

SOFA 2018

8th International Workshop on Soft Computing Applications

PROGRAM



13-15 September 2018
Arad, Romania

WELCOME MESSAGE

Soft computing (SC) is a collection of methodologies which are trying to cope with the main disadvantage of conventional (hard) computing: the poor performances when working in uncertain conditions. The fundamental idea of soft computing is to emulate human-like reasoning. The classic constituents of SC are fuzzy logic, neural network theory, and probabilistic reasoning, but new methods are continuously emerging: belief networks, genetic algorithms, anytime algorithms, chaos theory, some parts of learning theory, etc. Due to the large variety and complexity of the field, the constituting methods of SC are not competing for a comprehensive ultimate solution. Instead, they are complementing each other, for dedicated solutions adapted to each specific problem. Hundreds of concrete applications are already available in control, decision making, pattern recognition, and robotics. The SC systems are tolerant to imprecision, uncertainty, and partial truth. Their main advantages are tractability, robustness, and low cost implementations. At the same time, SC is a major developing vector of Artificial Intelligence.

Our pleasant duty is to gratefully acknowledge the support provided by the sponsors and co-sponsors of the SOFA 2018 Workshop, to thank the reviewers for their work and all those involved in the preparation of the workshop and the program. Last but not least, we would like to thank the authors for their valuable contribution!

The General Co-Chairs wish all participants a pleasant stay in Arad and a successful workshop!

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<http://sofa2018.org/committees.html>

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GENERAL INFORMATION

Venue

The 8th edition of the SOFA Workshop will take place at Hotel Continental, in Arad, Romania. The conference room (Goldis Room) will be located in the hotel mezzanine.

Registration desk

A registration desk will be open all throughout the event where participants can register and receive information on the event.

Language

The official language of the workshop is English.

Presentations

Presentations can be made by using data projectors. All authors are kindly requested to take their presentation on a USB and upload it on the workshop laptop during the break before their session. Presenters should not use their own laptop.

Each presentation will be a maximum of 15 minutes, plus 5 minutes for discussions.

Internet

There will be free of charge internet facilities for the workshop participants.

Social programs

- A **Welcome Cocktail** will take place on the evening of the first day at Hotel Continental
- The **Conference Dinner** will take place on the evening of the 2nd day at the Akademos Restaurant. Address: Reconcilierii Square (P-ta Reconcilierii), no. 3.

Insurance

The Organizers of the workshop do not provide insurance and do not take responsibility for any loss, accident or illness that might occur during the workshop or in the course of travel to or from the meeting site. It is therefore the responsibility of the participants to check their coverage with their insurance provider.

Voltage

The electricity supply is 220 V AC (50 Hz).

Weather

Weather in September is warm, ranging between 20 and 30 degrees Celsius.

Taxi companies

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Program

SOFA 2018

Thursday, September 13th

08.00 – 09.00 Registration

Hotel Continental, mezzanine

The registration desk will be open all throughout the conference

09.00 – 09.15 Opening

Opening address by the general co-chairs.

09.15 – 10.45 Keynote presentation I & II

Chair: Valentina E. Bălaş

Florin Filip (Romania)

*DSS, Classifications, Trends, and Enabling Modern I&C
Technologies*

Michio Sugeno (Japan)

Distorted Statistics based on Choquet Calculus

10.45 – 11.00 Coffee break

11.00 – 11.40 Special session: Soft Computing and Conventional Techniques in Power Engineering I

Chair: Stefan Kilyeni and Simona Dzitac

Constantin Barbulescu, Stefan Kilyeni, Violeta Chis, Mihaela Craciun and Attila Simo

Daily Load Curve Forecasting. Comparative Analysis: Conventional vs. Unconventional Methods

Attila Simo, Constantin Barbulescu and Stefan Kilyeni
LoRaWAN based Airport Runway Lights Monitoring System

11.40 – 13.20 Modelling, Algorithms, Optimization, Reliability and Applications

Chair: Patricia Mellin, Tomáš Martinovič

Adriana M. Coroiu and Alina Calin

Feedback seminar analysis - An introductory approach from an intelligent perspective

József Dombi and Tamás Jónás

Flexible Fuzzy Numbers for Likert Scale-based Evaluations

Tomáš Martinovič, Katerina Janurova, Jan Martinovic and Katerina Slaninova

Inventory Optimization Model Parameter Search Speed-up Through Similarity Reduction

Valeriu Beiu, Simon Cowell and Vlad Dragoi

Posets for Reliability: How fine can they be?

Daniela Sanchez, Patricia Melin and Oscar Castillo

Comparison of Neural Network Models applied to Human Recognition

13.20 – 14.30 Lunch break

Mondo Restaurant – ground floor, Hotel Continental

14.30 – 15.45 *In memoriam Lotfi A. Zadeh, presented by Shahnaz Shahbazova (Azerbaijan)*

Chair: Florin Filip

15.45 – 16.45 Machine Learning, NLP and Applications

Chair: Jozsef Dombi, Hari Mohan

Hari Mohan Pandey and David Windridge

A Genetic Deep Learning Model for Electrophysiological Soft Robotics

Dominic Bucerzan and Crina Anina Bejan

Blockchain technology. Today Applicability and Implications

Victor-Dumitrel Tița, Doru Anastasiu Popescu, Nicolae Bold

Integrating technology in training: System Dynamic-based model considerations regarding smart training and its relationship with educational components

Tudor Barbu

A Survey on Nonlinear Second-order Diffusion-based Techniques for Additive Denoising

16.45 – 17.00 Coffee break

Hotel Continental, mezzanine

17.00 – 18.20 Special session: Business Process Management

Chair: Gabriela Prostean

Ilie Mihai Taucean, Serban Miclea, Larisa Ivascu and Mircea

Liviu Negrut

Analysis of Interrelationship for Lean and Sustainability Principles and Implications

Patriciu Ruset, Matei Tamasila, Andra Diaconescu, Gabriela Prostean

Adjusting the information flow on time to perform bicycles daily maintenance

Olivia Giuca, Traian Mihai Popescu, Alina Madalina Popescy, Gabriela Prostean, Daniela Elena Popescu

A survey of cybersecurity risk management frameworks

Cezara Liliana Rat, Octavian Prostean, Ioan Filip and Cristian Vasar

Remote Wind Energy Conversion System

18.20 – 19.20 Special session: Soft Computing and Conventional Techniques in Power Engineering II

Chair: Stefan Kilyeni and Simona Dzitac

Dinu-Calin Secui, Simona Dzitac and Serban-Ioan Bunda

The enhanced crow search algorithm for fuel-cost function parameters assessment of the cogeneration units from thermal power plants

Eva Barla, Simona Dzitac and Vasile Carja

Modelling A Photovoltaic Power Station

Judih Pálfi and Adrienn Dineva

Identification of fault locations on tree structure systems

19.20 Welcome Cocktail

Mondo Restaurant – ground floor, Hotel Continental

Friday, September 14th

09.00 – 09.45 Keynote presentation III

Chair: Michio Sugeno

Jeng-Shyang Pan (Taiwan)

*Overview of QUasi-Affine TRansformation Evolutionary
(QUATRE) Algorithm*

09.45 – 11.25 Knowledge-Based Technologies for Web Applications, Cloud Computing, Security Algorithms and Computer Networks, Smart City

Chair: Gabor Kiss, Ala Khalifeh

Adi Sala, Marius Constantin Popescu and Antoanela Naaji
Software for Integral Security

Dacian Avramoni, Alexandru Iovanovici, Cristian Cosariu
and Iosif Seidert
Real time urban traffic data pinpointing most important crossroads

Gábor Kiss and Csilla Berecz
*Priority levels and danger in usage of artificial intelligence in the world
of autonomous vehicle*

Rabie Tanash, Ala Khalifeh and Khalid Darabkeh
Communication over Cloud Computing: A Security Survey

Paul-Onut Negirla and Mariana Nagy
*Mobile robot platform for studying localization algorithms based on
sensor fusion*

11.25 – 11.40 Coffee break

11.40 – 12.40 Fuzzy Applications, Theory, Expert Systems and Fuzzy and Control

Chair: Marius Balas, Viorel Nicolau

Ravi V. Gandhi and Dipak M. Adhyaru

Design of the Stabilizing Controller and Payload Estimator for the Eletromagnetic Levitation System: DOBFLLC Approach

Shahnaz Shahbazova

Big Data Analytics and Fuzzy Technology

V. Yegnanarayanan, Noemi Clara Rohatinovici and

Valentina E. Balas

On Fuzzy Graphs and Its Applications

D. López De Luise

Fuzzy Logic in Predictive Harmonic Systems

Rajeeb Dey, Ravi Patel and Dipankar Deb

Robust Control design of SPSC Microbial Fuel Cell with norm bounded uncertainty: A LMI Approach

Ravi Patel and Dipankar Deb

Exact Linearization Control of Two chamber Microbial Fuel Cell

12.40 – 13.30 Lunch break

Mondo Restaurant – ground floor, Hotel Continental

13.30 – 14.15 Keynote presentation IV

Chair: Shahnaz Shahbazova

Oscar Castillo (Mexico)

Nature-Inspired Optimization of Type-2 Fuzzy Logic Controllers

14.15 – 15.35 Fuzzy Applications, Theory, Expert Systems and Fuzzy and Control

Chair: Oscar Castillo

B. Lavanya, Hannah Inbarani, Ahmad Taher Azar, Khaled M. Fouad, Ioan Radu Lala and Camelia M. Pinteau
Particle Swarm Optimization Ear Identification System

Doru Anastasiu Popescu, Daniel Nijloveanu, Nicolae Bold
Puzzle Learning Trail Generation Using Learning Blocks

Ioan Filip, Florin Dragan, Iosif Szeidert and Cezara-Liliana Rat
Design of an extended self-tuning adaptive controller

Anca Dicu, Marius Mircea Balas, Cecilia Sirghie and Dana Radu
Assessing the Quality of Bread by Fuzzy Weights of Sensory Attributes

15.35 – 15.50 Coffee break

15.50 – 17.30 Biomedical Applications

Chair: Mihaela Luca, Takahiro Yamanoi

Mihaela Luca, Tudor Barbu and Adrian Ciobanu
An Overview on Computer Processing for Endoscopy and Colonoscopy Videos

Takahiro Yamanoi, Hiroshi Takayanagi, Hisashi Toyoshima, Toshimasa Yamazaki and Micho Sugeno
Control of PLEN Robot by Electroencephalograms on Recalling Image of Movements

Ivette Miramontes, Patricia Melin and German Prado-Arechiga
Fuzzy system for classification of nocturnal blood pressure profile and its optimization with the Crow Search Algorithm

Kristijan Cincar

Disease-related imaging findings on x-rays with deep learning

Hafiz Ur Rahman, Muhammad Arif, Sadam H. Al-Azani,
Guojun Wang, Jianer Chen, Emad Ramadan, Teodora Olariu
and Iustin Olariu

*A Survey of Modern Gene Expression based Techniques for Cancer
Detection and Diagnosis*

17:30: Departure for the Conference Dinner

Meeting point: Conference Registration Desk

The Conference Dinner will take place at Akademos
Restaurant located in the Reconcilierii Square, no. 3

Saturday, September 15th

09.00 – 09.45 Keynote presentation V

Chair: Marius Mircea Balas

Valeriu Beiu (Romania)

Seeing is Believing

09.45 – 11.05 Fuzzy Applications, Theory, Expert Systems and Fuzzy and Control

Chair: Valeriu Beiu

Marius Mircea Balas, Mihaela Popa, Emanuela Valentina Muller, Daniel Alexuta and Luana Muresan

Intelligent Roof-Top Greenhouse Buildings

Marius Balas, Ramona Lile, Lucian Copolovici, Anca Dicu and Kristijan Cincar

Human-Plant Symbiosis by Integrated Roof-Top Greenhouses

Paulus Vossen and Suraj Ajit

Fuzzy Scoring Theory applied to Team-Peer Assessment: additive vs. multiplicative scoring models on the signed or unsigned unit interval

Viorel Nicolau and Mihaela Andrei

On Image Compression for Mobile Robots using Feed-Forward Neural Networks

11.05 – 11.20 Coffee break

11.20 – 12.40 Image, text and signal processing

Chair: Anca Ignat, Viorel Nicolau

Safa Ameer, Anouar Ben Khalifa and Med Salim Bouhleb

LeapGestureDB: A Public Leap Motion Database Applied for Dynamic Hand Gesture Recognition in Surgical Procedures

Manel Ben Salem, Karim Saheb Ettabaa and Med Salim Bouhlel

A Comparative Study of Dimensionality Reduction Methods Impact on the Hyperspectral Images Benchmark Anomaly Detectors

Ioan Păvăloi and Anca Ignat

Experiments on phonetic transcription of audio vowels

Ioan Păvăloi and Anca Ignat

Experiments on Iris Recognition using Partially Occluded Images

12.40 – 12.50 Award Session

12.50 PARALLEL SKYPE SESSIONS

Skype Session I: Machine Special session: Computational Intelligence Techniques and Methods for recent applications (optimization, computer science, engineering and bio-medical sciences)

Chair: Mehar Chand, Narinder Singh

Narinder Singh, Jaspreet Kaur and Kamwarjit Singh

Hybridizing Sine Cosine Algorithm with Harmony Search Strategy for Optimization Design Problems

Narinder Singh, Sharandeep Singh and S.B Singh

Solution of Economic Dispatch Problems by a MSPSO

Garvita Khajuria, Kamwarjit Singh and Mehar Chand

Prime Numbers and Their Applications in Signal Processing

Narinder Singh, S.B Singh and Sharandeep Singh

Hybridizing Salp Swarm Algorithm with Particle Swarm Optimization Algorithm for recent Optimization functions

Amandeep Singh, Praveen Agarwal and Mehar Chand
*A Comparative Study of Audio Encryption Analysis using
Dynamic AES and Standard AES Algorithms*

Chirag Rawat, Sarth Dubey, Dipankar Deb and Ajit Kumar
Parwani
Feasibility Study of CSP Tower with Receiver Installed at Base

Vasisht Duddu, Debasis Samanta and Vijay Rao
Fuzzy Graph Modelling of Anonymous Networks

Marjan Kuchaki Rafsanjani, Hamideh Fatemidokht, Ranbir
Singh Batth and Valentina Emilia Balas
*An Anomaly Detection System based on Clustering and Fuzzy Set
Theory in VANETS*

Skype Session II: Image, text and signal processing

Chair: Safa Ameer

Asma Fejjari, Karim Saheb Etabaa and Ouajdi Korbaa
*Features Extraction Techniques for Hyperspectral Images
Classification*

Maissa Hamouda, Karim Saheb Etabaa and Med Salim
Bouhlel
*Unsupervised Selection of Kernels for Hyperspectral Image
Classification based on the Modified Conventional Neural Network*

Nicolas Park, Daniela López De Luise, Daniel Rivera,
Leonardo Bustamante, Jude Hemanth, Teodora Olariu,
Justin Olariu
Multi-Neural Networks Object Identification

Vigneswara Ihita Gangavarapu, Vijay Rao D and Narendra
Nath Gangavarapu
*Development of a Testbed for Automatic Target Recognition and Object
change Tracking*

Skype Session III: Machine learning, NLP and applications

Chair: Ravi V. Gandhi

Hadj Ali Ibtissem and Mohamed Ali Mahjoub

Identification of spatial relationship in arabic handwritten expression using multiple fusion strategies

Daniela López De Luise, Andrés Pascal, Claudia Alvarez, Marcos Tornoud, Carlos Pankrac and Juan Manuel Santa Cruz

Information Retrieval in Restricted Domain for ChatterBots

Vadim Stefanuk and Ludmila Savinitch

Emotional Control in Wideband Mobile Communication

Skype Session IV: Methods and Applications in Electrical Engineering

Chair: Adriana M. Coroiu

Anil Gojiya, Ravi Patel and Dipankar Deb

PI Plus Feed-Forward Control of Water Submersible Pump Specially Used In Ground Water Shortage Areas

Hafiz Ur Rahman, Muhammad Arif, Sadam Al-Azani, Valentina Emilia Balas, Umar Islam, Muhammad Jalal Khan, Anwar Ullah and Oana Geman

An enhanced Image Splicing detection through Discrete Cosine Transform and Spatial domain

Harsh S. Dhiman and Dipankar Deb

Probability Distribution Functions for Short-term Wind Power Forecasting

Skype Session V: Modelling, Algorithms, Optimization, Reliability and Applications

Chair: Andra Diaconescu

Arunkumar R. Patil and Syeda Zarqua M.

Binary Grassmann Matrix Product Codes

Gautam Mahapatra, Soumya Mahapatra and Ranjan Chattaraj

Bi-Level Optimization using Improved Bacteria Foraging Optimization Algorithm

Shivdev Shahi, Satya Bir Singh and Pankaj Thakur

Optimizing Creep Deformation in Discs Made of Beryl, Magnesium and Brass with Rigid Inclusion

Buddhadeb Pradhan, Arijit Nandi, Diptendu Sinha Roy and Nirmal Baran Hui

A Game Theoretic Group Coordination Strategy for multi Robot Navigation

POSTERS

Tiberiu Spircu and Stefan V. Pantazi

Catalan Numbers Associated to Integer Partitions and the Super-exponential

Alireza Goli, Erfan Babaei Tirkolaei, Ali Asghar Rahmani Hosseinabadi and Mohammad Zamani

University Exam Scheduling Problem Using Genetic Algorithms

Faisal Mehmood, Khizar Hayat, Tahir Mahmood and Muhammad Arif

Cubic Hesitant Fuzzy Heronian Mean Operators and Their Application in Multi Criteria Decision Making

Shafqat Iqbal, Chongqi Zhang, Muhammad Arif, Yining Wang and Anca Mihaela Dicu

A comparative study of Fuzzy logic regression and ARIMA models for prediction of gram production

Maryam Olfati, Wenjun Yuan, Seyed Hadi Nasseri and Muhammad Arif

Fuzzy Data Envelopment Analysis with Undesirable Output

Qaisar Khan, Tahir Mahmood, Khizar Hayat, Muhammad Arif, Valentina Emilia Balas and Oana Geman

Application of Single-Valued Neutrosophic Power Maclaurin Symmetric Mean Operators in MADM

Ajay Kumar Mallick, Aniket Ninawe, Vikash Yadav, Hifzan Ahmad, Dinesh Kumar Sah and Cornel Barna

Cathedral and Indian Mughal Monument Recognition using Tensorflow

Kirti Joon, Namrata Agrawal, Hifzan Ahmad, Vikash Yadav,
Dinesh Kumar Sah and Cornel Barna

DDoS Attack Prevention protocol through Support Vector Machine and Fuzzy Clustering Mechanism on Traffic Flow with Harmonic Homogeneity Validation Technique

Jyotismita Chaki, Nilanjan Dey, Amira S. Ashour, Fuqian Shi
and Rajinikanth V.

Recognition of Skin Diseases using Curvelet Transforms and Law's Texture Energy Measures

Anwar Shahid, Zhan Zhou, Muhammad Mubashir Bhatti,
Muhammad Arif and Muhammad Faizan Khan

Inspirations of Slip Effects on Fe₃O₄ Magneto-Nanoparticles in Water-Based Nanofluid past a Nonlinear Stretching Porous Sheet

Foloba Anca, Adriana M. Coroiu

Intelligent Path Planning for Car-Like Vehicles in Off-Road Environments

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