

Invited Paper

Neutral Networks – State of Art., Brief History, Basic Models and Architecture

Bohdan Macukow

Rough Set Methods for Big Data Analytics

Complex Adaptive Systems and Interactive Granular Computing

Andrzej Skowron

Innovation and Big Data

H. Jaap van den Herik

Imbalanced Data Classification: A Novel Re-sampling Approach Combining Versatile Improved SMOTE and Rough Sets

Katarzyna Borowska and Jarosław Stepaniuk

Embedding the V-Detector Algorithm in FPGA

Maciej Brzozowski and Andrzej Chmielewski

Attribute Reduction Based on MapReduce Model and Discernibility Measure

Michał Czolombitko and Jarosław Stepaniuk

Mapping Points Back from the Concept Space with Minimum Mean Squared Error

Władysław Homenda and Tomasz Penza

Representatives of Rough Regions for Generating Classification Rules

Piotr Hońko

Hardware Supported Rough Sets Based Rules Generation for Big Datasets

Maciej Kopczyński, Tomasz Grzes and Jarosław Stepaniuk

Images, Visualization, Classification

Information Density Based Image Binarization for Text Document Containing Graphics

Soma Datta, Nabendu Chaki and Sankhayan Choudhury

MRI Texture-Based Classification of Dystrophic Muscles, A Search for the Most Discriminative Tissue Descriptors

Dorota Duda, Marek Kretowski, Noura Azzabou and Jacques D. de Certaines

Detection of Orbital Floor Fractures by Principal Component Analysis

Daniel Krpelík, Milan Jaros, Marta Jarosova, Petr Strakos, Tereza Buresova, Alena Vasatova and Tomas Karasek

An Approach to Cell Nuclei Counting in Histological Image Analysis

Maryna Lukashevich and Valery Starovoitov

Automatic Segmentation Framework for Fluorescence in Situ Hybridization Cancer Diagnosis

Marcin Stachowiak and Łukasz Jeleń

Neural Network Classification of SDR Signal Modulation

Jakub Stebel, Michal Krumnikl, Pavel Moravec, Petr Olivka and David Seidl

Skull Stripping for MRI Images Using Morphological Operators

Joanna Swiebocka-Wiek

Empirical Assessment of Performance Measures of Preprocessing Moments in Imbalanced Data Classification Problem

Paweł Szeszko and Magdalena Topczewska

Optimization, Tuning

Optimization of CHosen Transport Task by Using Generic Algorithms

Anna Burduk and Kamil Musiał

Fast Branch and Bound Algorithm for the Travelling Salesman Problem

R. Grymin and S. Jagiello

Simulations for Tuning a Laser Power Control System of the CLadding Process

Piotr Jurewicz, Wojciech Rafajłowicz, Jacek Reiner and Ewaryst Rafajłowicz

Automated Application of Inventory Optimization

Tomas Martinovic, Katerina Janurova, Katerina Slaninova and Jan Martinovic

Optimal Ellipse Based Algorithm as an Approximate and Robust Solution of Minimum Volume Covering Ellipse Problem

Krzysztof Misztal, Jacek Tabor and Jakub Hyla

Process of Pointing Clouds Merging for Mapping of a Robot's Working Environment

Petr Olivka, Michal Krumnikl, Pavel Moravec and David Seidl

Techniques of Czech Language Lossless Text Compression

Jiri Sevcik and Jiri Dvorsky

Optimization of Combining of Self Organizing Maps and Growing Neural Gas

Lukas Vojacek, Pavla Drazdilova and Jiri Dvorsky

Scheduling in Manufacturing and Other Applications

Robust Tabu Search Algorithm for Planning Rail-Truck Intermodal Freight Transport

Wojciech Bożejko, Radosław Grymin, Szymon Jagiello and Jarosław Pempera

Multi-machine Scheduling with Setup Times

Wojciech Bożejko, Łukasz Karprzak, Piotr Nadybski and Mieczysław Wodecki

Two Step Algorithm for Virtual Machine Distributed Replication with Limited Bandwidth Problem

Wojciech Bożejko, Piotr Nadybski and Mieczysław Wodecki

An Optimization Based Software Tool for Individual Automated Guideway Transit Systems

Ezzeddine Fantassi

Determination of the Optimal Routes for Autonomous Unmanned Aerial Vehicle Under Varying Wind with Using of the Traveling Salesman Problem Algorithm

Jerzy Greblicki and Maciej Walczyński

Cyber Security of the Application Layer of Mission Critical Industrial Systems

Rafał Kozik, Michał Choraś, Rafał Renk and Witold Hołubowicz

Kohonen SOM for Image Slides Sequencing

Ewa Skubalska-Rafajłowicz and Aneta Górniak

An Evolutionary Approach to Cyclic Real World Scheduling

Dominik Żelazny

Algorithms

Performance Evaluation of Probabilistic Time-Dependent Travel Time Computation

Martin Golasowski, Radek Tomis, Jan Martinovic, Katerina Slaninova and Lukas Rapant

Flexible Global Constraint Extension for Dynamic Time Warping

Tomas Kocyan, Katerina Slaninova and Jan Martinovic

Orthogonal Illuminations in Two Light-Source Photometric Stereo

Ryszard Kozera and Alexander Prokopenya

Graph Clustering Using Early-Stopped Random Walks

Małgorzata Lucińska and Sławomir T. Wierzchoń

Methods of Synthesis of Controlled Random Tests

Ireneusz Mrozek and Vyacheslav Yarmolik

Blocking and Deadlocking Phenomena in Two-Server Tandem Configuration with Optional Feedback – Modeling and Parameter Sensitivity Investigation

Walenty Oniszczyk

Mutual Information for Quaternion Time Series

Michał Piórek

Algorithm of Allophone Borders Correction in Automatic Segmentation of Acoustic Units

Janusz Rafalko

Decisions

Ensemble of Classifiers with Modification of Confidence Values

Robert Burduk and Paulina Baczyńska

Fuzzy Random Forest with C-Fuzzy Decision Trees

Łukasz Gadomer and Zenon A. Sosnowski

On Using Speed as the Criteria of State Selection for Minimization of Finite State Machines

Adam Klimowicz

PLACE_SUBST Transformation of P/T Petri Process Nets and Its Properties

Ivo Martinik

Fuzzy Dempster-Shafer Modelling and Decision Rules

Zenon A. Sosnowski and Jarosław S. Walijewski

Classification of Protein Interactions Based on Sparse Discriminant Analysis and Energetic Features

Katarzyna Stąpor and Piotr Fabian

Ensembles of Heterogeneous Concept Drift Detectors – Experimental Study

Michał Woźniak, Paweł Ksieniewicz, Bogusław Cyganek and Krzysztof Walkowiak

Intelligent Distributed Systems

Harmony Search for Data Mining with Big Data

Jerzy Balicki, Piotr Dryja and Waldemar Korłub

Harmony Search for Self-configuration of Fault-Tolerant and Intelligent Grids

Jerzy Balicki, Waldemar Korłub, Jacek Paluszak and Maciej Tyszka

A Study on Fuzzy Cognitive Map Optimization Using Metaheuristics

Aleksander Cislak, Władysław Homenda and Agnieszka Jastrzębska

Pattern Recognition with Rejection: Combining Standard Classification Methods with Geometrical Rejecting

Władysław Homenda, Agnieszka Jastrzębska, Piotr Waszkiewicz and Anna Zawadzka

Connecting Household Weather Sensor to IoT World

Pavel Moravec, Michal Krumnikl, Petr Olivka and David Seidl

An Electronic Document for Distributed Electronic Services

Gerar Wawrzyniak and Imed El Fray

Biometrics, Identification, Security

FE8R – A Universal Method for Face Expression Recognition

Majida Albakoor, Khalid Saeed, Mariusz Rybnik and Mohamad Dabash

A Fault-Tolerant Authenticated Key-Conference Agreement Protocol with Forward Secrecy

Tomasz Hyla nad Jerzy Pejas

Towards Generating a Unique Signature for Remote User by Keystrokes Dynamics

Puja Mukherjee and Rituparna Chaki

A Multimodal Biometric User Identification System Based on Keystroke Dynamics and Mouse Movements

Piotr Panasiuk, Maciej Szymkowski, Marcin Dąbrowski and Khalid Saeed

An Efficient Three Factor Based Remote User Authentication Protocol for Distributed Networks

Ashish Singh and Kakali Chatterjee

Miscellaneous

Music Emotion Maps in Arousal-Valence Space

Jacek Grekow

Attribute Grammars for Controlling House Layout Customization

Władysław Homenda and Krystian Kwieciński

The Radio Direction Finding with Advantage of the Software Defined Radio

Josef Hrabal, David Seidl, Michal Krumnikl, Pavel Moravec and Petr Olivka

A Quality Assessment Framework for Large Datasets of Container-Trips Information

Michail Makridis, Raul Fidalgo-Merino, Jose-Antonio Coteló-Lema, Aris Tois and Enrico Checchi

Synthesis of High-Speed Finite State Machines in FPGAs by State Splitting

Valery Salauyou