



IWSSIP 2018

2018 25th International Conference on Systems, Signals and Image Processing (IWSSIP)

June, 20-22, 2018 Maribor, Slovenia

PROGRAM



Faculty of Electrical Engineering
and Computer Science



WEDNESDAY 20th June 2018

8:00 **Registration** (until 15:00)

9:00 **Opening of the conference IWSSIP 2018 and Welcom drink**

9:30 **Keynote talk I** Chair: Dušan Gleich (Room: City A):

Earth Observation Data and Algorithms Intelligence: Deep Learning and Data Sets Biases

Mihai Datcu (German Aerospace Center (DLR), Oberpfaffenhofen, Germany)

10:30 **Coffe break**

11:00

Session 1: Image and Video Processing 1 Chair: Ryszard Stasiński (Room: City A)

Tensor-Space Similarity Measure for Image Analysis, Adib Akl and Charles Yaacoub

Adib Akl and Charles Yaacoub

Image Compressed Sensing Recovery based on Multi-scale Group Sparse Representation

Tianyu Geng , Guiling Sun , Yi Xu 1 and Xiaochao Liu

Quantitative analysis of real-time image mosaicing algorithms

NEMRA Abdelkrim, KHELLAL Atmane , SAYAH Houari

Spectral Constrained Frequency Selective Extrapolation for Rapid Image Error Concealment

Nils Genser, J"urgen Seiler, and Andr'e Kaup

Three-stage OLS method for improved lossless image coding

Grzegorz Ulacha , Ryszard Stasiński

Session 2: Image and Video Processing 2 Chair: Mislav Grgić (Room: City B)

Texture Similarity Evaluation via Siamese Convolutional Neural Network

Lukas Hudec, Wanda Benesova

Emotion Recognition From Occluded Facial Expressions Using Weber Local Descriptor

Jadisha Yarif Ramirez Cornejo, Helio Pedrini

Rigid Registration Method for Medical Volumes with Large Deformations and Missing Data

Marek Wodzinski, Andrzej Skalski

An Automated and Accurate Methodology to Assess Ki-67 Labeling Index of Immunohistochemical

Staining Images of Breast Cancer Tissues

Salar Razaviy, Fariba D. Khameneh, Ercan Alp Sertelix, Sercan C ayırx, Súkrú Burak Cetinx

Improving traffic light recognition methods using shifting time-windows

Adam Blokus, Henryk Krawczyk

Session 3: Image and Video Processing 3 Chair: Aura Conci (Room: City C)

Non-Reference Image Quality Assessment Based on Noise Estimation

Mateusz Buczkowski

Robust Self-Similarity Descriptor for Multimodal Image Registration

Thuvanan Borvornvitchotikarn, Weresak Kurutach

Video Quality Assessment on Mobile Devices

Petr Cika, Dominik Starha

Spectrum-based approach to classifying video sequences for encoding experiments

Martin Slanina

Iterated Local Search for RGB Image Steganography

M. B. H. Moran, L. S. Ochi, A. Conci, A. S. Araújo and D. C. Muchaluat-Saade

On Computation of Texture Descriptors from Sum and Difference Histograms

A. S. Araújo, A. Conci, M. B. Moran, C. M. Muchaluat-Saade, R. Resmini

12:30 **Lunch break**

13:30 Tutorial speech I Chair : Peter Planinšič (Room: City A)

Axiomatic Design and Desirable Complexity

Joseph T. Foley (Reykjavík University Science and Engineering Departmentt):

14:30 **Coffe break**

15:00

Special session I: Industrial Applications of Signal Processing Chair: Dragan Kusić (Room: City A)

Proposed method for battery state estimation

Slavko Brečko, Amor Chowdhury, Miran Rodič

Demodulation of feedback signal for wireless charging systems according to the Qi standard

Rok Pajer, Amor Chowdhury, Miran Rodič

Evaluation of mould damage severity using Gabor wavelet transform

Dragan Kusić, Andrej Sarjaš, Aleš Hančič, Rajko Svečko

Wireless measurement of temperature dependant devices in plastics processing industry

Dragan Kusić, Matej Slapšak

Session 5: Signal Processing Chair: Peter Planinšič (Room: City B)

Study on Low-Cost Soft Tactile Sensor using Light Intensity Detector and Sponge: Basic Experiments

Bo Ram Cho, Jong Il Lee, Sukgyu Koh, Suwoong Lee

A Nouvel Quasi-Adaptive FSK Demodulation with Improved Detection Technique

Amir Kapetanovic, Ayna Emina Kapetanovic

Software Oriented Approach in Providing and Processing of Signals with Real Power Quality

Problems

Milan Simić, Dragan Živanović, Živko Kokolanski, Dragan Denić, Goran Miljković, Vladimir Dimcev

Tennis Stroke Consistency Analysis Using Miniature Wearable IMU

Marko Kos, Iztok Kramberger

Segmentation Based Testing of Co-movement Significance

Eva Klejmová, Tobias Malach, and Jitka Pomenková

Precise Measurement of Power Consumption and Execution Time for Embedded Platforms

Tomas Fryza, Miroslav Waldecker

Session 6: Speech Processing Chair: Gregor Rozinaj (Room: City C)

Improving Pitch Extraction Performance through Laryngeal Mechanisms Background

Everton B. Lacerda 1, Carlos A. B. Mello

Spectral Mean Methods for Microphone Array

Hibiki Kamimura, Yosuke Sugiura, Tetsuya Shimamura

Audio files protection using logo watermarking, fingerprinting and encryption

Przemysław Dymarski, Hyeseong Lee, Younjeong Jo

Assessment of Audio Signal Noise Reduction Based on Psychoacoustic Model

Miroslav Balik, Ondrej Raso

Algorithm for real-time comparison of audio streams for broadcast supervision

Mateusz Lorkiewicz, Jakub Stankowski, Krzysztof Klimaszewski

Recognition of Isolated Words Using Feedforward Neural Networks

Juraj Kacur, Lucia Urbancikova

17:30 Social event 1 : Guided walking trip round the city Maribor

THURSDAY 21th June 2018

8:00 **Registration** (until 15:00)

9:30 Keynote talk II Chair: Žarko Čučej (Room: City A) :

3D Video Capturing and Processing for Immersive AR/VR Applications

Yo-Sung Ho (Gwangju Institute of Science and Technology (GIST), Gwangju, Korea)

10:30 **Coffe break**

11:00

Session 7: Machine Learning 1 Chair: Dušan Gleich (Room: City A)

Performance Estimation of Induction Motor using Artificial Neural Network

Ho-Young Lee, Jong-Il Lee, Soon-O Kwon, and Su-woong Lee

An Accelerated Genetic Single Objective Algorithm for Optimization of Energy Flows in Microgrids

Vassil Guliashki, Galia Marinova

Evaluation of Melanoma Diagnosis using Deep Features

Lucas Bezerra Maia, Alan Lima, Roberto Matheus Pinheiro Pereira, Geraldo Braz Júnior, Joao Dallyson, Sousa de Almeida, Anselmo Cardoso de Paiva

Glaucoma Diagnosis over Eye Fundus Image through Deep Features

Alan Carlos de Moura Lima, Lucas Bezerra Maia, Roberto Matheus Pinheiro Pereira, Geraldo Braz Júnior, Joao Dallyson Sousa de Almeida, Anselmo Cardoso de Paiva

Automatic Identification of Phasic Dopamine Release

Gustavo H. G. Matsushita, Luiz E. S. Oliveira, Adam H. Sugi, Claudio da Cunha, Yandre M. G. Costay

Session 8: Machine Learning 2 Chair: Aura Conci (Room: City B)

Automatic vehicle type classification with convolutional neural networks

Max N. Roecker, Yandre M. G. Costa, Jo~ao L. R. Almeida, Gustavo H. G. Matsushitay

Polyphonic Note Transcription of Time-Domain Audio Signal with Deep WaveNet Architecture

Lukas S. Martak, Marius Sajgalik, Wanda Benesova

Toward an embedded application to identify degradation in energized polymeric insulators using discrete wavelet transform

Rebeca G. C. Cunha, Elias T. da Silva Juniory, Jo~ao W. M. de Souza, Pedro P. Rebouc,as Filhox

Randomized Nonnegative Tensor Factorization for Feature Extraction from High-dimensional Signals

Rafał Zdunek, Krzysztof Fonał

12:30 **Lunch break**

13:30 Tutorial speech II Chair: Rajko Svečko (Room: City A)

Differential Evolution and Systems, Signals, and Image Processing

Aleš Zamuda (Faculty of Electrical Engineering and Computer Science at the University of Maribor)

14:30

Special session II: Differential Evolution Chair: Aleš Zamuda (Room: City A)

Adaptation of Population Size in Differential Evolution Algorithm: An Experimental Comparison

Radka Polakova, Petr Bujok

Migration Model of jSO Algorithm

Petr Bujok, Radka Polakovay

Differential Evolution and Analytic Programming in the case of Trigonometric Identities Discovery

Zuzana Kominkova Oplatkova, Roman Senkerik, Adam Viktorin

Differential Evolution and Chaotic Series

Roman Senkerik, Adam Viktorin, Michal Pluhacek, Tomas Kadavy, and Zuzana Kominkova Oplatkova

Addressing Premature Convergence with Distance based Parameter Adaptation in SHADE

Adam Viktorin, Roman Senkerik, Michal Pluhacek, Tomas Kadavy

On Tenfold Execution Time in Real World Optimization Problems With Differential Evolution in Perspective of Algorithm Design

Aleš Zamuda, and Janez Brest

Session 10: Image Processing 4 Chair: Sonja Grgić (Room: City B)

Robot based automated testing procedure dedicated to mobile devices

Mihai Craciunescu, Stefan Mocanu, Cristian Dobre, Radu Dobrescu

Moving Person Detection Using Blob Descriptors and Support Vector Machine

Alexandru Costache, Dan Popescu , Cosmin Popa , Stefan Mocanu

How Convolutional Neural Networks Remember Art

Eva Cetinic, Tomislav Lipic,, Sonja Grgic

Color Based Clustering for Trunk Segmentation

Laszlo Czuni, Andras Kúrtösi, Karim Ben Alaya

Analysis of spatial and temporal information of DASH dataset

Jelena Vlaović, Irena Galić, Snježana Rimac-Drlje

16:00 Social event 2 : Ekskursion with bus in the sorroundings of city Maribor

20:00 Social event 3 : Gala dinner in hotel Draž Center close to the Pohorje mountains

FRIDAY 22th June 2018

8:00 Registration

9:30 **Keynote talk III** Chair: Peter Planinšič (Room: City A)

Optical Wave Propagation in Modern Wireless Communications, Sensing and Detection Technologies for Future Applications

Erich Leitgeb (Technical University Graz, Graz, Austria)

10:30 Coffe break

11:00

Session 11: Multimedia Chair: Marek Domanski (Room: City A)

Comparison of Graph-Based Modular Frameworks for Audiovisual Applications

Sven Ubik, Zdenek Travnicek

Achieving Complex Media Annotation through Collective Wisdom and Effort from the Crowd

Marcello N. Amorim, Fabio R. A. Neto, Celso A. S. Santos

Bitrate Allocation for Multiview Video Plus Depth Simulcast Coding

Yasir Al-Obaidi, Tomasz Grajek, Olgierd Stankiewicz, Marek Domański

Video transrating in AVC to HEVC transcoding

Krzysztof Wegner, Tomasz Grajek, Jakub Stankowski, Marek Domański

Augmented/Virtual Reality as a Tool of Self-Directed Learning

Gregor Rozinaj, Marek Vančo, Radoslav Vargic, Ivan Minárik, Adam Polakovič

Adaptive multimedia content delivery in 5G Networks using DASH and saliency information

Adam Polakovič, Radoslav Vargic, Gregor Rozinaj

Session 12: Wireless Communications and Networking : Chair: Markus Rup (Room: City B)

Cellular Networks for a Society in Motion

Stefan Schwarz and Markus Rupp

Improvement of QRM-MLD Method in MIMO Systems Considering Noise Power Estimation

Ryotaro Konno, Yosuke Sugiura and Tetsuya Shimamura

High-Speed Data Transfer Using PLC

Jiri Misurec, Milos Orgon

Simulated Coverage Estimation of Single Gateway LoRaWAN Network

Radek Fajdiak, Petr Mlynek, Jiri Misurec, Martin Strajt

Is there still a place for peer-to-peer in the DICOM world?

Ivan Drnasin, Mislav Grgić

Recurrent phase unwrapping for carrier synchronization in software defined radio

Uroš Pešović, Slađana Đurašević, Peter Planinšič

12:30 **Lunch break**

13:30

Tutorial speech III (Room; City A)

Recent Advances in Point-Cloud Data Processing

Domen Mongus (Faculty of Electrical Engineering and Computer Science at the University of Maribor)

14:30

Special Seesion III: Radar Data interpretation Chair: Dušan Gleih (Room: City B)

SLAM Problem for Autonomous Underwater Vehicle using SVSF Filter

Fethi DEMIM, Abdelkrim NEMRA , Hassen ABDELKADRI , Kahina LOUADJ , Mustapha HAMERLAIN , Abdelouahab BAZOULA

Performance of some image processing algorithms in TensorFlow

Damir Demirović, Emir Skejić, Amira Šerifović-Trbalić

Simulation and Implementation of Air-Coupled SFCW Radar on VNA

Danijel Šipoš, Peter Planinšič, Dušan Gleih

Target detection in SFCW ground penetrating radar with C3 algorithm and Hough transform based on gprMax simulation and experimental data

Venceslav Kafedziski, Sinisha Pecov and Dimitar Tanevski

16:00 Closing the conference IWSSIP 2018 and awards announcement (Room: City B)