

2025 IEEE 21st International Conference on Intelligent Computer Communication and Processing (ICCP 2025)

**Cluj-Napoca, Romania
16-18 October 2025**

IEEE Catalog Number: CFP2509D-POD
ISBN: 979-8-3315-5897-0



Copyright © 2025, IEEE

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:	CFP2509D-POD
ISBN (Print-On-Demand):	979-8-3315-5897-0
ISBN (Online):	979-8-3315-5896-3
ISSN:	2065-9946

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

TABLE OF CONTENTS

Fine-Tuning HateBERT for Hateful Speech Classification	1
<i>Victor-Andrei Căbulea, Marian Flăminzanu-Mateiuc, Ștefan-Daniel Achirei</i>	
HarmLLaMA: Harmful Language Detection with Large Language Models	9
<i>Ciprian-Octavian Truică, Elena-Simona Apostol, Alexandru-Gabriel Ilie, Adrian Paschke</i>	
A Comparative Survey of Social Bias in Text and Image Generation: Gaps, Directions and Compliance with the EU AI Act	17
<i>Andrei-Cristian Rad, Camelia Lemnaru</i>	
From Documents to Data: Integrated Generation and Management of EHRs in a Web-Based Medical Platform with AI Support	26
<i>Alexandru Predescu, Mariana Mocanu, Adina Florea</i>	
Speaker Anonymization via GAN-driven Artificial Embeddings and Prosody Transfer	32
<i>Dumitru-Cosmin Melinte, Mircea Giurgiu</i>	
Subword Tokenization for Agglutinative Low-Resource Languages: A Case Study on Crimean Tatar	40
<i>Enghin Omer, Mariana Mocanu</i>	
Knowledge Graph Integration in Natural Language Processing for the Smart Cooking	48
<i>Vădean Vlad, Camelia Lemnaru, Vlad Andrei Negru, Rodica Potolea</i>	
Comparative Analysis of LSTM Models and Large Language Models for Stock Trend Forecasting with Sentiment Analysis and Google Trends	56
<i>Răzvan-Andrei Moga</i>	
Adverse Event Detection in medical documents -Non-Pharmaceutical Substances	64
<i>Luminița Mădălina Marghescu, Rodica Potolea</i>	
Specialized Information Retrieval with Improved Reliability via LLM Finetuning	71
<i>George Catalin Robotin, Radu Razvan Slavescu</i>	
Decoding brain states from EEG using Transformer architectures	79
<i>Sabina Volcov, Eugen-Richard Ardelean, Vasile Vlad Moca, Raul Cristian Mureșan, Mihaela Dînșoreanu</i>	
EnfXAI: Enhancing Seizure Detection with Interpretable Deep Neuro-Fuzzy Architectures	87
<i>Flavia Costi, Emanuel Covaci, Ovidiu Roman, Darian Onchis, Codruta Istin</i>	
A comparative analysis of spectral transforms as feature extraction methods for spike sorting	96
<i>Răzvan-Dan Terec, Eugen-Richard Ardelean, Raul Cristian Mureșan, Vasile Vlad Moca, Mihaela Dînșoreanu</i>	
Evaluating Time Series Representation Methods for Rehabilitation Exercise Recognition	104
<i>Vlad-Alexandru Florea, Alexandru Sorici, Ștefan Saraev, Lidia-Elena Manea, Octavian Manea</i>	
Lightweight and Interpretable CNNs for Multi-Label ECG Diagnosis on the Edge	116
<i>Cătălin Aurelian Popa, Radu Dogaru</i>	
Consensus Line Formations in Non-Holonomic Multi-Robot Systems Enabled by Decentralized Approximate MST	124
<i>Dan M. Novischi, Adina M. Florea</i>	

GPU-based Parallel Collision Detection for AGV Path Planning	132
<i>Annalisa Paniciari, Ernesto Fontana, Dario Lodi Rizzini, Stefano Caselli</i>	
AI-Based Anatomical Landmark Recognition for Robot-Assisted Dynamic Dental Implant Surgery	138
<i>Tucan Paul, Mihaela Hedesiu, Vasile Bublucan, Rares Mocan, Daria Pislă, Calin Vaida, Bogdan Gherman Cristian Dinu, Doina Pislă</i>	
Crowd Density Estimation Using Bluetooth Low Energy for Improved Robot Guidance in Expositional Spaces	146
<i>Ana Rednic, Radu Danescu</i>	
Task-Aware Multi-Robot Navigation with RRT and Ant Colony Optimization in ROS2	152
<i>Drăghici Vlad Matei</i>	
A Survey of Compositionality Mechanisms in Neural Models in Support of Explainability	160
<i>Florin Leon</i>	
Towards Modeling Semiconductor Laser Systems via Deep Learning: A Preliminary Study	168
<i>Radu Razvan Slavescu, Vasile Tronciu, Sergiu Zaporozhan, Natalia Gubceac</i>	
An approach to using Self-Supervised Learning for Spike Sorting	176
<i>Andrei-George Iclodean, Eugen-Richard Ardelean, Vasile Vlad Moca, Raul Cristian Mureșan Mihaela Dînșoreanu</i>	
Predicting Drug Sensitivity in TP53-Mutated Cancer via Quantum Boltzman Machines	183
<i>Vasile Vancea</i>	
Parallel String Matching on GPU: An Evaluation of KMP, Boyer-Moore, and BWT with CUDA	191
<i>Petre Mihai Bogdan, Tăbîrcă Marius Sabin</i>	
Multimodal Learning with Augmentation Techniques for Natural Disaster Assessment	199
<i>Adrian-Dinu Urse, Dumitru-Clementin Cercel, Florin Pop</i>	
A Semi-Automated System for Face Registration and Recognition in Video Streams	207
<i>Laurențiu Neghină, Raluca Didona Brehar</i>	
Face Recognition System using Fully Homomorphic Encryption	214
<i>Talida Dîrnu, Vlad-Cristian Miclea</i>	
To Flash or Not To Flash: A Case Study on Vine Foliar Disease Detection	221
<i>Robert-Anton Konievic, Levente Tamás, Keresztes Barna</i>	
ContrastRelevance: Supervised Contrastive Learning and Binary Relevance for Imbalanced Multi Label Classification	229
<i>Iulia-Maria Rus, Raluca Portase, Mihaela Dinsoreanu, Rodica Potolea</i>	
Optimization of DNNs Using a Hardware Aware Two Stage NAS for Automotive Embedded Targets	237
<i>Andrei Viman, Mihai Negru, Martin Rapp, Taha Soliman</i>	
Open-World Video Panoptic Segmentation for Aerial Perception using Foundation Models	245
<i>Natalia-Georgiana Boncea, Vivian Chiciudean, Florin Oniga, Sergiu Nedevschi</i>	
DriverTracker: A Hybrid Approach for Driving Behavior Analysis	253
<i>Tudor-George Goian, Marius-George Marcu</i>	

Gaze Tracking via L2CS-Net Pipeline with Ridge Regression and Kalman Post-filtering	258
<i>Ioana-Maeva Cărbunescu-Stoenescu, Mircea Giurgiu</i>	
Region-Aware Token Aggregation for Fine-Grained Change Detection	264
<i>Bianca-Cerasela-Zelia Blaga</i>	
Check DTC On Message Event for Automotive Industry Using CAN Protocol	270
<i>Florian-Aurelian Krech</i>	
CAPSD: Confidence-Aware Promptable Segmentation Distillation for Small Dataset Transformer-Based Models	278
<i>Andreea-Maria Onaci, Mihai Negru</i>	
L-Shape Bounding Box Detector for LiDAR Point-Clouds	286
<i>Vlad Lazăr, Robert Varga</i>	
Semantic Segmentation from Object Detection using Foundation Models	294
<i>Alex-Mihai Schiau, Vivian Chiciudean, Florin Oniga, Sergiu Nedeveschi</i>	
LiWXA1, Interpretable and Efficient LiDAR-based Weather Condition Detection and Identification using GLCM and AI-based Methodology	302
<i>Alexandre Jacquemart, Sio-Song Ieng, Mokrane Hadj-Bachir, Dominique Gruyer</i>	
Transferability of software update requirements from the automotive industry to fire alarm systems	310
<i>Ulrich Rabe, Jörg Wollert</i>	
Semantic Reconstruction and Infrared Anomaly Detection in ADAS Perception Systems	318
<i>Timotei-Cristian Morar, Vlad-Cristian Miclea</i>	
VISION-RISK: Vision-Language Model for Risk Assessment in Autonomous Driving	325
<i>Andrei-Bogdan Constantin, Vlad Negru, Camelia Lemnaru, Rodica Potolea</i>	
Reliability of the post training-quantized vision models - a conformal prediction study	334
<i>Calin Timbus, Camelia Lemnaru</i>	
Predicting Lap Times in Formula 1: A Deep Learning Approach Using LSTM Networks	342
<i>Muhammed Faruk Kara, Ayhan Küçükmanisa</i>	
Fault Tolerant 3D Reconstruction using Fusion of Complementary Depth Estimation Approaches	347
<i>Mircea Paul Muresan, Sergiu Nedeveschi</i>	
Faint Satellite Streak Detection Using the Raw Output of a YOLO-type Object Detector	355
<i>Attila Ernő Füzes, Zsombor Somai, Lara Taraş-Zinveliu, Răzvan Itu, Vlad Turcu, Radu Dănescu</i>	
Adapting Multi-Modal Transformers for Crop Yield Prediction in Data-Scarce Regions: A Case Study for Romania	363
<i>Ştefania Iuga, Andrei-Ştefan Bulzan, Cosmin Cernăzanu-Glăvan</i>	
Enhancing Mask R-CNN to Improve Camouflaged Object Detection	371
<i>Maria Zubaşcu, Cristian-Cosmin Vancea</i>	
Real-Time Distributed Multi-Threaded Vision System for Traffic Surveillance with Dynamic Calibration and CNN-Based Detection	378
<i>Sergiu-Ionuţ Cionte, Dragoş-Florin Lişman</i>	

Automatic Multi-Class Segmentation and Landmark-Based Osteotomy Planning for Hip Arthroplasty	386
<i>Spinciu Ioana - Teodora, Stefana Duă, Petean Corina - Elena, Alina Elena Sultana, Doru - Daniel Cristea Eduard Liciu</i>	
Automatic Scoliosis Assessment via Cobb Angle Estimation using I-MedSAM-Based Instance Segmentation	395
<i>Daria-Eugenia Mihăilă, Raluca Didona Brehar</i>	
Withdrawal time estimation per anatomical region in colonoscopy videos	403
<i>Florin Dumitrescu, Maria Andreea Tudosie, Mihai Trăscău</i>	
Segmentation of the Retinal Vascular Network and Biomarker Quantification in OCTA Imaging	411
<i>Darius-Iulian Stan, Mihnea Bogdan Jurca, Raluca Didona Brehar</i>	
Inception_RetNet: Pioneering Diabetic Retinopathy Detection with Dual Attention Innovation	419
<i>Iulia Oltean, Tiberiu Marita</i>	
Architectural Enhancements to YOLOv12 for Improving Detection of Thoracic Pathologies in Chest X-rays	427
<i>Ruxandra Andro, Cristian-Cosmin Vancea</i>	
Comparative Analysis of Deep Learning Models for Human Movement Assessment in Physical Rehabilitation	435
<i>Camelia Lazar, Crina Grosan, Maria Iuliana Bocicor</i>	
Automatic Segmentation of Orbital Walls	443
<i>Ioana Tofan, Fabian-Andrei Stoica, Ștefana Duță, Alina Elena Sultana, Mihail-Theodor Dragomir Eduard Liciu</i>	
Electronic Control Unit Mechanical Architecture Optimization using Machine Learning	452
<i>Diana-Nicoleta Zaha, Virginia Niculescu, Ioan Cosmin Leordean, Diana Zaharie-Butucel</i>	
A System for Logic Circuits Interpretation from Hand-Drawn Diagrams	460
<i>Alexandru Cristian Moldovan, Constantin Nandra</i>	
Improving Integrated Circuit Manufacturing Flow Through Machine Learning: A Focus on Pre-Silicon Verification	468
<i>Alecsandra Rusu, Marius Neag, Marina Topa</i>	
Augmenting Unsupervised Anomaly Detection in PET Bottle Manufacturing Data	475
<i>Radu Sorostinean, Catalina Neghina, Arpad Gellert</i>	
Detecting Anomalies in Distributed RPC Traffic with Isolation Forests	483
<i>Muntea Andrei-Marius, Portase Radu-Marian, Sebestyen-Pal Gheorghe</i>	
Energy Foresight: Predicting Daily Demand with Combined Techniques	491
<i>Elena Hadarau, Raluca Portase, Rodica Potolea</i>	
Privacy Preservation Techniques with Federated Learning in IoT Context	499
<i>Codruta Maria Serban, Gheorghe Sebestyen, Anca Hangan</i>	
Distributed Optimization Mechanism for Increasing Renewables Penetration Rate in Energy Communities	507
<i>Adrian-Marian Schiop, Dan Mitrea, Tudor Cioara</i>	

A Blockchain-based Framework for Microgrids Energy Trading Using Greedy Mechanisms	515
<i>Iulia-Olivia Cipleu, Viorica Rozina Chifu, Cristina Bianca Pop, Ionut Anghel, Tudor Cioara</i>	
CTF-PWN100: Automated Binary Exploitation of CTF Challenges Leveraging Large Language Models	523
<i>Tudor Cristea, Radu-Marian Portase, Adrian Coleşa</i>	
Software Composition Analysis on Rust Binaries	531
<i>Denisa Muntean, Ciprian Oprişa</i>	
Rootalyx: Stealthy Dynamic Analysis for Linux Malware using Kernel-Level Instrumentation and a Hybrid LSTM-Transformer Model	539
<i>Doru Leşe, Andrei Sântoma, Ciprian Oprişa</i>	
ArA - Evaluating LLM Suitability as Out-of-the-Box Malware Analysts	547
<i>Gabriel-Cătălin Rat, Andrei Popoviciu, Radu-Marian Portase, Adrian Coleşa</i>	
Detecting Active Operating System Fingerprinting Attempts Using Machine Learning	555
<i>Ioan Pădurean, Béla Genge</i>	
Semantic Compression and Conceptual Symbolic Reasoning over Transformer Embeddings for Interpretable Crime News Classification	563
<i>Tayyab Rehman, Giovanni De Gasperis, Asif Saeed, Shahid Salim</i>	
CS-ECC: Chaotic S-box based Elliptic Curve Cryptosystem	571
<i>Ionut-Eduard Matei</i>	
From Opcodes to Semantics: A Hybrid Approach for Function Name Inference in Stripped Binaries	579
<i>Remus Petrache, Camelia Lemnaru, Ciprian Oprişa</i>	
Invisible Image Watermarking through the use of Concentric High-Frequency Bands in the Discrete Fourier Transform (DFT) Domain	587
<i>Victor A. Toporan, Mihai V. Micea</i>	