22nd International Conference
Artificial Intelligence and Soft Computing

Program

Zakopane, Poland, June 18-22, 2023

Program at a glance

Sunday, June 18	Monday, June 19	Tuesday, June 20
	07:00-8:30	**07:00-8:30**
	Breakfast, Room: Zakopane	Breakfast, Room: Zakopane
	8:30 - 8:40	**Invited Talks, Chair: Michał Woźniak, Room: Tatry**
	Opening Ceremony, Room: Tatry	**8:30 - 9:15**
	Invited Talks, Chair: Leszek Rutkowski, Room: Tatry	Wenying Xu, Southeast University
	8:40 - 8:55	**9:15 - 10:00**
	Jacek Żurada, University of Louisville	Jerzy Stefanowski, Poznań University of Technology
	8:55 - 9:40	**10:00 - 10:20**
	Janusz Kacprzyk, Systems Research Institute	Coffee break
	9:40 - 10:25	**10:20 - 11:05**
	Witold Pedrycz, University of Alberta, Canada	Włodzisław Duch, Nicolaus Copernicus University
	10:25 - 10:40	**11:05 - 11:10**
	Coffee break	Coffee break
	Session 1 - online (Room: Tatry)	Session 3 - online (Room: Tatry)
	10:40 - 13:10	**11:10 - 13:10**
	Neural Networks and Their Applications 1	Computer Vision, Image and Speech Analysis
	13:00 - 14:30	**13:00 - 14:30**
	Lunch, Room: Zakopane	Lunch, Room: Zakopane
	Invited Talk, Chair: Christian Napoli	**Invited Talk, Chair: Jacek Mańdziuk, Room: Tatry**
	14:30 - 16:00	**14:30 - 15:15**
	Zbigniew Michalewicz, University of Adelaide	Luís A. Alexandre, Universidade da Beira Interior
	16:00 - 16:20	**15:15 - 16:00**
	Coffee break	Aleksander Byrski, AGH University of Krakow
	Session 2 - online (Room: Tatry)	**16:00 - 16:10**
	16:20 - 18:00	Coffee break
	Neural Networks and Their Applications 2	Session 4 - poster session (Room: foyer of Tatry)
		16:10 - 17:10
		Neural networks
		Session 5 - poster session (Room: foyer of Tatry)
		17:20 - 18:20
		Various problems 1
18:00	**18:00**	**19:00**
Welcome dinner, Room: Zakopane	Social event, barbecue	Social event (Banquet), Room: Tatry

Wednesday, June 21

07:00-8:30

Breakfast, Room: Zakopane

Invited Talks, Chair: Włodzisław Duch, Room: Tatry

8:30 - 9:15

Shaofu Yang, Southeast University

9:15 - 10:00

Artur Luczak, University of Lethbridge

10:00 - 10:20

Coffee break

Session 6 - online (Room: Tatry)

10:20 - 13:00

Various Problems of Artificial Intelligence

Session 7 - poster session (foyer of Tatry, parallel to S.6)

10:20 - 11:20

Various problems 2

13:00 - 14:30

Lunch, Room: Zakopane

14:30 - 18:00

Sightseeing trip

18:00

Farewell Dinner, Room: Zakopane

Thursday, June 22

07:00-11:00

Breakfast, Room: Zakopane

Session 8 - online (Room: Tatry)

8:30 - 10:45

Data mining

Detailed Program

Sunday, June 18

18:00

Welcome party

Room: Zakopane

Monday, June 19

07:00-8:30

Breakfast, Room: Zakopane

8:30 - 8:40

Opening Ceremony, Room: Tatry

Invited Talks, Chair: Leszek Rutkowski, Room: Tatry

8:40 - 8:55

Jacek Żurada, University of Louisville

8:55 - 9:40

Janusz Kacprzyk, Systems Research Institute

9:40 - 10:25

Witold Pedrycz, University of Alberta, Canada

10:25 - 10:40

Coffee break

Session 1 - online (Room: Tatry)

10:40 - 13:10

Session 1: Neural Networks and Their Applications 1
Date/Time: 10:40 - 13:10, Mon., June 19, 2023
Room: Tatry, Oral online session via Zoom, Chair: Piotr Duda

Transfer of knowledge among instruments in automatic music transcription
Michał Leś, Michał Woźniak

The Geometry of Decision Borders Between Affine Space Prototypes for Nearest Prototype Classifiers
Mehrdad Mohannazadeh Bakhtiari, Andrea Villmann, Thomas Villmann

An Interpretable Two-Layered Neural Network Structure - Based on Component-wise Reasoning
Mehrdad Mohannazadeh Bakhtiari, Thomas Villmann

CNN-LSTM Optimized by Genetic Algorithm in Time Series Forecasting: An Automatic Method to use Deep Learning
Eder Urbinate, Fernando Itano, Emilio Del-Moral-Hernandez

Learning representations by crystallized back-propagating errors

Marcus Grum

Gates Are Not What You Need in RNNs
Ronalds Zakovskis, Andis Draguns, Eliza Gaile, Emils Ozolins, Karlis Freivalds

Towards Detecting Freezing of Gait Events using Wearable Sensors and Genetic Programming
Adane Tarekegn, Faouzi Alaya Cheikh, Muhammad Sajjad, Mohib Ullah

Multi-Agent Deep Q-Network in Voxel-based Automated Electrical Routing
Tizian Dagner; Rafael Parzeller Selin Kesler

13:00 - 14:30

Lunch, Room: Zakopane

Invited Talk, Chair: Christian Napoli

14:30 - 16:00

Zbigniew Michalewicz, University of Adelaide

16:00 - 16:20

Coffee break

Session 2 - online (Room: Tatry)

16:20 - 18:00

Session 2: Neural Networks and Their Applications 2
Date/Time: 16:20 - 18:00, Mon., June 19, 2023
Room: Tatry, Oral online session via Zoom, Chair: Rafał Grycuk

Fuzzy Hyperplane based K-SVCR Multi-class Classification with Its Applications to Stock Prediction Problem
Pei-Yi Hao

Federated Learning for Human Activity Recognition on the MHealth Dataset
Sergio Sanchez, Javier Machacuay, Mario Quinde

Expansion rate parametrization and K-Fold inference with U-Net neural networks for multiclass medical image segmentation
Roman Statkevych, Yuri Gordienko, Sergii Stirenko

Image Classification through Graph Neural Networks and Random Walks
William Sdayle, Marins Silva, Priscila Tiemi, Maeda Saito, Pedro Henrique Bugatti

Reinforcement Learning with Brain-Inspired Modulation Improves Adaptation to Environmental Changes
Eric Chalmers, Artur Luczak

Text Guided Facial Image Synthesis using StyleGAN and Variational Autoencoder trained CLIP
Anagha Srinivasa, Anjali Praveen, Anusha Mavathur, Apurva Pothumarthi, Arti Arya, Pooja Agarwal

Prediction accuracy of direction changes with ELM, MLP and LSTM on the example of exchange rates
Jakub Morkowski

18:00

Social event, barbecue, venue: Zakopane and terrace, level -1

Tuesday, June 20

07:00-8:30

Breakfast, Room: Zakopane

Invited Talks, Chair: Michał Woźniak, Room: Tatry

8:30 - 9:15

Wenying Xu, Southeast University

9:15 - 10:00

Jerzy Stefanowski, Poznań University of Technology

10:00 - 10:20

Coffee break

10:20 - 11:05

Włodzisław Duch, Nicolaus Copernicus University

11:05 - 11:10

Coffee break

Session 3 - online (Room: Tatry)
11:10 - 13:10

Session 3: Computer Vision, Image and Speech Analysis
Date/Time: 11:10 - 13:10, Tue., June 20, 2023
Room: Tatry, Oral online session via Zoom, Chair: Wojciech Rafajłowicz

Hybrid Learning Model for Satellite Forest Image Segmentation
Clopas Kwenda, Gwetu Mandlenkosi Victor, Jean Vincent Fonou-Dombeu

Application of object detection models for the detection of kitchen furniture - A comparison
Benjamin Stecker, Hans Brandt-Pook

Adaptive Pruning for Multi-Head Self-Attention
Walid Messaoud, Rim Trabelsi, Adnane Cabani, Fatma Abdelkefi

Speech Emotion Recognition: Recent Advances and Current Trends
Soundes Belkacem

Support Learning Vovinam Exercises based on Computer Vision
Pham Son Tung, Thai Thanh Do, Pham Hong Giang, Phan Duy Hung

An experimental analysis on mapping strategies for cepstral coefficients multi-projection in voice spoofing detection problem
Rodrigo Contreras, Monique Viana, Rodrigo Guido

13:00 - 14:30

Lunch, Room: Zakopane

Invited Talk, Chair: Jacek Mańdziuk, Room: Tatry
14:30 - 15:15

Luís A. Alexandre, Universidade da Beira Interior

15:15 - 16:00

Aleksander Byrski, AGH University of Krakow

16:00 - 16:10

Coffee break

Session 4 - poster session (Room: Foyer of Tatry), Neural networks
16:10 - 17:10

Session 4: Neural networks
Date/Time: 16:10 - 17:10, Tue., June 20, 2023
Room: Foyer of Tatry, poster session

Viscosity Estimation of Water-PVP Solutions from Droplets using Artificial Neural Networks and Image Processing
Mohamed Azouz Mrad, Kristof Csorba, Dorián László Galata, Zsombor Kristóf Nagy, Hassan Charaf

Application of Monte Carlo Algorithms with Neural Network-Based Intermediate Area to the Thousand Card Game
Łukasz Gałka, Paweł Karczmarek, Dariusz Czerwiński

Decentralized federated learning loop with constrained trust mechanism
Dawid Połap, Katarzyna Prokop, Gautam Srivastava, Jerry Chun-Wei Lin

Transfer learning from ImageNet to the domain of pigmented nevi
Grzegorz Surówka

Pruning convolutional filters via reinforcement learning with entropy minimization
Bogdan Musat, Razvan Andonie

Generating Image Captions in Polish using Transformer Architecture
Michał Żebrowski, Jacek Komorowski

Bus Route Classification for Rural Areas using Graph Convolutional Networks
Timo Stadler, Sandra Weikl, Simon Wein, Peter Georg, Andreas Schäfer, Jan Dünnweber

Training Neural Tensor Networks With Corrupted Relations
Tristan Falck, Duncan Coulter

Unsupervised Representation Learning: Target Regularization for Cross-domain Sentiment Classification
Michał Perełkiewicz, Rafał Poświata, Jakub Kierzkowski

Authorship Attribution of Literary Texts using Named Entity Masking and MaxLogit-based Sequence Classification for Varying Text Lengths
Tomasz Walkowiak

Evaluation of the importance of optimizer selection in streaming neural network learning
Piotr Duda, Mateusz Wojtulewicz, Leszek Rutkowski

Learning Activation Functions for Adversarial Attack Resilience in CNNs
Maghsood Salimi, Mohammad Loni, Marjan Sirjani

A novel approach to the GQR algorithm for neural networks training
Jarosław Bilski and Bartosz Kowalczyk

On speeding up the Levenberg-Marquardt learning algorithm
Jarosław Bilski, Bartosz Kowalczyk, and Jacek Smoląg

Session 5 - poster session (Room: Foyer of Tatry), Various problems
17:20 - 18:20

Session 5: Various problems
Date/Time: 17:20 - 18:20, Tue., June 20, 2023
Room: Foyer of Tatry, poster session

Test Case Generator for Problems of Complete Coverage and Path Planning for Emergency Response by UAVs

Jakub Grzeszczak, Krzysztof Trojanowski, Artur Mikitiuk

Examine Effects of Class Imbalance on Conditional GAN Training
Yang Chen, Dustin Kempton, Rafal Angryk

Security Intelligence for real-time security monitoring software
Poniszewska-Maranda Aneta, Grela Radosław, Kryvinska Natalia

Learning Bezier-Durrmeyer type descriptors for classifying curves - preliminary studies
Adam Krzyżak, Wojciech Rafajłowicz, Ewaryst Rafajłowicz

Combining linear classifiers using score function based on distance to decision boundary
Paweł Trajdos, Robert Burduk, Andrzej Kasprzak

Training set preparation for deep model learning inpatients with ischemic brain lesions and gender identity disorder
Ana Starcevic, Boris Vucinic, Ilona Karpiel

Monte Carlo Tree Search with metaheuristics
Jacek Mańdziuk, Patryk Walczak

Phishing Attack Detection: An Improved Performance through Ensemble Learning
Benjamin McConnell, Daniel Del Monaco, Mahdieh Zabihimayvan, Fatemeh Abdollahzadeh, Samir Hamada

Electrochemical Biosensor Design through Data-Driven Modeling incorporating Meta-analysis and Big Data workflow
Vasyl Martsenyuk, Aleksandra Klos-Witkowska, Andrii Semenets

Profiling users of the online store in terms of price sensitivity
Kocić Eliza, Gabryel Marcin, Kocić Milan

Dynamic Hand Gesture Recognition for Human-Robot Collaborative Assembly
Sako Shinji, Bogdan Kwolek

Fast Visual Imperfection Detection When Real Negative Examples are Unavailable
Patryk Najgebauer, Rafał Scherer, Rafał Grycuk, Jakub Walczak, Adam Wojciechowski, and Ewa Łada-Tondyra

19:00

Social event (Banquet), Room: Tatry

Wednesday, June 21

07:00-8:30

Breakfast, Room: Zakopane

Invited Talks, Chair: Włodzisław Duch, Room: Tatry
8:30 - 9:15

Shaofu Yang, Southeast University

9:15 - 10:00

Artur Luczak, University of Lethbridge

10:00 - 10:20

Coffee break

Session 6 - online (Room: Tatry)
10:20 - 13:00

Session 6: Various Problems of Artificial Intelligence
Date/Time: 10:20 - 13:00, Wed., June 21, 2023
Room: Tatry, Oral online session via Zoom, Chair: Janusz Starczewski

Computational models for COVID-19 dynamics prediction
Andrzej Kloczkowski, Juan Fernández-Martínez, Zulima

 Fernández-Muniz

Application of artificial neural networks in electric arc furnace modeling
Maciej Klimas, Dariusz Grabowski

Synthetic Data for Feature Selection
Firuz Kamalov, Hana Sulieman, Aswani Cherukuri

Binary Matrix Factorization Discretization
Georges Spyrides, Marcus Poggi, Hélio Lopes

An Improvement of Graph Neural Network for Multi-behavior Recommendation
Nguyen Bao Phuoc, Duong Hoang Trang, Phan Duy Hung

Mining Correlated High-Utility Itemsets using the Cosine Measure
Huynh Anh Duy, Huynh Anh Khoa, Phan Duy Hung

Cannabis Use Estimators within Canadian Population using Social Media Based on Deep Learning Tools
Doaa Ibrahim, Diana Inkpen, Hussein Al Osman

On the Bayesian interpretation of penalized statistical estimators
Jan Kalina, Barbora Peštová

Bayesian Inference in Infinite Multivariate McDonald's Beta Mixture model
Darya Forouzanfar, Narges Manouchehri, Nizar Bouguila

Session 7 - poster session (Room: Foyer of Tatry) Various problems 2
10:20 - 11:20

3D Reconstructions of Brain from MRI Scans Using Neural Radiance Fields
Khadija Iddrisu, Sylwia Malec, Alessandro Crimi

Impact of the pre-processing and balancing of EEG data on the performance of graph neural network for epileptic seizure classification
Szymon Mazurek, Rosmary Blanco, Joan Falcó-Roget, Jan Argasiński, Alessandro Crimi

Vision-Based Mobile Robots Control Along a Given Trajectory
Jan Rodziewicz-Bielewicz, Marcin Korzeń

Semantic Segmentation Neural Network in Automatic Weapon Detection
Michał Wieczorek, Jakub Silka, Martyna Kobielnik, Marcin Wozniak

A Smartphone-Based Computer Vision Assistance System with Neural Network Depth Estimation for the Visually Impaired
Mykola Beshley, Volodymyr Pastukh, Halyna Beshley, Michal Gregus, jr.

A novel ConvMixer transformer based architecture for violent behavior detection
Andrea Alfarano, Giorgio De Magistris, Lorenzo Mongelli, Samuele Russo, Janusz Starczewski, Christian Napoli

ML Support For Conformity Checks in CMDB-Like Databases
Szymon Niewiadomski, Grzegorz Mzyk

Advancing Singular Value Decomposition Techniques for Enhanced Data Mining in Recommender Systems
Mykola Beshley, Olena Hordiichuk-Bublivska , Halyna Beshley, Iryna Ivanochko

Machine Learning Assisted Interactive Multi-Objectives Optimization Framework: A Proposed Formulation and Method for Overtime Planning in Software Development Projects
Hammed Mojeed, Rafał Szłapczyński

Data Mining Car Configurator Clickstream Data to Identify Potential Consumers: A Genetic Algorithm Approach
Juan Manuel García Sánchez, Xavier Vilasís Cardona, Álvaro García Piquer, Alexandre Lerma Martín

Enhanced Grey Wolf Optimizer
Radka Polakova, Daniel Valenta

Controlled Refresh of the Population in Differential Evolution for Real-World Problems
Petr Bujok, Martin Lacko, Patrik Kolenovský

YOLO-based Physical Object Detection for the Purpose of Virtual Objects Placement in Mixed-Reality Scenes
Paweł Ruszlewski, Michał Kowalski, Tomasz Rutkowski

A new Hybrid Particle Swarm Optimization and Evolutionary Algorithm with Self-Adaptation Mechanism
Piotr Dziwiński and Lukasz Bartczuk

Multi-population algorithm using surrogate models and different training plans
Daniel Kucharski, Krzysztof Cpalka

Multi-population-based algorithms with different migration topologies and their improvement by population re-initialization
Krystian Łapa

An Application of Fuzzy Techniques to Predict the Polymorphism of Selected Microsatellite Sequences

Adam Kiersztyn, Krystyna Kiersztyn, Grzegorz Panasiewicz, Martyna Bieniek-Kobuszewska

Predicting Churn Rate in Companies
Magdalena Scherer

A new method of verification of dynamic signatures changing over time with decomposition and selection of characteristic descriptors
Mateusz Mastalerczyk, Tomasz Szczepanik, and Marcin Zalasinski

A new rebinning reconstruction method for the low dose CT scanners with flying focal spot
Piotr Pluta and Robert Cierniak

13:00 - 14:30

Lunch, Room: Zakopane

14:30

Sightseeing trip
A tour containing the most interesting corners of the winter capital of Poland.
Zakopane – chapel in Jaszczurówka – Ski Jumping Area – old cemetery – Krupówki (the famous promenade). Duration: 3-4 hrs. Please sign up for the guided tour at the ICAISC conference office.

18:00

Farewell Dinner, Room: Zakopane

Thursday, June 22

07:00-8:30

Breakfast, Room: Zakopane

Session 8 - online (Room: Tatry)
8:30 - 10:45

Session 8: Data mining
Date/Time: 8:30 - 10:45, Thu., June 22, 2023
Room: Tatry, Oral online session via Zoom, Chair: Wojciech Rafajłowicz

From Simulated to Real Environments: Q-Learning for MAZE-Navigation of a TurtleBot
Tobias Weiss, Simon Reichhuber, Sven Tomforde

Removing Ambiguity in Natural Language for Generating Self Join Queries
Pradnya Sawant, Kavita Sonawane

Child tracking and Prediction of Violence on Children in social media using Natural Language Processing and Machine Learning

M.K. Nallakaruppan, Gautam Srivastava, Thippa Reddy Gadekallu, Praveen Kumar Reddy, Sivarama Krishnan, Dawid Polap

Adequate basis for the data-driven and machine-learning-based identification
Marcel Rojahn, Maximilian Ambros, Tibebu Biru, Hermann Krallmann, Norbert Gronau, Marcus Grum

Stochastic Model for Wildfire Simulation based on the characteristics of the Brazilian Cerrado
Heitor F. Ferreira, Claudiney R. Tinoco, Luiz G. A. Martins, Gina M. B. Oliveira

Exploring target identification with K-nearest neighbors' algorithm
Karina Jimenes-Vargas, Yunierkis Perez-Castillo, Eduardo Tejera, Cristian Robert Munteanu

Evolutionary-based generative design for electric transmission towers
Hugo Moreno, Pablo S Naharro, Antonio LaTorre, Jose-María Pena

An hybrid NSGA-II algorithm for the Bi-objective Mobile Mammography Unit Routing Problem
Thiago Araujo, Puca Huachi Vaz Penna, Marcone Jamilson Freitas Souza

Improved Barnacles Movement Optimizer (IBMO) Algorithm for Engineering Design Problems
Syed Kumayl Raza Moosavi, Muhammad Hamza Zafar, Seyedali Mirjalili, Filippo Sanfilippo

Conference site

The ICAISC Conference is held in:

Bachleda Kasprowy Zakopane Hotel
ul. Szymaszkowa
34-500 Zakopane, POLAND
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Useful phone numbers:

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Mountain Rescue Team TOPR : 985 , +48 601 100 300
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