2026 Intelligence in Business and Industry (IBI 2026)

Tunis, Tunisia
28-30 April 2026

IEEE Catalog Number: CFP26OBZ-POD
ISBN: 979-8-3315-7198-6

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:	CFP26OBZ-POD
ISBN (Print-On-Demand):	979-8-3315-7198-6
ISBN (Online):	979-8-3315-7197-9

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

From Lab to Clinic: An Industry Ready Hybrid Radiomics Framework for Alzheimer's Detection 1
Marwa Ben Gara Ali, Abir Smiti

Patient Triage using Deep Learning and NLP for Automatic Medical Speciality Classification 9
Hanen Oueslati, Zainab Maalej, Kaouther Nouira

Management control systems of intangible assets as moderator between good university governance and performance in higher education 16
Rachid Ben Hmidou, Abdellatif Marghich, Abdellatif Eddakir

Digitally Transforming Higher Education: From Traditional Textbooks to Interactive AI-Based Cinemas 24
Ahmed Shuhaiber

TunVeCTM: A Topic Modeling Approach of Tunisian Dialect on Social Media 31
Laila Lagili, Siwar Gorrab, Hadhemi Achour

Advancing Medical Document Classification: A Systematic Survey of Large Language Model Approaches, Challenges, and Future Direction 39
Aya Ghazouani, Mohamed Ghaith Ayadi, Hadhemi Achour

Advanced Privacy-Preserving Federated Learning for Alzheimer's Disease Diagnosis from Brain MRI 47
Malek Jallali, Raouia Mokni, Boudour Ammar

Enhancing High-Stakes Assessment through Evaluation-Driven Generative AI with Retrieval Augmentation: Evidence from the Tunisian Secondary Education System 53
Abir Boukhris, Narjes Ben Hariz, Wided Guezguez

Comparing the Reliability of Generative AI and Traditional Chatbots in Analyzing Patient Symptoms for Online Medical Consultation 61
Zainab Maalej, Kawther Zayani, Kaouther Nouira

Hybrid Quantum-Inspired Similarity for Few-Shot MRI Classification 69
Ibtissem Balhoudi, Houssem Eddine Nouri, Abir Smiti

Dynamic Hybrid Ensemble Learning for Arabic Sentiment Analysis: A Statistically Validated Multi-Dataset Approach Using OLA-Based Classifier Selection 77
Mohamed Khaldi, Abir Smiti

Throughput–Fairness Trade-Offs in 5G NOMA via Hybrid Genetic Deep Q-Learning 85
Sarah Mokrani, Meriem Ennigrou

Detecting Confusion Comments with LLMs 92
Wejden Hammami, Marouene Chaieb, Houda Korbi, Hassine Kooli, Moataz Chouchen

An Adaptive Resource-Aware Node Selection for Federated Learning in IoT Using Genetic Optimization 100
Meriem Slama, Sabeur Elkosantini, Wonho Suh, Seongkwan M. Lee

Human-Out-of-the-Loop: Medical Image Augmentation via Autonomous LLM–GANs 108
Waad Bouzidi, Olfa Meddeb, Zouhour Neji Ben Salem

Dual-Output Hybrid Deep learning approaches with attention mechanism for Smart Irrigation 115
Zaidati Moindjié, Zouhour Neji Ben Salem

Benchmarking Open-Weight LLMs for Security Backporting 122
Salma Sghaier, Mohamed Anas Daoud, Marouene Chaieb, Moataz Chouchen

The Ambulance Routing Problem in Emergency Medical Services: A Taxonomy of Optimization, AI-Based, and Operational Approaches 130
Amal Mansour, Marouene Chaieb, Issam Nouaouri, Saoussen Krichen

Literature Review on Multi-Hop Routing in IoT/WSN: From Classical Heuristics to Explainable Deep Reinforcement Learning 138
Moez Elarfaoui, Hamdi Ouechtati, Nadia Ben Azzouna

Automatic Detection and Explainable Analysis of Structural Anomalies in Feature Models Using Machine Learning Techniques 146
Olfa Ferchichi, Raoudha Beltaifa

Hybrid Supervised–Unsupervised Machine Learning Framework for Emotion Detection from Text Using TF-IDF and Clustering Techniques 152
Suyash Nautiyal, Madhu Kirola, Sanjiv Kumar, Sumit Chaudhary, Virat Vasantrao Giri, Minakshi Kapil Joshi

Automatic Detection of Personality Disorders from Text and Audio: A Systematic Review 158
Sirine Fersi, Seifeddine Mechti, Rim Faiz

Explainable Fake News Detection via Transformers and SHAP for Media Literacy 165
Rania Hamzaoui, Eya Bouabdallah, Fathi Essalmi, Mohamed Jemni

MetaDerm-Boost: A Metadata-Driven Gradient Boosting Framework for High-Sensitivity Skin Cancer Detection from 3D Total Body Photography 171
Sampurna Roy, Minakshi, Tanupriya Choudhury, Sheetal Kusal

Feature Selection Methods: A comprehensive review of Ensemble and Explainable Approaches 177
Alia Maaloul, Meriam Jemel, Nadia Ben Azzouna

Explainable Human-in-the-Loop Decision Support for Preventing Client Disengagement in Smart Cities 185
Noura Abdaoui, Ismahene Hadj Khalifa, Lassaad Latrach

AI-Driven Virtual Planner for Project Management using RAG and Autonomous Agents 193
Ramitha V, Aayush Koul, Saharsh Mehrotra, Rahul Purandare, Rahesha Mulla, Pooja Kamat, Suhail Wasim

Predictive and Interpretable Deep Learning Models for Student Dropout in MOOCs 200
Fatma Dhaoui, Kalthoum Rezgui, Nadia Ben Azzouna

Road Eyes-8: Ultra-Light YOLOv8n Vision for Fast and Accurate Urban Traffic Object Detection 208
Sampurna Roy, Minakshi, Tanupriya Choudhury, Sheetal Kusal

Security in Healthcare: Protecting Sensitive Patient Data 214
Khushi Yadav, Priyambad Suman, Roohi Sille, Tanupriya Choudhury, Brijmohan Lal Sahu

Cost-Sensitive Churn Prediction with SHAP-LIME Dual Explainability and Financial Benefit Optimization in Banking 222
Zakia Zouaghia, Zahra Kodia, Lamjed Ben Said

Context-driven Recommendation via Dirichlet Context Profiling and Graph Propagation 230
Jihene Latrech, Zahra Kodia, Nadia Ben Azzouna

Insights from a Real-World Industrial Case Study: An Empirical Evaluation of Machine Learning and Deep Learning Models for Ticket Classification 238
Omayma Ben Ayed, Ameni Azzouz

Hierarchical Multimodal Feature Fusion Architecture for Edge-based Medical Risk Assessment 244
Touré Bintou, Amal Tarifa

From Raw Text to Knowledge Graphs: An LLM-Driven Neuro-Symbolic Approach for Statistical Knowledge Extraction 251
Chaima Kaddour, Maha Mallek, Amal Tarifa

Explainable Deep Learning in Cloud-Based Distributed Architectures: A Decision-Support Perspective 259
Sarra Arfaoui, Mouna Jouini

A Comprehensive State-of-the-Art Review on Solving Flexible Job-Shop Scheduling using Deep Reinforcement Learning and Particle Swarm Optimization 266
Wafa Janhaoui, Imen Ben Mansour

A Generative-AI-Assisted Frequency–Rarity Pheromone Update for Ant Colony Optimization Applied to the MOMKP 274
Abir Zakraoui, Imen Ben Mansour

Intelligent Queue Based Control for Dynamic Dial A Ride Problem 281
Kamilia Bedhief, Sonia Nasri, Hend Bouziri

Emergency Medical Services: An Optimised Ambulance Routing and Dispatch System 289
Chaima Ben Othmen, Sirine Ben Ammar, Sonia Nasri

A Neural Network-Based Trust Management Model for IoT Environments 296
Hamdi Ouechtati, Moez Elarfaoui, Nadia Ben Azzouna

Cost-Sensitive Greenwashing Detection with Validated Explainability 304
Chayma Sakrani, Boutheina Jlifi, Lamjed Ben Said

A New Bi-Level Modeling and Solving for the Electric Vehicle Routing Problem Considering Charging Facilities 312
Emna Sellami, Abir Chaabani, Lamjed Ben Said

Hybrid Evolutionary Algorithm Coupling a Greedy Algorithm with VNS for Solving a Rich VRP with Dynamic Demands and Vehicle Breakdowns 320
Hamida Labidi, Abir Chaabani, Nadia Ben Azzouna

NeuroScript-LLM: Leveraging a Large Language Model Architecture for Automated Alzheimer's Disease Clinical Synthesis 328
Nour Ben Ameur, Marouene Chaieb, Haythem Ghazouani

A GNN-augmented Genetic Algorithm for the Blood Delivery Problem 336
Abdelmalek Belhadj, Hajer Ben-Romdhane, Issam Nouaouri, Saoussen Krichen

Hybrid CNN-MLP Architecture with Clinical Data Integration and Risk-Adaptive Segmentation for Stroke Lesion Detection 341
Eya Jouini, Hela Limam, Kaouther Nouira

XCloudOpt An Explainable Decision Support Framework for Industrial Resource Management 348
Feriel Ben Henda, Mouna Jouini

Comparative Study of Cooperative and Competitive Co-evolutionary Mechanisms within MOEA/D for Green Flexible Job Shop Scheduling 356
Maha Ben Hamida, Ameni Azzouz, Lamjed Ben Said

A Machine learning-guided optimization approach for the Dynamic Patient Bed Assignment with Operating Room Constraints 365
Meriem Menaa, Takwa Tlili

From Unimodal to Multimodal: Expanding the Breast Cancer Dataset via RAG-Driven Synthetic Patient Complaint Generation 374
Imen Kamel, Marouene Chaieb, Haythem Ghazouani

A Decision Support System Combining Machine Learning and Bi-objective Optimization in Emergencies 382
Hela Jedidi, Hajer Ben-Romdhane, Issam Nouaouri, Saoussen Krichen

Algorithms to Sustainability: How Ambidextrous Green Innovation Drives ESG Excellence 389
Nour Belhaj, Hanene Ezzine

AI for Sustainable Finance: A Bibliometric Map of Emerging Technologies, ESG Integration, and Systemic Risk 395
Imen Jellouli, Emna Mnif

Digital Transformation and Financial Performance: Evidence from French Listed Companies Using AI-Driven Measurement 404
Hassen Daassi, Hanene Ezzine

Green investments and artificial intelligence: towards a sustainable circular economy 410
Nahed Zghidi, Yassmine Cherif

Clean Cryptocurrencies or Greenwashing? Evidence from a TVP-QVAR Connectedness Approach 414
Cheima Rezgui, Ines Abdelkafi

Assessing the Role of Smart Urbanization and Smart Governance in Mitigating CO_2 Emissions: Evidence from a Random-Effects Model 419
Arous Chaima, Abdelkafi Ines

Impact of Smart Ports on Regional Economic Growth: A Difference-in-Differences Analysis of European Ports 424
Salwa Elbare, Oussama Zaibi, Nahed Zghidi

A hybrid Markov chain and AI approach for mining frequent multidimensional Temporal Association Rules 430
Wafa Tebourski

Federated Learning for Cross-Market Financial Predictions 438
Indira Priyadarsani Pradhan, Aman Gupta, Kiran Ingale, RPS Chauhan, Ziyadulla Turayev Gulbakhar Atajanova

Threat Intelligence Sharing in Financial Networks 444
Shailesh Kulkarni, Anurag Wahane, KDV Prasad, Sandeep Sharma, Nozima Dusmukhammedova Abekeyeva Aziza Abdijamilovna

Zero-Knowledge Proofs for Privacy in Financial System 450
Aman Gupta, Khudaybergenov Bobur, Mayank Sharma, Richa Srivastava, Asqar Absamatov Jangabaeva Aygul

Distributed Ledger Approaches for Secure Audit Trails 456
Swati Chaudhary, Oybek Djabbarov, Sathya Arthi R, Ajay Nanwatkar, Akbar Shodiyev Murtozayev Shakhobiddin

A Unified Taxonomy of Multimodal Fusion and Explainable AI Methods for Breast Cancer Diagnosis 463
Marouene Chaieb, Balssem Mosbahi, Imen Kamel

A Survey on Self-Supervised Learning for Brain MRI Analysis: Robust Representation Learning Under Domain Shift 471
Marouene Chaieb, Malek Hadhri, Nour Ben Ameur

Performance Enhancement of Heart Sound Classification Using Ensemble Machine Learning Techniques on PCG Signals 479
Aruna P Kharat, Vipulsangram K Kadam

Computational Models of Cryptocurrency Adoption in Developing Nations 485
Sadhana Sargam, Leena Deshpande, Pankaj Kumar Chand, Sachin Gupta, Zuhra Khudayarova Kaliev Nadjibulla Muratovich