

2023 World Symposium on Digital Intelligence for Systems and Machines (DISA 2023)

**Kosice, Slovakia
21 – 22 September 2023**



**IEEE Catalog Number: CFP23P13-POD
ISBN: 979-8-3503-4354-0**

**Copyright © 2023 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP23P13-POD
ISBN (Print-On-Demand):	979-8-3503-4354-0
ISBN (Online):	979-8-3503-4353-3

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

Committees	4
Table of Contents	7
Understanding the Interplay of Clinical Features and Cognitive Behavior in Schizophrenia: A Machine Learning Study	10
F. Adjailia, S. A. Hadri, A. Bbouramoul	
Enhancing Reliability and User Experience in Conversational Agents	16
L. Aunimo	
Use of Decentralized Blockchain Technology in the Routing Process for MANETs	19
M. Baumgartner, J. Papaj	
Controlling the Output of a Generative Model by Latent Feature Vector Shifting	24
R. Belanec, P. Lacko, K. Malinovská	
From Components to Caring: The Development Trajectory of a Socially Therapeutic Assistive Robot (STAR) Named Therabot™	31
C. L. Bethel, Z. Henkel, K. Henkel, J. Thompson, K. Smith	
Comparison of modern and traditional Slovak children’s speech recognition	46
A. Buday, J. Juhár, A. Cižmár, S. Ondáš	
Evaluating the Significance of Outdoor Advertising from Driver’s Perspective Using Computer Vision	53
Z. Cerneková, Z. B. Haladová, J. Špirka, V. Kocur	
Detrive: Imitation Learning with Transformer Detection for End-to-End Autonomous Driving.....	N/A
D. Chen, N. Wang, F. Chen, T. Pipe	
Exploring Interpretable XAI Algorithms for Image Classification and Prediction Explanations	66
D. Furman, M. Mach, D. Vranay, P. Sincák	
Detection of Gender and Age Category from Speech	72
R. Haluška, M. Popovic, M. Pleva, M. Frohman	
Bi-Source Class Visualization: An Adversarial Neural Network-based Approach for Unbiased Class Visualization	78
E. Hamerlik, M. Deb, M. Takác	
Topological Neural Networks: theory and applications	84
P. Hartono	

The Evolving Design of a Socially Therapeutic Robotic Dog.....	90
K. Henkel, Z. Henkel, A. Aldridge, C. L. Bethel	
Deep Semantic Segmentation Models for Lung Ultrasound	98
M. Hliboký, D. Lahunov, S. Gecík, M. Bundzel	
Motion Based Trick Classification in Skateboarding Using Machine Learning.....	104
B. Hollaus, E. Westenberger, J. Kreiner, G. Freitas, L. Fresen	
Graph-based deictic deep reinforcement learning with a priori information	N/A
L. Hruška, P. Sincák, J. Magyar, A. Hawbani, L. Kovács	
Use of Self-Organizing Maps for characterization and classification of selected types of variable stars.....	117
L. Kališková, P. Butka	
Classification Explanaibility by Minimised Fuzzy Logic Function	N/A
M. Klimo, L. Králik, J. Kopcan	
Lung sliding detection from ultrasonography images using interpretable deep neural network.....	N/A
M. Kolárik, M. Sarnovský, L. Lenártová	
Processing and Segmentation of Human Teeth from 2D Images using Weakly Supervised Learning	133
T. Kunzo, V. Kocur, L. Gajdošech, M. Madaras	
Performance analysis of AODV routing protocol and its modifications for MANET	140
N. Kurkina, J. Papaj	
Referencing validity assignment using B+tree index enhancements	145
M. Kvet	
Tuning-less Object Naming with a Foundation Model.....	154
A. Lucny, P. Petrovic	
Detection of Fake News Relate to CoViD-19	161
K. Machová, V. Balara, M. Mach	
Supersampling of Data from Structured-light Scanner with Deep Learning	167
M. Melichercík, L. Gajdošech, V. Kocur, M. Madaras	
Motion Detection Methods for Automatic Number Plate Recognition.....	174
K. Micko, M. Kocurekova, A. Maciakova, I. Zolotova	
Movement Vector Computing of Vehicles on Mast-Mounted Camera Systems.....	179
K. Micko, T. Vank, J. Maciak, P. Papcun	
Fully Convolutional Neural Networks for Brain MRI Segmentation	N/A
D. Molitorisová, D. J. Hreško, P. Drotár, J. Gazda	

Advanced Machine Learning Techniques for Emotion Detection in Videos.....	N/A
M. Pošefko, M. Szabóová	
Classification of power factor in electric systems by decision trees and neural networks.....	195
V. Pristaš, M. G. Shridhara, A. Kotvytskiy, L. Antoni, G. Semanišin	
Efficiency Evaluation of ChatGPT for Adverb Type Categorization	199
W. T. Sewunetic, L. Kovács	
A short review on hate speech detection: challenges towards datasets and techniques	204
M. G. Shridhara, V. Pristaš, A. Kotvytskiy, L. Antoni, G. Semanišin	
User friendly annotation tool for DICOM images	N/A
A. Skrvan, R. Hudec	
Collaborative virtual reality environment and virtual school	214
B. Sobota, M. Mattová, S. Dimun, Š. Korecko	
Grasp optimization for a robotic prosthetics using artificial intelligence.....	N/A
M. Stredanský, M. Bundzel, M. Hliboký	
Indoor UAV Localization and Path Planning.....	N/A
M. Tóth, D. Hreha, J. Magyar	
Comparative Analysis of Convolutional and Capsule Networks on Decreasing Dataset Sizes: Insights for Real-World Applications.....	232
D. Vranay, M. Katona, P. Sincák	
Author Index.....	239