personalized Program Guides  Marko Krstić, Milan Bjelica	113
S3.8	Modeling of Actuation Voltage of RF MEMS Capacitive Switches based on RBF ANNs Tomislav Ćirić, Zlatica Marinković, Olivera Pronić-Rančić, Vera Marković, Larissa Vietzorreck	119

Sessio	on 4: Neural Networks in Image, Video and Multimedia Processing	
IL.4	New Trends in Imaging and Video Traffic Modeling (Invited Lecture) Irini Reljin, Ana Gavrovska	123
S4.1	Face Recognition System in Android Using Neural Networks Stoimen Stoimenov, Georgi T. Tsenov, Valeri M. Mladenov	125
S4.2	Animal Call Segregation Using Self Organizing Map with Speeded Up Robust Features Kevin Pelzers, Valeri Mladenov	129
S4.3	Retinal Blood Vessels Segmentation Using Ant Colony Optimization Milija Bajčeta, Petar Sekulić, Slobodan Djukanović, Tomo Popović, Vesna Popović-Bugarin	135
S4.4	Nuclei Segmentation from Contrast Enhanced FISH Images Marijeta S. Slavković-Ilić, Milorad P. Paskaš, Branimir D. Reljin	141
S4.5	Evaluation of Morphological Multifractal Models for Texture Classification Milorad P. Paskaš, Marijeta S. Slavković-Ilić, Branimir D. Reljin	147
S4.6	Analysis of Learned Features for Remote Sensing Image Classification Vladimir Risojević	151
S4.7	Evaluation of Descriptor Dimensionality Reduction Methods for Land-Use Classification Aleksej Avramović	157
S4.8	CBIR System with Relevance Feedback Using Hölder Exponent Milena D. Vesić, Goran J. Zajić, Ana M. Gavrovska	163
<b>A.</b> 1	Author index	167