















The LSI Lab and Association of Artificial Intelligence and Sustainable Development

in collaboration with

Mohamed Premier University, Faculty of Sciences of Oujda, Faculty of Medicine and Pharmacy of Oujda, National School of Applied Sciences of Oujda, Higher School of Technology of Oujda, Mohammed VI Hospital Center of Oujda, Franche-Comté University and The **School Of Advanced Engineering** Studies - Oujda, organize:

# **CSMA** 2025

2nd International Conference on Smart Medical, IoT & Ai



# **TECHNICAL PROGRAM**

















### ABOUT THE CONFERENCE

he Second International Conference on Smart Medical, IoT & Artificial Intelligence (ICSMAI'25) brings together researchers, clinicians, engineers, and industry practitioners to advance data-driven healthcare and intelligent connected systems. ICSMAI'25 provides a forum to share cutting-edge results, discuss open challenges, and foster collaborations at the intersection of medical technologies, Internet of Things (IoT), and artificial intelligence.

Clinical AI and decision support; medical imaging and radiomics; wearable and remote monitoring systems; hospital information systems and digital health; healthcare NLP and conversational agents; bioinformatics, drug discovery and multi-omics; cybersecurity and governance for health data; human factors, education and simulation; smart sensors, edge/embedded AI, and healthcare IoT deployments.

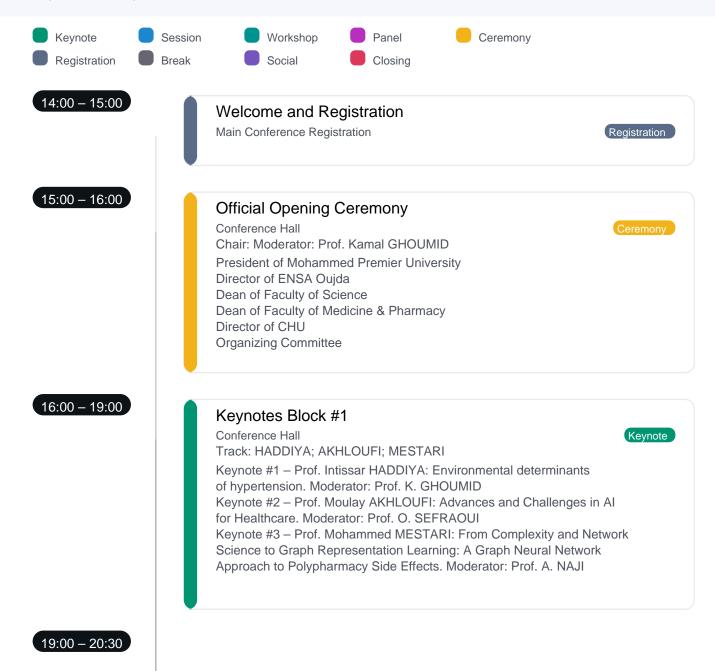
Authors are invited to submit original, unpublished research—including empirical studies, methods and systems, comprehensive surveys, and reports on industrial deployments—that is not under review elsewhere. Submissions should follow the conference guidelines and deadlines published on the ICSMAI'25 website.

ICSMAI'25 is organized by the LSI Laboratory together with the Association of Artificial Intelligence and Sustainable Development (IA2D), in collaboration with Mohammed First University (Oujda)—including the Faculty of Sciences, Faculty of Medicine and Pharmacy, the National School of Applied Sciences, and the Higher School of Technology—the Mohammed VI University Hospital Center (Oujda), and international academic partners: Université de Franche-Comté (France), Université de Lorraine (France), Université de Moncton (Canada), and the École des Hautes Études d'Ingénierie – Oujda.



We warmly welcome you to ICSMAI'25 and look forward to your contributions and participation.

Day 1 — Thursday, Oct 23





19:00 - 20:30

#### Session 1: Al in Healthcare & Medical Diagnosis

Parallel Sessions — Room 1

Chair: M. H. Sebbar, A. Saddari, and K. Alaoui

#### **Papers**

- Faysal ETROUFI Benchmarking Machine Learning Models for Early Detection of Chronic Kidney Disease
- Abderrazak SADDARI Comparative Analysis of Machine Learning Approaches for Antimicrobial Resistance Prediction and Multi-Drug Resistance Classification
- Maryam BENHEDDI Detection of a rare mutation in exon 20 of the EGFR gene by EasyPGX<sup>™</sup> real-time PCR in a case of non-small cell lung cancer at the Oujda pathology laboratory
- Maryam BENHEDDI The Experience of the Pathology Laboratory at Mohammed VI University Hospital of Oujda in the Molecular Analysis of Colorectal Cancers: A Retrospective Study of RAS Status Assessment by Real-Time PCR with TaqMan Probes
- Jihane BENBRIK Machine Learning Approaches for Predicting Vitamin D Levels: Comparative Analysis
- Oumaima AAMAROUCHI Optimizing Brain Tumor Detection: A Novel Approach Using Mixed Initialization Kernels and Genetic Algorithms in Convolutional Neural Networks
- Omar SEFRAOUI Artificial Intelligence for Diagnosis and Analysis of Multiple Sclerosis: A Data-Driven Approach
- Oussama ABALI Temporomandibular Joint Osteoarthritis Pathology and Artificial Intelligence: A Brief Systematic Review
- Fatima FATIH Adaptive optimization of CNN architectures using Tree-structured Parzen Estimator for the diagnosis of lung diseases
- Youssef RAFIK Cardiovascular diseases prediction by machine learning techniques
- Ali ARBAOUI Predicting Autoimmune Flares Using AI and Emotional Analysis

20:30 - 22:00

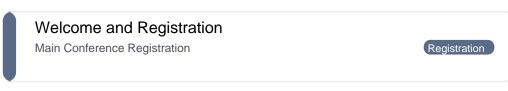
#### Dinner break

Hotel Restaurants

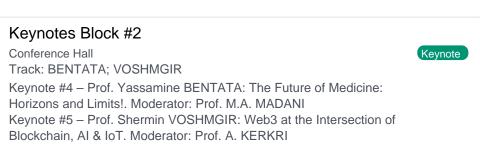
Break



08:00 - 09:00



09:00 – 11:00



11:00 - 12:30

#### Session 2: IoT & Edge AI for Smart Systems

Parallel Sessions — Room 1

Chair: H. Bouali, S. Daoudi and R. Malek

#### **Papers**

- Kishan Reddy BHIMAVARAM IoT-Based Urban Agriculture Container Farm Design and Implementation for Localized Produce Supply
- Vinay DANDAMRAJ Smart IoT based Hydroponics Farming
- Mirthika B Intelligent Wildlife Monitoring and Repulsion Using YOLOv8-Based Bounding Box
- Hicham TIKAOUI An IoT-Based Comparative Study of Machine Learning and Statistical Models for Energy Consumption Forecasting in Moroccan Buildings
- Sidi Omar EL KETTANI IoT-Edge AI with ISO 42001 Governance for CNC Predictive Maintenance: Multisensor Fusion, Calibration, and Clause-Level Traceability
- Chakib TAYBI A Dual-Band Reconfigurable Antenna Using a PIN Diode for 2.4 GHz and 5 GHz IoT Applications
- Belaoufi Yassine SmartRoute+: Toward Intelligent Road Maintenance Ecosystems through Deep Learning and Mobile Crowdsensing in Morocco
- El Miloud AR-REYOUCHI BAI-PLF: A Blockchain–Al–loT Framework for Energy-Efficient and Predictive Logistics and Healthcare in
- Vighnan KUMAR AgroHeal Intelligent Agricultural Assistant for Early Disease Identification and Organic Pesticide Recommendation.

Day 2 — Friday, Oct 24





#### Session 3: Al for Biomedical Research & Drug Design

Parallel Sessions — Room 2 Chair: M. Yandouzi and M. Grari

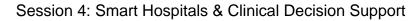


#### **Papers**

- Kaoutar M'RHAR Exploring Deep Learning for De Novo Drug Design: A Brief Review of Chemical Property Optimization
- Oussama GRARI Harnessing artificial intelligence to tackle biofilm infections: Advances, challenges, and perspectives
- EI Miloud AR-REYOUCHI Q2OPT-MED: A Hybrid Al-Heuristic Approach to Healthcare Pathway Optimization
- $\bullet$  Nazih ASSABBANE Al in Aesthetic Medicine: From Subjective Judgment to Algorithmic Precision
- Nazih ASSABBANE SVHRSP for Skin Ageing: Bioinformatics Rationale and a Microneedle-Delivered Cosmetic Strategy
- Mouad ALAOUI MHAMMEDI Physics-Constrained Generative Inverse Design for Food-Grade Encapsulation Systems
- Manale CHAKIR An experimental evaluation of GRU-based architecture for ICD-9 code assignment using MIMIC-III clinical notes
- Omar SEFRAOUI Integrating IoT and AI for Smart Medical Systems: Tools, Algorithms, and Challenges in Real-World Healthcare Applications
- Alaoui KHADIJA An extensive categorization of triplestores



#### 11:00 - 12:30



Parallel Sessions — Room 3

Chair: D. EL MOUJTAHIDE and M. Zeryouh

#### **Papers**

- N. HAREESH AI Stethoscope: Revolutionizing Home Healthcare using Machine Learning
- Oussama GRARI Precision and measurement uncertainty verification of procalcitonin assay for Al-enhanced sepsis management in smart hospitals
- Dounia EL MOUJTAHIDE Comparative Analysis of Machine Learning Algorithms for Predicting Creatinine Levels from Blood Parameters
- Dounia EL MOUJTAHIDE Temporal Stability of Biochemical Phenotypes: A Four-Year Analysis of Blood Biomarker Clusters
- Sara RAMDANI Artificial Intelligence and the Internet of Things in Smart Hypertension Management: A State-of-the-Art Review and Future Directions
- $\bullet$  Yassmine EL MOUSSAOUI Al-Powered Simulation Platforms for Healthcare Communication Training: Scoping review
- Hakim NASAOUI MedACT-CL: Knowledge-Enhanced Tri-Modal Contrastive Learning for Medical Action Recognition
- Youssef BADININI Public—private partnership for bringing healthcare services closer together and digitizing them: The example of connected mobile medical units.
- Nour El Houda BENKADDOUR KidneyLab 2.0: Innovative Integration of Arduino Technology for Immersive Teaching in Renal Hydrosodic Regulation
- Hind MOUMNI Use and Perception of AI for Psychological Self-Help Among Medical Students in Morocco

12:30 - 15:30

#### Lunch break

Dining Hall

Break

15:30 - 17:00

#### Keynotes Block #3 (Healthcare Innovations)

Conference Hall

Keynote #6 – Prof. Abdelkrim DAOUDI: Telemedicine in the Eastern region.



17:00 – 20:00

Day 2 — Friday, Oct 24



#### 17:00 - 20:00

#### Session 5: AI, NLP & Cybersecurity

Parallel Sessions — Room 1

Chair: A. KERKOUR ELMIAD and R. Naciri

#### **Papers**

- Omar SEFRAOUI Adaptive Al Pipeline for Real-Time Cybersecurity Alert Classification: A Multi-Dataset Approach
- Ayoub JIBOUNI Similarity Redefined: A Robust Metric for Predicting Links in Complex Networks
- Anas CHAHID An Advanced Conversational AI System for Medical Specialty Triage Featuring a RAG-based Dialogue Engine
- Abdelmounaim KERKRI Bridging Semantic Gaps: Cross-Lingual Alignment Through Contrastive Subword Regularization
- Abdelmounaim KERKRI Stochastic-Approximation Reinforcement Learning for Urban Traffic Lights with Low-Cost Sensing
- Abdelmounaim KERKRI Event-Driven Reinforcement Learning on Streams: Drift-Aware Policy Optimization with Reservoir-Constrained Replay

#### Session 6: Energy Management & Industrial Optimization

Parallel Sessions — Room 2 Chair: M.A. Kassmi and D. Bahia

#### Session

#### **Papers**

- Sidi Omar EL KETTANI Al-Powered Energy Management Diagnostics:
  A Comprehensive Framework for Industrial Predictive Maintenance with Large Language Model Integration
- Sidi Omar EL KETTANI Enhanced Al-Powered Energy Management Diagnostics: Expert System Integration with LLM for Predictive Maintenance
- Mohammed Ali ARBAOUI Preliminary design choices for a Green Hydrogen production system
- Ali ARBAOUI Advanced Control Study of a Heat Exchanger: Efficiency Modeling and Analysis for Control Optimization
- Hicham TIKAOUI Vision-Based Angle Detection for Industrial Quality Inspection
- Hicham TIKAOUI Few-Shot Learning Hybrid Approach for Visual Quality Inspection with Limited Data
- Hanae EL FAHFOUHI Enhancing Solar Radiation Forecasting with Informer Architecture and Bayesian Hyperparameters Selection

20:00 - 22:00

#### Dinner break

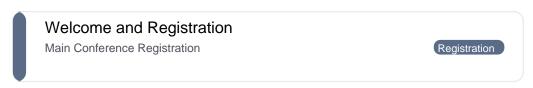
Hotel Restaurants

Break

Day 3 — Saturday, Oct 25



08:00 - 09:00



09:00 – 12:00

#### Session 7: Al in Education, Ethics & Society

Parallel Sessions — Room 1

Chair: A. El Mezouari, M. Benhaddou and J. Oubaha

#### Papers

- Nouhaila CHAREF Artificial Intelligence in Medical Writing: A Systematic Review of Current Practices
- Anas TALHAOUI Automated Role Classification in Security Policies: A Comparative Study of NLP Approaches
- Somaia EL GHAZI Artificial Intelligence in Medical Education: An Umbrella Review
- Manal BOUDIH NLP-based exploratory study of interviews on blood donation awareness campaigns: evidence from the University of Oujda (2023–2024)
- Hicham ARRID Modeling the Impact of Patient Experience Attributes on Satisfaction: Generalized Additive Models Approach
- Boulerhcha BRAHIM Sentiment analysis in social media with artificial intelligence
- Hasnae AMNOUN Al and Big Data in Marketing Decision-Making: A PRISMA-Guided Systematic Review of Scopus-Indexed Studies
- BOUBCHEUR Hanane Ethical and Pedagogical Dimensions of Al-Assisted Mathematics Teaching for Students with Hearing and Speech Impairments
- Kaoutar GHOMARI Electrolyte Disorders in Emergency and Intensive Care Units at Mohammed VI University Hospital Center Oujda: Prevalence, Seasonality and Associated Factors (Year 2022)
- Bilal BOURKHA Artificial intelligence and hospital management: between strategic imitation and innovation The case of chain clinics in Morocco
- Bilal BOURKHA Artificial intelligence in hospital management: balancing strategic imitation and contextual innovation in moroccan private hospitals



09:00 – 12:00

#### Session 8: Smart Cities, Mobility & Environment

Parallel Sessions — Room 2

Chair: H. Barboucha and E.M. Ar-Reyouchi

#### **Papers**

- Asmae EL MEZOUARI Al-Driven Radiomics in Oncology: From Early Detection to Personalized Treatment
- Meryem ELKADI Groundwater Level Prediction in the Triffa Plain (Morocco) Using Machine Learning Approaches
- Hanae SENBA Travel Time Optimization in the Old Medina of Fez
- Rohit SHITOLE YOLOv9 Meets CBAM: A Real-Time Smart Traffic Signal System for Emergency Response Optimization
- Loubna AZIZI Toward the Integration of Urban Green Spaces and Smart Technologies: An Approach to Strengthening the Sustainability of Smart Cities
- Elmehdi HASSANI Towards a Paperless Environment: Al for Smart Invoice Processing
- Meryem BENKADDOUR Verification of the First Principle through Joule's Experiments: Determining the Calorie Equivalent in Joules (J) Using Computer-Assisted Experimentation (CAEx)
- Salwa KHALYL An Empirical Comparison of Topic Models: LDA, NMF, and BERTopic Applied to Hotel Customer Reviews

12:00

#### **Closing Ceremony**

Conference Hall

Closing

## Meet Our Committees

The dedicated team of professionals organizing and guiding ICSMAI 2025

#### HONORARY COMMITTEE

- Mr. Yassine ZARHLOULE, President of Mohammed Premier University, Oujda, Morocco
- Mr. Farid EL HEBIL, Director of National School of Applied Sciences, Oujda, Morocco
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