21st International Conference
Artificial Intelligence and Soft Computing

Program

Zakopane, Poland, June 19-23, 2022

Program at a glance

Sunday, June 19	Monday, June 20	Tuesday, June 21
	07:00-8:30	**07:00-8:30**
	Breakfast, Room: Zakopane	Breakfast, Room: Zakopane
	8:30 - 8:40	**Invited Talks, Chair: Jacek Mańdziuk, Room: Tatry**
	Opening Ceremony, Room: Tatry	**8:30 - 9:10**
	Invited Talks, Chair: Leszek Rutkowski, Room: Tatry	Janusz Kacprzyk, Systems Research Institute
	8:40 - 9:20	**9:10 - 9:50**
	Sanghamitra Bandyopadhyay, Indian Statistical Institute	Włodzisław Duch, Nicolaus Copernicus University
	9:20 - 10:00	**9:50 - 10:10**
	Tingwen Huang , Texas A&M University	Coffee break
	10:00 - 10:20	Session 4 (Room: Tatry)
	Coffee break	**10:10 - 11:25**
	Invited Talk, Chair: Jacek Zurada	Evolutionary Algorithms and Various Applications
	10:20 - 11:00	Session 5 (Room: Tatry)
	Ujjwal Maulik, Jadavpur University	**11:30 - 13:00**
	11:00 - 11:40	Artificial Intelligence in Modeling and Simulation
	Roman Senkerik, Tomas Bata University in Zlin	**13:00 - 14:30**
	Session 1 (Room: Tatry)	Lunch, Room: Zakopane
	11:50 - 13:00	**Invited Talk, Chair:Janusz Kacprzyk**
	Neural Networks and Their Applications 1	**14:30 - 15:10**
	13:00 - 14:30	Witold Pedrycz, University of Alberta, Canada
	Lunch, Room: Zakopane	**15:10 - 15:40**
	Session 2 (Room: Tatry)	Adam Krzyzak, Concordia University, Canada
	14:30 - 16:00	**15:40 - 15:50**
	Neural Networks and Their Applications 2	Coffee break
	16:00 - 16:20	Session 6 (Room: Tatry)
	Coffee break	**15:50 - 17:00**
	Session 3 (Room: Tatry)	Neural Networks and Their Applications 3
	16:20-17:35	Session 7 (Room: Rysy)
	Pattern Classification, Robotics and Control	**17:00-18:20**
		Neural Networks and Their Applications 4
18:00	**18:00**	
Welcome dinner, Room: Zakopane	Social event, barbecue	**18:30**
		Social event (Banquet), Room: Tatry

Wednesday, June 22	Thursday, June 23
07:00-8:30	**07:00-11:00**
Breakfast, Room: Zakopane	Breakfast, Room: Zakopane
Invited Talks, Chair: Michał Woźniak, Room: Tatry	
8:30 - 9:10	
Nikola Kasabov, Auckland University of Technology	
9:10 - 9:50	
Rafal Angryk, Georgia State University	
9:50 - 10:10	
Coffee break	
Invited Talk, Chair: Rafał Scherer	
10:10 - 10:50	
Christian Napoli, Sapienza University of Rome	
Session 8 (Room: Tatry)	
11:00 - 13:00	
Various Problems of Artificial Intelligence	
13:00 - 14:30	
Lunch, Room: Zakopane	
Session 9 (Room: Tatry)	
14:30 - 15:45	
Data Mining	
15:45 - 16:05	
Coffee break	
Session 10 (Room: Tatry)	
16:05-17:35	
Evolutionary Algorithms and Their Applications	
18:00	
Farewell Dinner, Room: Zakopane	

Detailed Program

Sunday, June 19

18:00

Welcome party

Room: Zakopane

Monday, June 20

07:00-8:30

Breakfast, Room: Zakopane

8:30 - 8:40

Opening Ceremony, Room: Tatry

Invited Talks, Chair: Leszek Rutkowski, Room: Tatry

8:40 - 9:20

Sanghamitra Bandyopadhyay, Indian Statistical Institute, "Multiobjective Optimization and Multimodality: Algorithms and Applications"

9:20 - 10:00

Tingwen Huang , Texas A&M University, "Efficient Computational Approaches and Applications to Some Optimization Problems in Smart Grid"

10:00 - 10:20

Coffee break

Invited Talk, Chair: Jacek Zurada

10:20 - 11:00

Ujjwal Maulik, Jadavpur University, "AI and Data Science: Path Traversed and Ahead"

11:00 - 11:40

Roman Senkerik, Tomas Bata University in Zlin, "Recent Trends in Evolutionary Computation: From good practices in bench-marking to explainable AI"

Session 1 (Room: Tatry)

11:50 - 13:00

Session 1: Neural Networks and Their Applications 1
Date/Time: 11:50 - 13:00, Mon., June 20, 2022
Room: Tatry, Oral session, Chair: Dawid Połap

Stacked ensemble of convolutional neural networks for follicles detection on scalp images
Dymitr Ruta, Ling Cen, Andrzej Ruta, Quang Hieu Vu

Semantically consistent sim-to-real image translation with neural networks
Solt Skribanek, Márton Szemenyei, Róbert Moni

Analysis and detection of DDoS Backscatter using NetFlow data, hyperband-optimised Deep Learning and explainability techniques
Marek Pawlicki, Martin Zadnik, Rafał Kozik, Michał Choraś

Human-AI-Collaboration to increase the perception of VR
Antoni Jaszcz, Katarzyna Prokop, Dawid Połap, Gautam Srivastava, Jerry Chun-Wei Lin

Multi-objective Bayesian Optimization for Neural Architecture Search
Petra Vidnerová, Jan Kalina

13:00 - 14:30

Lunch, Room: Zakopane

Session 2 (Room: Tatry)

14:30 - 16:00

Session 2: Computer Vision, Image and Speech Analysis
Date/Time: 14:30 - 16:00, Mon., June 20, 2022
Room: Tatry, Oral session, Chair: Julian Szymanski

Text Line Segmentation in Historical Newspapers
Ladislav Lenc, Jiří Martínek, Pavel Král

Unsupervised Pose Estimation by means of an innovative Vision Transformer
Nicolo' Brandizzi, Andrea Fanti, Roberto Gallotta, Samuele Russo, Luca Iocchi, Daniele Nardi, Christian Napoli

Author Attribution of Literary Texts in Polish by the Sequence Averaging
Tomasz Walkowiak

BIM-based Approach to House Renovation Projects Assessment
Barbara Strug, Grażyna Ślusarczyk

Improving Solar Flare Prediction by Time Series Outlier Detection
Junzhi Wen, Reazul Islam, Azim Ahmadzadeh, Angryk Rafal

Short Texts Representations for Legal Domain Classification
Julian Szymanski, Rafał Scherer, Andrzej Sobecki, Kajetan Komar-Komarowski, Paweł Drozda, Tomasz Zymkowski, Konrad Szałapak

16:00 - 16:20

Coffee break

Session 3 (Room: Tatry)

16:20-17:35

Session 3: Pattern Classification
Date/Time: 16:20-17:35, Mon., June 20, 2022
Room: Tatry, Oral session, Chair: Wojciech Rafajłowicz

Employing Convolutional Neural Networks for Continual Learning
Marcin Jasiński, Michał Woźniak

On a Combination of Clustering Methods and Isolation Forest
Michał Koziara, Paweł Karczmarek

Learning Functional Descriptors Based on the Bernstein Polynomials - Preliminary Studies
Wojciech Rafajłowicz, Ewaryst Rafajłowicz, Jędrzej Więckowski

Spectroscopy-Based Prediction of In Vitro Dissolution Profile Using Random Decision Forests

Mohamed Azouz Mrad, Kristóf Csorba, Dorián László Galata, Zsombor Kristóf Nagy, Brigitta Nagy

Optimization of Parameterized Behavior Trees in RTS Games
Tomasz Machalewski, Mariusz Marek, Adrian Ochmann

18:00

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

Tuesday, June 21

07:00-8:30

Breakfast, Room: Zakopane

Invited Talks, Chair: Jacek Mańdziuk, Room: Tatry

8:30 - 9:10

Janusz Kacprzyk, Systems Research Institute, "AI-assisted/enabled decision making, decision aid and decision support for solving complex problems"

9:10 - 9:50

Włodzisław Duch, Nicolaus Copernicus University, "New developments in EEG analysis for diagnosis, biofeedback and brain-computer interfaces"

9:50 - 10:10

Coffee break

Session 4 (Room: Tatry)

10:10 - 11:25

Session 4: Evolutionary Algorithms and Various Applications
Date/Time: 10:10 - 11:25, Tue., June 21, 2022
Room: Tatry, Oral session, Chair: Piotr Duda

LQ-R-SHADE: R-SHADE with quadratic surrogate model
Mateusz Zaborski, Jacek Mańdziuk

Evolutionary Approach to Melodic Line Harmonization
Jan Mycka, Adam Żychowski, Jacek Mańdziuk

Using Answer Set Programming to Improve Sensor Network Lifetime
Artur Mikitiuk, Krzysztof Trojanowski, Jakub Grzeszczak

An Application of Information Granules to Detect Anomalies in COVID-19 Reports
Adam Kiersztyn, Krystyna Kiersztyn, Rafał Łopucki, Patrycja Jędrzejewska-Rzezak

Session 5 (Room: Tatry)

11:30 - 13:00

Session 5: Artificial Intelligence in Modeling and Simulation
Date/Time: 11:30 - 13:00, Tue., June 21, 2022
Room: Tatry, Oral session, Chair: Marcin Wozniak

Algorithm for solving optimal placement of routers in mines
Alan Popiel, Marcin Wozniak

BiLSTM deep learning model for heart problems detection
Jakub Silka, Michal Wieczorek, Martyna Kobielnik, Marcin Woźniak

Multiscale Multifractal Detrended Analysis of Speculative Attacks Dynamics in Cryptocurrencies
David Alaminos, M. Belén Salas

A Heuristic Repair Algorithm for the Hospitals/Residents problem with Ties
Son Thanh Cao , Le Quoc Anh, Hoang Huu Viet

Similarity Fuzzy Semantic Networks and Inference. An application to analysis of radical discourse in Twitter
Juan Luis Castro, Manuel Francisco

An Improved Structure-Based Partial Solution Search for the Examination Timetabling Problem
Christopher Rajah, Nelishia Pillay

13:00 - 14:30

Lunch, Room: Zakopane

Invited Talk, Chair: Janusz Kacprzyk

14:30 - 15:10

Witold Pedrycz, University of Alberta, Canada, "Federated Learning, Knowledge Transfer, and Knowledge Distillation: Towards Green and Granular Machine Learning"

15:10 - 15:40

Adam Krzyzak, Concordia University, Canada, "On the rate of convergence of image classifiers based on deep convolutional neural networks"

15:40 - 15:50

Coffee break

Session 6 (Room: Tatry)

15:50 - 17:00

Session 6: Neural Networks and Their Applications 3
Date/Time: 15:50 - 17:00, Tue., June 21, 2022
Room: Tatry, Oral session, Chair: Mateusz Modrzejewski

An Empirical Study of Adversarial Domain Adaptation on Time Series Data
Sarah Hundschell, Manuel Weber, Peter Mandl

Multilayer Perceptrons with Banach-like Perceptrons Based on Semi-Inner Products – About Approximation Completeness
Thomas Villmann, Alexander Engelsberger

Transfer Learning with Deep Neural Embeddings for Music Classification Tasks
Mateusz Modrzejewski, Piotr Szachewicz, Przemysław Rokita

ARIMA for Short-Term and LSTM for Long-Term in Daily Bitcoin Price Prediction
Tran Kim Taoi, Roman Senkerik, Ivan Zelinka, Adam Ulrich, Vo Thi Xuan Hanh, Vo Minh Huan

Synthetic slowness shear well-logs prediction using supervised machine learning models
Hugo Tamoto, Rodrigo Contreras, Francisco Santos, Monique Viana, Rafael Gioria, Cleyton Carneiro

Session 7 (Room: Rysy)
17:00-18:20

Session 7: Neural Networks and Their Applications 4
Date/Time: 17:00-18:20, Tue., June 21, 2022
Room: Rysy, Oral session, Chair: Bartosz Kowalczyk

Portfolio Transformer for Attention-Based Asset Allocation
Damian Kisiel, Denise Gorse

Training subjective perception biased images of vehicle ambient lights with deep belief networks using backpropagation- and enforcing-rules supervised
Gregor Braun, Michel Brokamp, Christina Klüver

Human Activity Recognition for Online Examination Environment using CNN
Ramu S, Ram Mohana Reddy Guddeti, Biju R Mohan

Assessment of Semi-Supervised approaches applied to Convolutional Neural Networks
Cristiano N. O. Bassani, Priscila T. M. Saito, Pedro H. Bugatti

Prediction of Protein Molecular Functions Using Transformers
Felipe Lopes de Mello, Gabriel Bianchin de Oliveira, Helio Pedrini, Zanoni Dias

18:30

Social event (Banquet), Room: Tatry

Wednesday, June 22

07:00-8:30

Breakfast, Room: Zakopane

Invited Talks, Chair: Michał Woźniak, Room: Tatry
8:30 - 9:10

Nikola Kasabov, Auckland University of Technology, "Deep Learning, Deep Knowledge Representation and Knowledge Transfer with Brain-Inspired Neural Network Architectures"

9:10 - 9:50

Rafal Angryk, Georgia State University, "Machine Learning Opportunities in Heliophysics: Big Picture with Some Examples"

9:50 - 10:10

Coffee break

Invited Talk, Chair: Rafał Scherer
10:10 - 10:50

Christian Napoli, Sapienza University of Rome, "Human-Centered Artificial Intelligence & Ambient Assisted Living: actual challenges and future perspectives in Europe"

Session 8 (Room: Tatry)
11:00 - 13:00

Session 8: Various Problems of Artificial Intelligence
Date/Time: 11:00 - 13:00, Wed., June 22, 2022

Room: Tatry, Oral session, Chair: Janusz Starczewski

RGB-D SLAM with Deep Depth Completion
Ali Osman Serhatoglu, Oguzhan Guclu, Ahmet Burak Can

Bi-Space Search: Optimizing the Hybridization of Search Spaces in Solving the One Dimensional Bin Packing Problem
Derrick Beckedahl, Nelishia Pillay

Tourism Stock Prices, Systemic Risk and Tourism Growth: A Kalman Filter with Prior Update DSGE-VAR Model
David Alaminos, M. Belén Salas

Validation of Labelling Algorithms for Abstract Argumentation Frameworks: The Case of Listing Stable Extensions
Samer Nofal, Amani Abu Jabal, Abdullah Alfarrarjeh, Ismail Hababeh

An efficient algorithm to find a maximum weakly stable matching for SPA-ST problem
Nguyen Thi Uyen, Tran Xuan Sang

Buggy Pinball: A Novel Single-point Meta-heuristic for Global Continuous Optimization
Vasileios Lymperakis, Athanasios Aris Panagopoulos

Explaining Machine Learning Predictions In Botnet Detection
Sean Miller, Curtis Busby-Earle

Assessing the Sentiment of Book Characteristics Using Machine Learning NLP Models
Paweł Drozda, Krzysztof Sopyła

Poster Session (Room: Giewont)
11:00 - 12:00

Poster Session: Various Problems of Artificial Intelligence
Date/Time: 11:00 - 12:00, Tue., June 22, 2022
Room: Giewont

A fast learning algorithm for the multilayer neural network
Jarosław Bilski, Bartosz Kowalczyk

A new computational approach to the Levenberg-Marquardt learning algorithm
Jarosław Bilski, Bartosz Kowalczyk, Jacek Smoląg

Convergence of RBF Networks Regression Function Estimates and Classifiers
Adam Krzyżak, Tomasz Gałkowski, Marian Partyka

Edge Detection-Based Full-Disc Solar Image Hashing
Rafał Grycuk, Patryk Najgebauer, Rafał Scherer

Hand gesture recognition for medical purposes using CNN
Robert Cierniak, Jakub Sosnowski, Piotr Woldan, Piotr Pluta

Dynamic signature verification using selected regions
Marcin Zalasiński, Krzysztof Cpałka, Piotr Duda

A multi-population-based algorithm with different ways of subpopulations cooperation
Krystian Łapa, Leszek Rutkowski, Krzysztof Cpałka

Autoencoder neural network for detecting non-human web traffic
Gabryel Marcin

A New Approach to Statistical Iterative Reconstruction Algorithm for a CT Scanner with Flying Focal Spot Using a Rebinning method

Piotr Pluta, Robert Cierniak

13:00 - 14:30

Lunch, Room: Zakopane

Session 9 (Room: Tatry)

14:30 - 15:45

Session 9: Data Mining
Date/Time: 14:30 - 15:45, Wed., June 22, 2022
Room: Tatry, Oral session, Chair: Krystian Łapa

A streaming approach to the Core Vector Machine
Moritz Heusinger, Frank-Michael Schleif

Identifying Cannabis Use Risk through Social Media Based on Deep Learning Methods
Doaa Ibrahim, Diana Inkpen, Hussein Al Osman

K-Medoids-Surv: A patients risk stratification algorithm considering censored data
George Marinos, Chrysostomos Simvoulidis, Dimosthenis Kyriazis

A Benchmark of Process Drift Detection Tools: Experimental Protocol and Statistical Analysis
Caio Raduy, Denise M. V. Sato, Eduardo A. Franciscon, Edson E. Scalabrin

15:45 - 16:05

Coffee break

Session 10 (Room: Tatry)

16:05-17:35

Session 10: Evolutionary Algorithms and Applications
Date/Time: 16:05-17:35, Wed., June 22, 2022
Room: Tatry, Oral session, Chair: Krystian Łapa

Automated Design of Dynamic Heuristic Set Selection for Cross-Domain Selection Hyper-Heuristics
Ahmed Hassan, Nelishia Pillay

Using Automatic Programming to Improve Gradient Boosting for Classification
Roland Olsson, Shubodha Acharya

A Comparative Study of Genetic Programming Variants
Cry Kuranga, Nelishia Pillay

An expert system to detect and classify CNS disorders based on eye test data using SVM and Nature-Inspired Algorithms
Anuradha Ariyaratne, Upeksha Samarasinghe

Overload Monitoring System Using Sound Analysis for Electrical Machines
Nguyen Cong-Phuong, Nguyen Tuan Ninh

CamCarv- Expose the source Camera at the rear of seam insertion
Muhammad Irshad, K.H. Loo, Ngai-Fong Law

Forced Movement Extensions of the Particle Swarm Optimizers with Inertia Weight
Krzysztof Wójcik

18:00

Farewell Dinner, Room: Zakopane

Thursday, June 23

07:00-11:00

Breakfast, Room: Zakopane

Conference site

The ICAISC Conference is held in:

Mercure Kasprowy Hotel
ul. Szymaszkowa
34-500 Zakopane, POLAND
tel(+48) 18 202 40 00

Useful phone numbers:

taxi in Zakopane: +48 18 196 25, Radio Taxi Giewont +48 18 196 26

Radio Taxi 919: +48 18 20 12 560
INTER Radio Taxi: +48 18 201 42 32
Zakopane tourist information: +48 18 20-122-11
Ambulance: 999, Police: 997 (or 112 from your mobile phone)

Mountain Rescue Team TOPR : 985, (+48) 601 100 300 or (+48) 18 206 34 44
Krakow tourist information: +48 12 422 60 91, +48 12 421 77 06, +48 12 433 73 10
taxi in Krakow: (+48 12) 19919, 19191, 19621, 19623, 19625