

2024 IEEE International Conference on Evolving and Adaptive Intelligent Systems (EAIS 2024)

**Madrid, Spain
23 – 24 May 2024**



**IEEE Catalog Number: CFP2414N-POD
ISBN: 979-8-3503-6624-2**

**Copyright © 2024 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:	CFP2414N-POD
ISBN (Print-On-Demand):	979-8-3503-6624-2
ISBN (Online):	979-8-3503-6623-5
ISSN:	2330-4863

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

Edge Implementation of Unsupervised Self-evolving Vision Classifier	1
<i>Agil Aghasanli and Plamen Angelov</i>	
A Robot-Assisted Missing Child Search Approach	9
<i>Abdel Alqaddoumi, Anisha Mulinti, Srivalli Penagamuri, Yousef Ghaly, Sanjana Chitnis, Weitian Wang and Michelle Zhu</i>	
EdgeCluster: A Resource-Aware Evolving Clustering for Streaming Data	15
<i>Milena Angelova, Veselka Boeva and Shahrooz Abghari</i>	
Towards safer indoor spaces: A machine learning based CO2 forecasting approach for smart systems	25
<i>Evangelos Athanasakis, Kyriaki Pantelidou, Nikolaos Siopis, Paschalis Bizopoulos, Antonios Lalas, Konstantinos Votis and Dimitrios Tzovaras</i>	
Contextual Approaches to Data-Driven Fault Detection in Solar Photovoltaic System	34
<i>Diganta Baruah, Ritocheta Roy, Raunak Ahmed, Senthilmurugan Subbiah, Sonali Chouhan and Kumaresan Angappan</i>	
Intelligent Resource Allocation in Power Grids: Leveraging Variable Neighborhood Search for Optimal Switch Allocation	41
<i>Henrique Caetano, Matheus Fogliatto, Luiz Desuó Neto, Benvindo R. Pereira J., Marco Aiello and Carlos Maciel</i>	
Correlation-enhanced Dynamic Graph Learning for Temporal Link Prediction	49
<i>Junzhe Chen, Zhiqiang Pan and Honghui Chen</i>	
HypoTreat: Reducing Hypoglycemia in Artificial Pancreas Simulation	56
<i>Miriam Chlumsky-Hartmann, Ahmad Ayad and Anke Schmeink</i>	
Using Genetic Algorithms for the Generation of Increasingly Challenging Terrain for Players to Navigate	63
<i>Andrea Corradini and Adam Broadbent</i>	
A brief Review on the Role of Context in Explainable AI	71
<i>Rashmi Dutta Baruah and Mario Muñoz-Organero</i>	
Autonomous Swarm Navigation Using Multi-Agent Reinforcement Learning and Neuro-Evolution	77
<i>Álvaro Díez and Fidel Aznar</i>	
Towards Certifiable AI in Medicine: Illustrated for Multi-label ECG Classification Performance Metrics	86
<i>Miriam Elia, Fabian Stieler, Fabian Ripke, Marius Nann, Sarah Dopfer and Bernhard Bauer</i>	
Learning the Dynamics of Future Marine Microgrids Using Temporal Convolutional Neural Network	94
<i>Xiaoyu Ge, Ali Hosseinipour, Saskia Putri, Faegheh Moazeni and Javad Khazaei</i>	
Recursive Level Set Fuzzy Modeling	101
<i>Fernando Gomide and Leandro Maciel</i>	

Learning to Escape: Multi-mode Policy Learning for the Traveling Salesmen Problem.....	107
<i>Myoung Hoon Ha, Seunggeun Chi and Sang Wan Lee</i>	
Generation and Evaluation of Medical Images Based on Diffusion Models.....	118
<i>Jose Antonio Iglesias, José María Monterrubio, María Paz Sesmero and Araceli Sanchis</i>	
Clients Behavior Monitoring in Federated Learning via Eccentricity Analysis	126
<i>Tharuka Kasthuri Arachchige, Selim Ickin, Shahrooz Abghari and Veselka Boeva</i>	
Adapting Random Simple Recurrent Network for Online Forecasting Problems	134
<i>Mohammed Elmahdi Khennour, Abdelhamid Bouchachia, Mohammed Lamine Kherfi, Khadra Bouanane and Oussama Aiadi</i>	
Multi-Task YOLO for Vehicle Colour Recognition and Automatic License Plate Recognition	141
<i>Yin-Loon Khor, Yi Jie Wong, Mau-Luen Tham, Yoong Choon Chang, Ban-Hoe Kwan and Kok-Chin Khor</i>	
Convolutional neural networks to detect Parkinson’s disease based on voice recordings and transfer learning.....	148
<i>Daniel Francisco Merino Delgado, María Jesús Rufo Bazaga, Alfonso Mateos Caballero and Carlos Javier Pérez Sánchez</i>	
Online Design of Experiments with Fuzzy Confidence Interval for Identification of Nonlinear Dynamical Processes.....	153
<i>Miha Ožbot and Igor Škrjanc</i>	
Bringing computation to the data: A MOEA-driven approach for optimising data processing in the context of the SKA and SRCNet.....	161
<i>Manuel Parra-Royón, Alvaro Rodriguez-Gallardo, Javier Moldón, Laura Darriba-Pol, Susana Sánchez-Expósito, Jesús Sánchez-Castañeda, Julián Garrido, Lourdes Verdes-Montenegro Atalaya and Mángeles Mendoza</i>	
Reflected PSO for Robot Path Planning.....	169
<i>Ali Rodan</i>	
Enhanced K-means Color Clustering Based on SLIC Superpixels Merging incorporated within the Entomology Software: AIsectID.....	177
<i>Haleema Sadia and Parvez Alam</i>	
Adaptive Intelligent Supplemental Light Optimization based on Fluctuating Electricity Prices.....	186
<i>Jan Sørensen and Eva Reybroeck</i>	
Study a deep learning-based audio classification for detecting the distance of UAV	193
<i>Dana Utebayeva and Assel Yembergenova</i>	
Quantifying uncertainty in Bayesian Networks structural learning	200
<i>Vitor Barth, Henrique Caetano, Carlos Maciel and Marco Aiello</i>	
A Human-centric Approach to Explain Evolving Data: A Case Study on Education.....	208
<i>Gabriella Casalino, Giovanna Castellano, Daniele Di Mitri, Katarzyna Kaczmarek-Majer and Gianluca Zaza</i>	

Knowledge extraction in auction verification employing techniques from machine learning and fuzzy neural networks.	216
<i>Paulo Vitor De Campos Souza and Mauro Dragoni</i>	
Explainable Risk Prediction on Streaming Data: a LSTMs application to SARS-CoV-2 Patients.	224
<i>Esteban García-Cuesta, Javier Huertas Tato, Pablo Cardinal-Fernández and José Barberán</i>	
EGNN-C+: Interpretable Evolving Granular Neural Network and Application in Classification of Weakly-Supervised EEG Data Streams.	233
<i>Daniel Leite, Alisson Silva, Gabriella Casalino, Arnab Sharma, Danielle Fortunato and Axel-Cyrille Ngomo</i>	
On the transferability of local model-agnostic explanations of machine learning models to unseen data.	243
<i>Alba López-Gonzalez and Esteban García-Cuesta</i>	
Leveraging Incremental Decision Trees and In-Vivo Biosensors for an Explainable Plant Health Monitoring System.	253
<i>Giovanni Panella, Pietro Ducange, Manuele Bettelli, Filippo Vurro, Michela Fazzolari and Riccardo Pecori</i>	
Towards Analysing Climate Change Temperature Patterns through Stream Clustering Methods.	261
<i>Asier Urio-Larrea, Graçaliz Dimuro, Javier Andreu-Perez, Heloisa Camargo and Humberto Bustince</i>	
Understanding the Conceptual Structure of Large Language Models through Bibliographical Network.	266
<i>Verónica Duarte, Ignacio Javier Pérez-Gálvez, Pietro Ducange and Manuel Jesus Cobo Martin</i>	
Continuous Monitoring of Body Shaming Actions in Social Networks.	273
<i>Pietro Ducange, Michela Fazzolari, Francesco Marcelloni, Martina Marino and Roberta Matrella</i>	
Evaluating Web Domain Credibility: A Multifactorial Score for Analyzing Online Reliability.	281
<i>Giuseppe Fenza, Mariacristina Gallo, Vincenzo Loia and Claudio Stanzione</i>	
Updating knowledge in Large Language Models: an Empirical Evaluation.	289
<i>Alberto Roberto Marinelli, Antonio Carta and Lucia Passaro</i>	
A new Consensus Reaching Method for Group Decision-Making based on the Large Language Model Gemini for Detecting Hostility During the Discussion Process.	297
<i>José Ramón Trillo, Francisco Javier Cabrerizo, Ignacio J. Perez, Juan Antonio Morente-Molinera and Enrique Herrera-Viedma</i>	
Enhancing Hotel Performance Prediction in Oman’s Tourism Industry: Insights from Machine Learning, Feature Analysis, and Predictive Factors.	305
<i>Rasha Abdulwahhab, Shqran Al Mansoori, Karan Jetly and Hilal Almaqbali</i>	

Biological Trajectory Prediction of Beet Armyworm Larva Based on Computer Vision and Time-Series Forecasting Model.....	313
<i>Shih-Chun Deng, Hung-Jen Lin, Ping-Liang Chung, An-Chi Liu and Joe-Air Jiang</i>	
Unsupervised context-sensitive anomaly detection on streaming data relying on multi-view profiling	320
<i>Fabian Fingerhut, Mathias Verbeke and Elena Tsiporkova</i>	
Topological Adversarial Attacks on Graph Neural Networks via Projected Meta Learning .	330
<i>Mohammed Aburidi and Roummel Marcia</i>	
Bacteria Taxonomic Classification using Graph Neural Networks	338
<i>Domenico Amato, Salvatore Calderaro, Giosuè Lo Bosco, Riccardo Rizzo and Filippo Vella</i>	
Supervised GNNs for Node Label Classification in Highly Sparse Network: Comparative Analysis	344
<i>Fathimah Syifa Nurkasyifah, Asep Kuswandi Supriatna and Asep Maulana</i>	
Unveiling Graph Power: SegmentAnything and GCN Synergy for Instance Segmentation and Classification	352
<i>Vincenzo Mariano Scarrica and Antonino Staiano</i>	
Situational Awareness I2X Pipeline Methodology for LiDAR-based Sensor Networks at the Edge of Internet of Things	359
<i>Rogelio Hernandez, Gabriel Mujica and Jorge Portilla</i>	
A Multi-Layered Methodology for Driver Behavior Analysis Using TinyML and Edge Computing.....	367
<i>Morsinaldo Medeiros, Thommas Flores, Marianne Silva and Ivanovitch Silva</i>	
What are the most influential factors in a vehicle platoon?	375
<i>Fernando Viadero-Monasterio, Miguel Meléndez-Useros, Manuel Jiménez-Salas, Beatriz López Boada and María Jesús López Boada</i>	
Speech Audio Deepfake Detection via Convolutional Neural Networks	382
<i>Lucas Pedrosa Valente, Marcelo Marques Simões de Souza and Alan Marques da Rocha</i>	
Privacy-preserving distributed learning with chaotic maps	388
<i>Irina Arévalo, Jose L. Salmeron and Ivan Romero</i>	
Long Short-term Cognitive Networks: An Empirical Performance Study	395
<i>Gonzalo Nápoles and Isel Grau</i>	
A Large Reservoir Computing Forecasting Method based on Randomized Fuzzy Cognitive Maps	403
<i>Omid Orang, Fabricio Erazo-Costa, Petrônio Cândido de Lima E Silva, Guilherme Barreto and Frederico Guimarães</i>	