

2025 29th International Computer Conference, Computer Society of Iran (CSICC 2025)

**Tehran, Iran
5-6 February 2025**



**IEEE Catalog Number: CFP2592G-POD
ISBN: 979-8-3315-2312-1**

**Copyright © 2025 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:	CFP2592G-POD
ISBN (Print-On-Demand):	979-8-3315-2312-1
ISBN (Online):	979-8-3315-2311-4

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

Locality Preserving Projection Based Autoencoder for Hyperspectral Anomaly Detection.....	1
<i>Maryam Imani</i>	
TIS: Three-Tiered Intelligent Supply Chain Management to Enhance Quality and Supervision	7
<i>Soroush Elyasi, Fattaneh Taghiyareh</i>	
Detecting Vulnerable Smart Contracts by Security Risk Estimation.....	14
<i>Mahmood Deypir</i>	
Approximate Full-Adder, Full-Subtractor, and Full-Adder/Subtractor Circuits Based on QCA.....	19
<i>Saeid Seyedi, Hatam Abdoli</i>	
Multi-Channel Lung Sound Analysis for COPD Diagnosis Using Statistical Test and Artificial Neural Network	24
<i>Maryam Khodamoradi, Mansour Vali, Hossein Kazemizadeh, Kian Esmailian</i>	
Forecasting S&P 500 Stock Prices Using ARIMA Model Estimated by Particle Swarm Optimization Diagnosis	31
<i>Mohammad Nikoupour, Mohammad Amin Khalili, Seyed Ali Mousavi Hessari</i>	
Improving Physical Layer Computation with Reconfigurable Intelligent Surfaces	36
<i>Fatemehzahra Aligolzadeh, Seyed Pooya Shariatpanahi</i>	
An Improved Hybrid Data Warehousing Architecture for Cloud Service Providers	43
<i>Rezvan Gholivand, Pejman Goudarzi, Davood Maleki</i>	
Designing a Distributed LLM-Based Search Engine as a Foundation for Agent Discovery	48
<i>Pedram Nilofary, Mehdi Fegghi, Morteza Analoui</i>	
Quantifying Heterogeneity of Complex Networks Based on Gintropy and Gini Indices.....	54
<i>Mohammad Mahdi Emadi Kouchak, Mahsa Khazaei, Farshad Safaei</i>	
Investigating the Impact of Chunk Time on Video Streaming Performance in TCP-Based Networks.....	59
<i>Yeganeh Chatrri, Behzad Akbari, Pejman Goudarzi</i>	
A Context-Aware Attention-Based Model for Enhanced Long Term Traffic Prediction on Non-Graph-Structured Data	64
<i>S. Mozghan Rahmatinia, Seyed-Majid Hosseini, Seyed-Amin Hosseini-Seno</i>	
A Novel Mixed-Method Approach to Missing Value Imputation: An Introduction to MissMixed	71
<i>Mohammad Mahdi Kalhori, Mohammad Izadi</i>	
Persian Physical Activity Recommender System Based on ParsBERT.....	77
<i>Amin Fekri, Fahimeh Ghasemian, Hossein Ghasemalizadeh, Hossein Nozari</i>	
Real-Time Biometric Analysis of Eye Movement Patterns in Human Spatial Navigation.....	82
<i>Farhane Mirzapour, Rezvane Mirzapour, Mobina Zibandehpoor, Mehdi Delrobaei</i>	
Using Machine Learning Algorithms in Edge Intelligence for Ultra-Reliable and Low-Latency Communications in the Industrial Metaverse	88
<i>Reza Mohammadvand, Naser Mozayani</i>	

Motion-Based Human Spatial Problem-Solving Assessment Using Hand Movement Analysis	93
<i>Amir Mohammad Saffar, Sobhan Teymouri, Fatemeh Alizadehziri, Mehdi Delrobaei</i>	
Classification of Imbalanced Data Streams Using Ensemble Learning and Graph Neural Networks.....	98
<i>Maryam Kazemi Taskooh, Negin Daneshpour, Mohsen Mahmoudi</i>	
FeAdaBoost: Enhancing Federated Learning Accuracy by Ensemble Techniques	105
<i>Vida Fotoohabadi, Afsaneh Afzali, Pirooz Shamsinejadbabaki</i>	
GenAtt NIDS Attack: A Practical Generative Adversarial Attack Against Network Intrusion Detection Systems	110
<i>Pouria Dadkhah, Siavash Ahmadi, Mohammad Reza Aref</i>	
VitaCap: A Vision Transformer-Based Framework for Image Captioning	117
<i>Amirhossein Hossein Nia, Fatemehzahra Feizi, Ali Ahmadi</i>	
DNA Computing: A Breakthrough in Image Cryptography - a Comprehensive Review	122
<i>Hesam Noorpoor, Asadollah Shahbahrami</i>	
ZharfSima: Benchmarking Vision Language Models for Persian Language and Culture	128
<i>Ali Edalat, Hadi Kamkar, Amir Mohammad Rasekh Mehrabi, Sadjad Nojavan, Saeed Aghamiri, S. Mohammad Fakhraie, Habibollah Yajam, Mohammadsadegh Alizadeh</i>	
Cluster Aware Personalized News Recommendation System Using a Global News Graph	135
<i>Melika Sadat Araghi, Hadi Shakibian</i>	
Predicting Sperm DNA Fragmentation Markers Using Basic Semen Parameters and Age: A Preliminary Data Analysis.....	140
<i>Massoud Dehghan, Ahmad Kalhor, Mohammad Hossein Nasr-Esfahani, Marziyeh Tavalae</i>	
QIGA: Quantum-Inspired Genetic Algorithm for Dynamic Scheduling in Mobile Edge Computing.....	147
<i>Sadra Galavani, Abolfazl Younesi, Mohsen Ansari</i>	
On the Applicability of the Power Law Signature in the Cyber Security Data.....	152
<i>Faezeh Alizadeh, Mohammad Khansari, Abouzar Arabsorkhi</i>	
ARGENT: Energy-Aware Scheduling in Edge Computing Using Energy Valley Optimizer	158
<i>Mehrab Toghani, Sareh Maleki, Abolfazl Younesi, Sepideh Safari, Shaahin Hessabi</i>	
A Double Approximate Neural Hardware Accelerator	164
<i>Samira Nazari, Ali Azarpeyvand, Tara Ghasempouri</i>	
Advanced Stock Market Prediction Using Unsupervised Federated Learning Techniques.....	169
<i>Mohsen Tajgardan, Atena Shiranzaee, Mahtab Jamali, Reza Khoshkangini, Mahdi Rabbani</i>	
Analyzing the Mathematical Proficiency of Large Language Models in Computer Science Graduate Admission Tests.....	175
<i>Reza Tavasoli, Arya Varastehnezhad, Mostafa Masumi, Fattaneh Taghiyareh</i>	
Deep Reinforcement Learning for Delay-Optimized Task Offloading in Vehicular Fog Computing	180
<i>Mohammad Parsa Toopchinezhad, Mahmood Ahmadi</i>	
Bitcoin Price Forecasting with Generative Adversarial Networks	186
<i>Mehdi Manian, Niloofar Rastin</i>	
POOLER: A No-Code Platform to Automatically Generate Analytical Polls	193
<i>Zahra Zamani, Moein-Aldin Alihosseini, Mohammadreza Sharbaf</i>	

A Low-Cost Epicenter Estimation Scheme for Earthquake Early Warning Systems: A Preliminary Study.....	198
<i>Niyusha Baghayi, Diba Rashidi, Bahar Baradaran Eftekhari, Ali Moradi, Mahmoud Reza Hashemi, Hadi Moradi</i>	
Intelligent Resource Allocation in IoT: An ACO-GA Approach	204
<i>Helia Vafaei, Negin Haghighi, Marzieh Malekimajd</i>	
AcDWS: Actor Based Distributed Web Scraping	209
<i>Fatemeh Aliasgharzadeh, Reza Azmi</i>	
LoopGAN: A Novel Multi-Step Generative Architecture for Sequential Stock Forecasting.....	214
<i>Deniz Noormohammadzadehmaleki, Masoud Kargar, Shahin Sharbaf Movassaghpour, Sondas Ardebili, Ehsan Samadian</i>	
Cyber Protection Gap: Challenges and Remedies	221
<i>Sepehr Eskandari, Mohammad Hesam Tadayon</i>	
ELEMENT: Energy and Latency Management with Reinforcement Learning-Based Offloading in Vehicular Edge Computing.....	228
<i>Sadegh Khedry, Mohammad Hadi Keshavarzi, Abbas Shabrang Maryan, Mohsen Ansari</i>	
MRKG-DSP: Enhanced Multimodal Reasoning with Knowledge Graphs, Dynamic Semantic Pruning and LLM Integration.....	233
<i>Asef Afsahi, Ali Fahim, Ali Moeini</i>	
Enhancing English-Persian Neural Machine Translation with a Large-Scale Parallel Dataset and Relative Position Representations	239
<i>Alireza Kamyab, Negar Baghaei Nejad, Alireza Akhavanpour</i>	
Optimizing Location Allocation in Urban Management: A Brief Review.....	245
<i>Aref Ayati, Hamid Reza Naji, Mohammad Mahdi Hashemi, Mohsen Saffar</i>	
Low-Level Feature Representation in the RCSU-Net Model Using Channel-Spatial Attention Mechanism for Semantic Segmentation of Plant Leaves	252
<i>Fatemeh Farsijani, Ali Zaheri, Davar Giveki, Hossein Peyvandi</i>	
MPEC: Manifold-Preserved EEG Classification Via an Ensemble of Clustering-Based Classifiers	257
<i>Shermin Shahbazi, Mohammad-reza Nasiri, Majid Ramezani</i>	
A Preliminary Investigation into Automated Model Transformation Using Q-Learning: A Case Study.....	264
<i>Delaram Nikbakht Nasrabadi, Leila Samimi-Dehkordi, Mohammad Ehsan Basiri</i>	
Blockchain-Enabled Federated Learning: A Hyperledger Fabric Approach for Secure IoT Systems	270
<i>Meysam Safari, Negar Rezaei, Ahmad Khonsari</i>	
Finding the Sweet Spot: An Empirical Study on Dataset Size, Performance, and Efficiency in Relation Extraction.....	276
<i>Sohrab Pirhadi, Babak Niroomand, Ebrahim Ansari</i>	
AI-Based Malicious Bitcoin Transaction Detection Framework for Real Estate in Metaverse.....	280
<i>Rishi Choksi, Siddh Shah, Lakshit Pathak, Raj Esh Gupta, Sudeep Tanwar, Hossein Shahinzadeh, Fatemeh Afzoon</i>	
An Experimental Study on SALSA-Lite Method for Localization of Multiple Human Speakers	286
<i>Parisa Esfehiani, Neda Faraji, Farshad Almasganj</i>	

A Lightweight Greedy Task Offloading Algorithm for Vehicular Edge Computing Networks	291
<i>Mohammad Hassan Shafahi, Seyyed Ahmad Javadi, Mehdi Sedighi</i>	
Lymphocyte Segmentation Using Enhanced-YOLO in Histopathological Images of Mycosis Fungoides	298
<i>Fatemeh Yousefi, Zohreh Azimifar, Mojgan Akbarzadeh-Jahromi, Malihezaman Monsefi, Seyed Mohammadbagher Moosavi</i>	
On Formal Specification of Automated Lane Keeping Systems Requirements	304
<i>Masoumeh Panahi, Ali Shakeri</i>	
Effective Preprocessing and Explainability for Better Lung Cancer Prediction.....	310
<i>Parsa Azimi, Sadegh Sulaimany</i>	
Geometric Autoencoder with Manifold Learning.....	315
<i>Mahboubeh Farahat, Ali Ahmadi</i>	
RADTO: A Resource-Aware and Dynamic Task Offloading Strategy for Mobile Edge Computing	319
<i>Mohsen Darchini-Tabrizi, Erfan Hemati, Reza Entezari-Maleki</i>	
Optimized Multi-Label Human Activity Recognition with Focal Loss and Attention-Enhanced LSTM Networks.....	324
<i>Ali Zohrevand, Sayeh Mirzaei, Hedieh Sajedi</i>	
Irrigation Optimization in Agricultural Fields Using Deep Reinforcement Learning Approaches.....	329
<i>Parsa Heidari, Ali Ahmadi Esfidi, Ali Mehrvarz, Elaheh Khodaei, Ahmad Khonsari</i>	
Node Embedding Extraction for Causal Brain Graphs in fMRI Data	335
<i>Mohammadreza Gholami, Mahshad Faramarzi, Nima Alipour, Mansooreh Pakravan</i>	
Predicting NBA Playoffs Qualification Using Machine Learning Techniques.....	341
<i>Mohammadreza Abdi, Mehrdad Kargari, Meysam Alavi, Babak Teimourpour</i>	
PTSA: Utilizing Transaction Prioritization to Enhance Confirmation Speed in the IOTA Network.....	346
<i>Seyyed Ali Aghamiri, Reza Sharifnia, Ahmad Khonsari</i>	
Persian Text-Image Retrieval: A Framework Based on Image Captioning and Scalable Vector Search.....	351
<i>Rasoul Asadian, Alireza Akhavanpour</i>	
Integrating Structural Information: Comparing Classification-Based and Segmentation-Based Predictors in Bioinformatics (Case Study: Protein-Peptide Region Residue-Level Interaction) Using Structural Information.....	358
<i>Shima Shafiee, Abdolhossein Fathi, Faezeh Safari</i>	
Adaptive Chunking for VideoRAG Pipelines with a Newly Gathered Bilingual Educational Dataset	365
<i>Arshia Hemmat, Kianoosh Vadaei, Melika Shirian, Mohammad Hassan Heydari, Afsaneh Fatemi</i>	
EMA-Affinity: A Statistical Approach for Node Affinity Prediction in Dynamic Graphs	372
<i>Emad Izadifar, Zahed Rahmati, Amirehsan Davoodi</i>	
Optimizing Proof-Of-Work Blockchain Network Communications Using Genetic Algorithm	379
<i>Arman Gheysari, Murtadha Almahdawi, Hamid R. Zarandi</i>	

Proposing a Novel Approach Based on GAN Neural Networks to Address Data Poisoning Attacks in Federated Learning.....	384
<i>Mohammad Ghabel Rahmat, Faraneh Zarafshan</i>	
Point-LN: A Lightweight Framework for Efficient Point Cloud Classification Using Non- Parametric Positional Encoding.....	389
<i>Marzieh Mohammadi, Amir Salarpour, Pedram Mohajeransari</i>	
Real-Time Collaborative Route Planning in Autonomous Vehicles by Leveraging Optimized Quantum Neural Networks.....	396
<i>Mahdi Seyfipoor, Mohammad Javad Samii Zafarqandi, Siamak Mohammadi</i>	
ITAG: Easy, Rapid, Automatic Intelligent Tagging for Educational Contents	403
<i>Narges Shahhoseini, Fattaneh Taghiyareh, Ali Keramati</i>	
Adversarial Attacks and Defense Mechanisms in Spiking Neural Networks: A Comprehensive Review.....	408
<i>Bahareh Kaviani Baghbaderani, Hossein Shahinzadeh</i>	
Enhancing Learning Performance Through LLM-Driven Adaptive Contents Based on Facial Engagement Detection.....	415
<i>Mohsen Mahmoudi, Fattaneh Taghiyareh, Farshad Hessami</i>	
Comparative Analysis of Large Language Models for OCR Post-Processing in Persian: from ParsBERT to GPT.....	422
<i>Fatemeh Valizadeh, Fahimeh Ghasemian, Elham Shabaninia</i>	
Zero Memory Overhead Approach for Protecting Vision Transformer Parameters Against Bit-Flip Faults	428
<i>Fereshteh Baradaran, Mohsen Raji, Azadeh Baradaran, Arezoo Baradaran, Reihaneh Akbarifard</i>	

Author Index