2026 International Conference on Computer Systems and Technologies (CompSysTech 2026)

Ruse, Bulgaria
26-27 June 2026

IEEE Catalog Number: CFP260F8-POD
ISBN: 979-8-3315-4535-2

IEEE
Advancing Technology for Humanity

Copyright © 2026, 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:	CFP260F8-POD
ISBN (Print-On-Demand):	979-8-3315-4535-2
ISBN (Online):	979-8-3315-4534-5

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

Intelligent Interaction at a Glance: The Future of Gaze-Aware Systems 1
Marco Porta

STEG-Guard: A Self-Supervised Multi-Domain Graph Neural Network Framework for Zero-Day Malware Detection in Steganographic Images 10
Houcemeddine Hermassi

Methodology for optimized creation of a specialized dataset for detecting illegal dumps using the YOLO26 architecture 23
Marin Yordanov, Vanya Stoykova, Gabriela Kiryakova

Benchmarking Data Augmentation Methods for Hand-Drawn Circuit Component Detection Across Object Detectors 27
Semih Buğra Sarıkaya, Abdulsamet Yılmaz, Sezer Ulukaya

MOSAIC-1M: A Large-Scale Multi-Modal Dataset with Automated Semantic Annotations for Visual Content Understanding 32
Simeon Emanuilov, Aleksandar Dimov, Ivan Makaveev

Generalization and Robustness in CKD Risk Prediction Across Independent Datasets 39
Manolo Dulva Hina, Akeel Sh. Mahmoud, Olfa Lamouchi, Safya Belghith, Assia Soukane, Galina Ivanova

Simplicial Topology for Knowledge Graph Embeddings 50
Bikram Pratim Bhuyan, Amylia Ait Saadi, Manolo Dulva Hina, Galina Ivanova, Amar Ramdane-Cherif

Adaptive Channel Weighting Forest for EEG-Based Epileptic Seizure Classification 62
Mekia Shigute Gaso, Remudin Reshid Mekuria, Zarina Kerimalieva

Evaluating Physics Injection Strategies for Photovoltaic Forecasting Networks under Realistic Weather Forecast Drift 68
Dezdemona Gjylapi, Alketa Hyso

Metabolic Risk Factors and Psoriasis Epidemiology in Kyrgyzstan: A Machine Learning Analysis Using GBD Data 76
Malika Ashirbekova, Tattybubu Arap Kyzy

Hybrid Deep Learning Approach for Neonatal Jaundice Screening 81
Diana Zhumantaeva, Mukhammadmuso Abduzhabbarov, Burul Shambetova

Development of a Snow Leopard Detection System Using Machine Learning with Web-Based Interface for Camera Trap Image Analysis 87
Aman Nazarkulov, Mohd. Tauheed Khan, Emilbek Zholdoshbekov, Tolkunbek Asykulov, Andrei Ermakov

Classification of Essential Oils using Electronic Nose 95
Luis Miguel O. Cristobal, Juan Miguel F. Centeno, Meo Vincent C. Caya

End-to-End GNSS Interference Classification Using CNNs with Neural Engine Acceleration 100
Ngoc X. Mai, Thuan D. Nguyen, Hiep V. Hoang, Vinh T. La, Hung N. Pham

A Leakage-Safe Adaptive Hybrid Weighted Ensemble for Gallstone Disease Prediction from Clinical Tabular Data 110
Mekia Shigute Gaso, Aizirek Ibraimova, Remudin Reshid Mekuria

Handling Uncertainty, Imprecision, and Risk in Decision Support Systems: A Review of Machine Learning Approaches 117
Daniel Sivcov, Fernanda Brito Correia, Ana Rosa Borges

KyrgyzDentex: A Unique Multi-Modal Dental Radiograph Dataset from Kyrgyzstan with Classical Machine Learning and Deep Learning Benchmarks for Caries Detection 125
Tattybubu Arap Kyzy, Timur Turatali, Mukhammadmuso Abduzhabbarov, Ruslan Isaev

CITPT: A Concurrency-Induced Throughput Phase Transition in Blocking Client–Server Architectures under Extreme Concurrency: An A-MAPSS Based Experimental Study 134
Hristo Hristov

Seamless UML-HDL Co-Design: Bridging Graphical and Textual Hardware Development by using Activity Diagrams 142
Jakub Abrahoim, Pavle Dakić, Jan Lang

Improving Software Requirements Quality Using LLM-Based Repair-Augmented Retrieval 150
Doruk Barkın Durak, Tushar Shailesh Gada, Fouad Ezzat Gomma Kotb Akrab, Alexander I. Iliev

Quota-Guided Deadline Protection and AoI-Aware Scheduling for Mixed-Criticality Event Streams 158
Nurgüneş Yordanov, Bülent Çavuşoğlu

Analytical Model for Determining the Side Clearance Angles of a Sharpened Twist Drill and Its Validation in a CAD Software 166
Tihomir Gyulov, Anton Grozev, Aleksandar Ivanov

Tailoring DINO-DETR to be efficient for SAR: A novel Loss Function to Correct Physical Effects 172
Anasse Boutayeb, Iyad Lahsen-Cherif, Ahmed El Khadimi, Manal Abbassi

Mathematical Modeling of Metastatic Cancer Spread 176
Zhazgul Ablakeeva, Tattybubu Arap kyzy, Mukhammadmuso Abduzhabbarov

English Braille Language Interpreter using MindOCR with YOLOv5 184
Kish Davin G. Abu, Paul Lorenz L. Antonio, Dionis A. Padilla

A Secure Multi-Phase Accessible E-Voting System for Visually Impaired Users 191
Shat Mohammed Z.M, Mariana Mocanu

Proposed Integration of AR/VR Immersive Environments with Adaptive Rehabilitation Exoskeletons: Toward Physio-Mental Therapy Enhancement 198
Muhammetmyrat Annamammedov, Yslam Orazov, Lale Orazgulyyeva, Ayjahan Otuzova, Kerim Jemhurov Yuldashbay Kurambayev

Edge AI-Based Efficient Data Transmission in LoRaWAN Healthcare Monitoring Systems 202
Oumaima Charif, Noura Aknin

Deployment of a Low-Power LoRa LPWAN Sensor Network for Environmental Monitoring in Antarctica 209
Nikolay Milovanov, Boris Tzankov, Petar Sapundzhiev

EQ-OLSR: An Energy-Aware Q-Learning Enhanced OLSR Routing Protocol for Flying Ad Hoc Networks 216
Safa Ferrah, Abdelhak Mesbah, Ibtihel Baddari, Nissa Mehibel, Galina Ivanova, Yassine Meraihi

Unsupervised Anomaly Detection in Network Traffic: A Comparative Study 223
Ricardo Tavares, Marco Neto, Ana Rosa Borges, Fernanda Brito Correia

MECHO: Development of a Modular Collaborative Robot for Research and Education 231
Kaloyan Yovchev

Teaching Cryptography as a Bridge Between Mathematics and Computer Science in High School and Higher Education 237
Dimitar Stoyanov, Adriana Borodzhieva

From AI as Tutor to AI as Co-Regulator: A Deep Learning Approach for Real-Time Cognitive and Motivational Support in LMS Environments 244
Zakaria Tagdimi, Souhaib Aammou, Marina Sounoglou, Noura Aknin

Extending MATLAB and Signal Processing Toolbox for Index-Aware Time-Shifting and Time-Reversal of Discrete-Time Signals 250
Adriana Borodzhieva, Yordan Kalmukov, Snezhinka Zaharieva

Validating AI-Simulated Students for Early Regression Testing of Adaptive Learning Controllers 258
Khizar Aamir, Abdallah Mohamed, Mostafa Mohamed

Is Brain Tutoring Possible? A Review of Brain-to-Brain Interface Technology and Its Feasibility for Knowledge Transfer 266
Yslam Orazov, Nurjemal Bayramova, Mekan Allyyev, Azat Babayev, Sahetnur Durdyyev, Annageldi Orazov

Integrating Math and Computing Through Cryptography: Classical Ciphers as a Teaching Tool 274
Dimitar Stoyanov, Adriana Borodzhieva

Quantifying Student Engagement: A Mathematical Model of Gamification and Learning Analytics in Higher Education 282
Kalin Dimitrov

A Case Study of Functional Currency Migration in Odoo ERP: From BGN to EUR 289
Anton Genchev

Development and Systematic Management of Information Software Complex in the Electric Power Industry 296
Jumamuhammet Abdyev

Towards Efficient Smart Greenhouses: A Comparative Study for Evolving Computing Paradigms 303
Merna Said, Nada Hamed, Sherin M. Moussa

A Lightweight Hybrid Quantum Neural Network for Binary Intrusion Detection 316
Raid Anis Kerkatou, Hacene Belhadef, Aicha Eutamene, Svetlana Petrova Stefanova

Design and implementation of cyber-physical data collection system of risk factors mitigation and life expectancy prediction 324
Asina Bopushova, Ruslan Isaev

Design, Implementation, and Security Analysis of the RSA Cryptosystem in Java 330
Daniel Marinov, Dimitar Stoyanov, Adriana Borodzhieva