

2025 International Symposium on iNnovative Informatics of Biskra (ISNIB 2025)

**Biskra, Algeria
28-30 January 2025**



**IEEE Catalog Number: CFP25DL4-POD
ISBN: 979-8-3315-0958-3**

**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:	CFP25DL4-POD
ISBN (Print-On-Demand):	979-8-3315-0958-3
ISBN (Online):	979-8-3315-0957-6

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

Preface	iii
Committees	v
Authors index	vi

Facial Beauty Prediction Using Global Context Vision Transformer	1
Djamel Eddine Boukhari, Ali Chemsas, Zine-Eddine Baarir	

FPGA-Based Real-Time Data Acquisition and Transmission Using Ethernet UDP: Application of MCSA for Induction Motor Diagnosis	7
Salim Hamouda, Hamdani Samir, Hamid Khelfi	

Semantic Interoperability in Multi-Agent Planning: a survey	11
Guerroudj bohra, Siam Abderrahim	

Combining Artificial Intelligence and Blockchain Technology in the Context of the Internet of Things (IoT) : A Review	17
Salsabil MEGHAZI BAKHOUCHE, Somia Sahraoui	

Transformer-Based Approach for Intrusion Detection System	23
SENOUSSI Nour EL Houda, Salmi Cheikh, Banouh Nassim, Khelfi Adam	

Reward Function Analysis for Deep Reinforcement Learning Agent in Goal-Oriented Navigation	29
Abdel Hakim Drid, Abderrazak Debilou, Ammar Chouchan, Oussama Lahmar, Imam Barkat Ghiloubi	

Potato Disease Diagnosis with Symptoms Visualization	35
Halima Bahi, Bilal Dendani	

Anxiety Recognition from Facial Expression Using key point Algorithm and Linear Support Vector Machine	41
Houceme Rezaiguia, Abdelhamid Djefal	

Secure Consensus Mechanisms for Blockchained IoT: A Review	47
Kenza Rechid, Somia Sahraoui	
Using FER+ Dataset to Implement Deep Capsule Network for Facial Emotion Recognition	53
Salem Tegani, Telli Adelmoutia, Rania Khallout	
A Deep Learning-Based Biometric System for Hand Dorsal Identification: Improving Accuracy and Robustness Through Tied-Rank Normalization	59
Maarouf KORICHI, Aicha KORICHI, Meriem KORICHI	
A Diagnostic Classification Framework for Alzheimer's Disease: An Integrated Approach with ESIHE, SVM, and Wavelet Features	63
Rokia Chettouh, Abdelfatih Bengana, Ismail BOUKLI HACENE	
Advanced Deep Learning Model for Improving Student Evaluation in Programming Education	69
Yasmine Chachoui, Nabiha Azizi	
Data-driven Automatic Facial Image Colorization Using an Encoder-Decoder Network	75
Mehdi Malah, Ramzi Agaba, Fayçal Abbas	
Combining Model Checking and Spectrum-Based Fault Localization with Multiple Counterexamples	80
Mohammed Bekkouche, Enrico Tronci	
NLP-Based Sentiment Analysis of the Palestinian-Israeli Conflict	88
Allal Younes, Kouahla Nadjib	
Exploring DeiT Transformers for Dermoscopic Image Classification: A Pilot Study	94
Abir Belaala, Abd El Mouméne Zerari, Aya Tahri, Hana Belaala, Mariya Namane	
A Boosting Machine Learning Model for Predicting Student Performance in E-Learning	100
Nihel Baarir, Samir Bourekkache, Ahmed Aloui	
Tackling Satisfiability: SAT Instances Classification Using Several Machine Learning Approaches	105
Asma Besbas, Sihem Slatnia, Mohamed Khalgui, Laid Kahloul	
Intelligent Telecom Solutions: Employing Large Language Models to Address Base Station Anomalies and Alarm Prioritization	111
Asma Iman Kouachi, Imed Eddine Mokrane	
Enhanced Early Detection of Diabetic Retinopathy Based on Transfer Learning Using DenseNet121	117
Farida Retima, Saber Benharzalla, Laid KAHLOUL, Okba Kazar	

Enhanced EEG Classification via Riemannian Normalizing Flows and Deep Neural Networks	123
Imad Eddine TIBERMACHINE, Ahmed Tibermachine, Meftah ZOUAI, Samuele Russo, Soufyane Bouchelaghem, Christian Napoli	
Blockchain and Genetic Algorithms Interactions: A Brief Review	129
Nedjma Abidallah, Amira Ailane, Samir Bourekache, Laid KAHLOUL, Mohamed Khargui, Nadjat Azzaoui	
Automated Machine Learning for Breast Cancer Diagnosis Using TPOT	135
Oumaima Heriz	
A Federated Learning Approach for Intrusion Detection System Using Deep Neural Network	141
Abdeljalil Tedjini, Mostapha Chenine, Mohammed Kamel Benkaddour, Malika ABID	
Smart Bracelet to Monitor Hospital Patients	147
Yousra Ben Aissa, Mohamed Nafae SAOUDI, Nourelhouda Zerarka, Bouthina RECHACHI	
Network Intrusion Detection System using an Evolved Gene Regulatory Network	153
Tarek Ababsa	
Bridging the Gap: Transfer Learning for Dialect Identification in Low-Resource Settings : A Case Study with Algerian Arabic	159
Mafaza CHABANE, Fouzi Harrag, Khaled Shaalan, Skander Hamdi	
Quantifying Explainability: Essential Guidelines for Evaluating XAI Methods	165
Soumia Djellikh, YOUKANA Imane, Asma Ammari, Rachida BENADELAZIZ	
Parallel TLBO Framework for Structuring Elements Optimization in VHR Image Classification	170
Ali Alouache	
Using Geolocalized Social Network for Contact Tracing based on Community Detection	176
Faiza Deghmani, Chahinez Benaries, Hassina Aliane, Kamel BOUKHALFA	
AI-Driven Insights into the Relationship Between Psychological State and Academic Performance	182
Hamida Djerou, Laid KAHLOUL, Mohamed RAMDANI, Oumaima Heriz	
Retinopathy Lesions Segmentation Using YOLOv9 and Grad-CAM: An Advanced Approach for Disease Grading and Localization	188
Hezil Nabil, Ahmed Bouridane, Oleg Rogov	
Face Age Estimation: A Comparative Analysis of CNNs and Vision Transformers (ViTs)	194
Ahmed Chaouki Chami, Riadh Ajgou	

Optimizing Research Laboratory Workflows in Algeria through Low-Code BPMN Implementation with BonitaSoft	200
Mohamed RAMDANI, Mouna salsabil FERHATI, Hadjer LASSEL, Laid Kahloul, Choucha Chams Eddine	
Parallel Whale Optimization Algorithm-Kmeans for image segmentation using Multiprocessing	206
Mezaghraoui Ali, Mohamed Debakla, Khalifa DJEMAL	
Blockchain-Enabled Car Market in Algeria: A Hyperledger Fabric Architecture	212
Abdelkader Baia, Amira Ailane, Laid KAHLOUL, Zohra Hmidi, Sadok Lanani	
Prognostics of the Lithium-ion Battery based on Deep Learning Algorithms : Comparative Study	218
Marouane Dida, Mourad Belhadj, Abdelhakim Cheriet	
Using BPMN to Improve Quality Insurance in Algerian High-Education Systems	223
Mohamed RAMDANI, Laid KAHLOUL, Soheib Ayad, Ilyes Naidji	
FedAGGEnsemble: a Federated Ensemble Learning based Approach for Malaria Detection	229
Mohammed Abdelhadi Sellami, Taher Rezzag Bedida, Abdeldjalil Hammouya, Hanane Amirat, Abdeldjalil Tedjini, Mohamed Lamine Ben Habirech	
Paludism Detection using Convolutional Neural Network	235
Fadia Baissi, Asma Ammari	
Facial Marks as Biometric Indicators for Celebrity Prediction	241
Souad Khellat-Kihel, Massimo Tistarelli	
A Survey of Deep Learning Solutions for Network Routing in Modern Networks: Challenges and Opportunities	246
Nour El Houda Larouci, Somia Sahraoui, Abdelhamid Djeflal	
Formal Specification, and Verification of a Cooperative Multi-robots System for Delivery Service	252
Mahdi Kahoul, Laid KAHLOUL, Samir TIGANE	
Classification of Water Microorganisms Using Deep Learning	258
Mohamed Nadjib Meadi, Kaouthar Moussaoui, Abd El Mouméne Zerari	
Securing Fall Detection with Federated Learning: A Privacy-Centric Approach for IoT Healthcare	264
Toufik Souadia, Djamel Tandjaoui, Haroun Benkaouha	
An Efficient ECC-Based Authentication Protocol for Secure RFID Healthcare Applications	270
Anwar Noureddine Bahache, Noureddine Chikouche, Bahache Mohamed, Fares Mezrag	
Measuring Cognitive Load in Children's Videos Using Motion Estimation	276
Tarek Boutefara, Rayane Bounames, Bouchra Bounar, Latifa MAHDAOUI	

Paired Image to Image Translation for Ambient Occlusion Approximation	282
Abd El Mouméne Zerari, AYOUB GUETTAL, Mohamed Nadjib Meadi, Mohamed Chaouki Babahenini	
 Automatic Blood Vessel Segmentation using Magnitude Images from Magnetic Resonance Elastography .	288
Manar Eloued, Narjes Ben Ameer, Rim Zarrouk, Malek Mokbli, Ramzi Mahmoudi, Salam Labidi	
 Individuality Within Crowd : Distinctive features to ensure a diverse crowd appearance	292
Dridi Imane, Amina Bouguetitiche, Cherif Foudil	
 CNN-Based Classification and Diagnosis of Alzheimer’s from Baseline MRI Scans	298
Manel Femmam, Amel Saraoui, Abdeljalil Naceri, Maroua Grid, Mohamed Elkabir Fareh, Sami Slimani	
 Automated Liver Segmentation Using 2D U-Net: A Deep Learning Approach for MRI Analysis and Surgical Planning	304
Amal Abdellaoui, Narjes Ben Ameer, Rim Zarrouk, Ramzi Mahmoudi, Mohamed Hedi Bedoui	
 Feature Extraction through MS Lesion and Cerebral Lobe Segmentation for Enhanced EDSS Prediction ...	310
Nada Haj Messaoud, Zina Neirez, Manel MILLI, Rihab Ben Dhia, Asma Ben Abdallah, Mohamed Hedi Bedoui	
 Using Deep Learning for Deadlock Detection in Intelligent Software Systems	316
RAOUDHA ROMDHANI, Olfa Mosbahi, Mohamed Khalgui	
 Next-Gen IoT Architecture: Long-Range, Low-Bandwidth Video Transmission Using GenAI	322
Abdelhak Heroucha, Salim Bitam, Abdelhamid Mellouk	