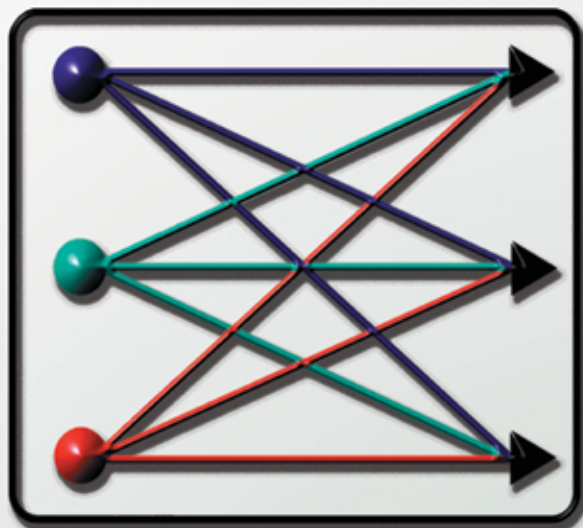


NEUREL



2012

Organized by:

IEEE Serbia and Montenegro (S&M) Section

IEEE S&M CAS-SP Chapter

IEEE S&M CI Chapter

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In cooperation with:

Faculty of Electrical Engineering
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Faculty of Electrical Engineering
University of Belgrade
September 20-22, 2012
Belgrade, Serbia



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CAS



ETRAN

NEUREL 2012 Conference Program, September 20-22, 2012
Faculty of Electrical Engineering, University of Belgrade, Bulevar kralja Aleksandra 73

Thursday, September 20, 2012

09:00 – 10:30 Registration and Coffee **Main Hall (1st floor)**

10:30 – 11:00 Opening Session **Main Conference Room (1st floor)**

11:00 – 12:00 CAS-SP and CI Joint Meeting **Main Conference Room (1st floor)**

SP Society Distinguished Lecture

Moderators: Branimir Reljin and Duško Katić

Lecturer: Prof. Dr. Tülay Adali, Fellow, IEEE and AIMBE, Department of Computer Science and Electrical Engineering, University of Maryland, Baltimore County, USA

Joint Blind Source Separation: Applications in Medical Image Analysis

12:00 – 12:30 Plenary Lecture 1 **Main Conference Room (1st floor)**

Moderators: Duško Katić and Branimir Reljin

Lecturers: Prof. Dr. Srđan Stanković, Faculty of Electrical Engineering, University of Belgrade, Serbia, and **Dr. Miloš Stanković**, Royal Institute of Technology, Stockholm, Sweden

Cooperative Networked Systems

12:30 – 14:00 Welcome Cocktail **Main Hall (1st floor)**

13:30 – 14:30 IEEE Serbia & Montenegro Ex. Com. Meeting **Room 64**

14:30 – 16:30 Regular Session 1: **Room 25**

Neural Networks for Estimation and Feature Extraction

Chairs: Valeri Mladenov and Vera Marković

Bratislav Milovanović, Marija Agatonović, Zoran Stanković, Nebojša Dončov, Maja Sarevska, *Application of Neural Networks in Spatial Signal Processing*, Invited Paper

Marija Agatonović, Zoran Stanković, Bratislav Milovanović, Leen Sit, Thomas Zwick, *Empirical ANN models for 2D Direction of Arrival Estimation*

Bert La Maire, Valeri Mladenov, *Comparison of Neural Networks for Solving the Travelling Salesman Problem*

Shabih Ul Hassan, Bilal Ahmed, Bilal Shaukat, Habib Ur Rehman Paracha, Usman Malik, Saad Qaiser, Nabeel Anwar, Yasar Ayaz, *Modified SOM Based Intelligent Semi-Autonomous Navigation System*

Zlatica Marinković, Nenad Ivković, Olivera Pronić-Rančić, Vera Marković, Alina Caddemi, *Neural Approaches for Parameter Extraction of Microwave Transistor Noise Models*

Nebojša Vasović, Nikola Burić, Ines Grozdanović, Kristina Todorović, Andreja Samčović, *Coherent Oscillations in Minimal Neural Network of Excitable Systems Induced by Noise and Influenced by Time Delay*

Pero Radonja, *Comparison of Generalized Profile Function Models Based on Linear Regression and Neural Networks*

16:30 – 16:45 Coffee Break **Room 22**

16:45 – 18:30 Special Session 1: **Room 25**

Neural Networks in Robotics

Session Organizer and Chair: Duško Katić

Duško Katić, *Soft Computing in Contemporary Robotics*, Introductory Talk

Aleksandar Ćosić, Marko Šušić, Stevica Graovac, Duško Katić, *Combined Controller Architecture for Leader-Follower Robot Formation Control*

Aleksandar Rodić, Ivan Stojković, *Dynamic Inversion Control of Quadrotor with Complementary Fuzzy Logic Compensator*

Marija Tomić, Branko Miloradović, Marija Janković, *Connectionist-Genetic Based Algorithm for Positioning Industrial Manipulator*

Marko Šušić, Saša Maksimović, Sofija Spasojević, Željko Đurović, *Recognition and Classification of Deaf Signs using Neural Networks*

Sofija Spasojević, Marko Šušić, Željko Đurović, *Recognition and Classification of Geometric Shapes using Neural Networks*

Predrag Milosavljević, Nenad Bašćarević, Kosta Jovanović, Goran Kvaščev, *Neural Networks in Feedforward Control of a Robot Arm Driven by Antagonistically Coupled Drives*

18:45 – 21:00 Guided City Tour

Friday, September 21, 2012

09:00 – 10:45 Regular Session 2:

Room 25

Neural Network Algorithms and Realizations

Chairs: Jelena Popović-Božović and Marko Janković

Mohamed Marouf, Jelena Popović-Božović, Ivan Popović, *FPGA Implementation of Neural Network as Processing Element in Ice Detector*

**Marko Janković, Miloš Manić, Branimir Reljin, *Probabilistic Model for Minor Component Analysis Based on Born Rule*
Ivana Matić, António Pedro Oliveira, Amílcar Cardoso, *Automatic Melody Generation using Neural Networks and Cellular Automata***

Goran Kvaščev, Maja Gajić-Kvaščev, Željko Đurović, *Radial Basis Function Network Based Feature Extraction for Improvement the Procedure of Sourcing Neolithic Ceramics*

Anu Aggarwal, Bruce Hamilton, *Training Artificial Neural Networks with Memristive Synapses: HSPICE-Matlab Co-Simulation*

Darko Brodić, Zoran Milivojević, Dejan Tanikić, Dragan Milivojević, *Optimization of the Extended Water Flow Algorithm for the Text-Line Segmentation*

Nikola Dojčinović, Igor Mihajović, Jugoslav Joković, Vera Marković, Bratislav Milovanović, *Neural Network Based Optical Character Recognition System*

10:45 – 11:00 Coffee Break

Room 22

11:00 – 12:30 Special Session 2:

Room 25

Electrophysiological Signals and Neurorehabilitation

Session Organizer and Chair: Dejan Popović

Dejan Popović, *Neurorehabilitations: The use of Advanced Technology for the Treatment of Persons with Motor Disorders, Introductory Talk*

Natalie Mrachacz-Kersting, Ning Jiang, Imran Khan Niazi, Aleksandra Pavlović, Saša Radovanović, Vladimir Kostić, Kim Dremstrup, Dario Farina, *The Potential of Imagination and Artificial Affference in Stroke Rehabilitation, Invited Paper*

**Vladimir Kojić, Nadica Miljković, Nebojša Malešević, Dejan Popović, *H-reflex Recorded by Multi-pad EMG Electrodes*
Vera Miler Jerković, Milica Đurić-Jovičić, Mirjana Popović, *PCA Sensitivity: The Role of Representative and Outlier Strides in Gait Sequence***

Matija Štrbac, Marko Marković, Dejan Popović, *Kinect in Neurorehabilitation: Computer Vision System for Real Time Hand and Object Detection and Distance Estimation*

Momčilo Prodanović, Miloš Kostić, Dejan Popović, *WiiMote Control: Gaming Feedback for Motivational Training of the Arm Movements*

12:30 – 13:30 Lunch Break

Club ICEF

13:30 – 14:30 Plenary Lecture 2

Room 25

Moderator: Srđan Stanković

Lecturer: Prof. Dr. Gerald Schaefer, Department of Computer Science, Loughborough University, Loughborough, UK

GA-based Optimization of Fuzzy Rule Bases for Pattern Classification

14:30 – 16:00 Regular Session 3:

Room 25

Neural Networks for Classification

Chairs: Gerald Schaefer and Srđan Stanković

Bartosz Krawczyk, Gerald Schaefer, *Ensemble Fusion Methods for Medical Data Classification*

Paul Dan Cristea, Octavian Arsene, Rodica Tuduce, Dan Nicolau, *Protein Surface Atom Neighbourhoods Classification*

Dumitru Nastac, Paul Dan Cristea, *A Modified Adaptive Retraining Procedure for Data Forecasting*

Ionel-Bujorel Păvăloiu, Paul Dan Cristea, *Error Minimization in Phase-Based Neurons*

Ali Osman Kusakci, *Authorship Attribution Using Committee Machines with k-nearest Neighbors Rated Voting*

Dejan Mančev, Branimir Todorović, *Confidence Based Learning of a Two-Model Committee for Sequence Labeling*

16:00 – 16:15 Coffee Break

Room 22

16:15 – 18:15 Regular Session 4:

Room 25

Neural Networks in Biomedical Engineering

Chairs: Damjan Zazula and Dejan Raković

Damjan Zazula, Sebastijan Šprager, *Detection of the First Heart Sound Using Fibre-Optic Interferometric Measurements and Neural Networks*

Ana Gavrovska, Marijeta Slavković, Milorad Paskaš, Dragi Dujković, Irini Reljin, *Joint Time-Frequency Analysis of Phonocardiograms*

Ivan Buzurović, Ke Huang, Tarun Podder, Yan Yu, *Comparison Between Acceleration-enhanced Adaptive Filters and Neural Network Filters for Respiratory Motion Prediction*

Georgy Sofronov, Tatiana Polushina, Madawa Priyadarshana, *Sequential Change-Point Detection via the Cross-Entropy Method*

Olivera Šveljo, Lutz Leistriz, Katarina Koprivšek, Miloš Lučić, Herbert Witte, *FMRI Based Connectivity Analysis of Perisylvian Language Related Brain Areas*

Milorad Paskaš, Ana Gavrovska, Milan Milivojević, Branimir Reljin, *Image Analysis Using Modified Multifractal Measure Based on Sigmoid Function*

Draško Furundžić, Slobodan Jovičić, Miško Subotić, Silvana Punišić, *Acoustic Features Determination for Regularity Articulation Quantification of Serbian Fricatives*

Konstantin Nikolić, Ivan Šćepanović, *Functional Organization and Hierarchy of Control Levels in Homo Sapiens CNS*

19:00 – Boat Tour and Conference Dinner

Saturday, September 22, 2012

09:00 – 10:30 Regular Session 5:

Room 25

Neural Networks in Image Processing and Multimedia

Chairs: Srđan Krčo and Milan Bjelica

Aleksej Avramović, Branko Marović, *Performance of Texture Descriptors in Classification of Medical Images with Outsiders in Database*

Neeraj Kumar, Pankaj Kumar Deswal, Jatin Mehta, Amit Sethi, *Neural Network Based Single Image Super Resolution*

Neeraj Kumar, Amit Sethi, Rahul Nallamothu, *Neural Network Based Image Deblurring*

Milana Bojanić, Vladimir Crnojević, Vlado Delić, *Application of Neural Networks in Emotional Speech Recognition*

Marko Krstić, Milan Bjelica, *Personalized TV Program Guide Based on Neural Network*

Stevan Jokić, Srđan Krčo, Dejan Sakač, Ivan Jokić, Vlado Delić, *Autonomic Telemedical Application for Android Based Mobile Devices*

10:30 – 10:45 Coffee Break

Room 22

10:45 – 11:45 Plenary Lecture 3

Room 25

Moderator: Paul Dan Cristea

**Lecturer: Prof. Dr. Martin Vetterli, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland
*Sampling, Sparsity, and Inverse Problems***

11:45 – 13:15 Regular Session 6:

Room 25

Neural Networks in Power Engineering

Chairs: Vančo Litovski and Panagiotis Kofinas

Jelena Milojković, Ivan Litovski, Vančo Litovski, *ANN Application for the Next Day Peak Electricity Load Prediction*

Ovidiu Ivanov, Mihai Gavrilas, *State Estimation for Power Systems with Multilayer Perceptron Neural Networks*

Draško Furundžić, Željko Đurović, Vladimir Čelebić, Iva Salom, *Neural Network Ensemble for Power Transformers Fault Detection*

Anastasios Dounis, P. Kofinas, C. Alafodimos, D. Tseles, *Dynamic Neural Control for Maximum Power Point Tracking of Photo Voltaic System*

Miona Andrejević-Stošović, Duško Lukač, Ivan Litovski, Vančo Litovski, *Frequency Domain Characterization of a Solar Cell*

Dan Lacrama, Florentina Pintea, Tiberiu Karnyanszky, *Dimensioning the Heating System for Residential Buildings Using Neural Networks*

13:15 – 13:45 Participants Picture and Closing Session

Room 25

13:45 – 14:30 Lunch Break

Club ICEF

**Enjoy the Symposium NEUREL-2012!
We cordially expect you at the 12th NEUREL-2014!**



Main Faculty Building



Main Hall
Stairs to Main Conference Room



NEUREL 2012 Location



Club ICEF



Conference Room 25,
Room 22

Room 64