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SmartTech 2025

The International Conference on
Smart Systems and Emerging Technologies



December 25–27, 2025



ALECSO Headquarters, Tunis, Tunisia

41

Papers

3

Keynotes

3

Panels

4

Events

Co-organized by **MUST University** and **ALECSO**

Technical Sponsorship by **IEEE Tunisia Section**

 smarttech2025.org

 **DRAFT VERSION – This program is subject to changes**

🕒 Quick Reference Schedule

Time	Day 1 – Dec 25	Day 2 – Dec 26	Day 3 – Dec 27
09:00–10:00	Opening + Keynote 1	Keynote 2	Keynote 3
10:00–10:30	Coffee Break	Coffee Break	Coffee Break
10:30–11:30	Sessions 1 & 2	Sessions 7 & 8	Panel: Cybersecurity
11:30–12:30	Sessions 3 & 4	Sessions 9 & 10	Closing
12:30–13:30	Lunch Break		
13:30–14:30	Panel: Healthcare	Panel: Education	—
14:30–15:30	Sessions 5 & 6	Sessions 11 & 12	—
Evening	—	Gala Dinner	—

 Keynote

 Panel

 Session

 Break

 Lunch

DAY 1

Opening Day

Thursday, December 25 📅

★ Opening Ceremony

09:00 – 09:30

 KEYNOTE

09:30 – 10:30 | Room 2

Intelligent Autonomous IoT Systems

Prof. Mohsen Guizani | MBZUAI, UAE | IEEE Fellow

Federated Learning for IoT, edge computing, and smart autonomous systems with applications in LLMs, TinyAI, and Robotics.

 Coffee Break

10:30 – 10:45

🕒 10:45 – 11:45 | Parallel Sessions

Session 1: AI – Large Language Models Room 1

Multi-Armed Bandit LLMs for Solving Mathematics

S. Chaffar, A. Alsharif, O. Alzoubi, Y. Alsaedi

Evaluating LLMs for Multilingual RAG-Based Chatbots

S. Boulaares, A. Koubaa, H. Touati

Deep Learning and T5-Based NLG for Thyroid Ultra-sound

I. Jemal, O. Cheikhrouhou

Foundational Paradigms in Arabic LLMs

S. Sibae, A. Ammar, W. Boulila, Y. Alhabashi

Session 2: AI – Business & Energy Room 2

Gradient Boosting for Predicting Missing Ratings

A. Adam, L. Abuowaimer, K. Alnutaifi, A. Taha, N. Nasser

Heuristic-Based Data Transmission in Two-Router Networks

M. Jemmali, A. Hanfy

CNN-Informer Hybrid for EV Charging Demand Forecasting

W. Mchara, L. Manai, M. Khalfa, M. Raissi, H. Albaqami

 Session Transition

11:45 – 12:00

🕒 12:00 – 13:00 | Parallel Sessions

Session 3: AI – Autonomous Systems Room 1

Dynamic Decision Table Generation from BPMN_DMN

S. Meddeb, S. Batti, H. Fathallah

Fine-Tuning vs RAG for Arabic QA

S. Chaffar, M. Bamuqabil, J. Alrimi, Y. Hireche

CogniFactory: Industrial LAM Framework

I. Chhaibi, A. Yahyaoui, M. Boughdiri, W. Sliti, W. Boulila

Multi-Channel EEG–EMG for Bionic Hand Control

I. Ben Abdallah, Y. Bouteraa

Session 4: AI – Medical Imaging Room 2

Brain MRI Segmentation via MEDU-Net+

N. Yahyaoui, S. Batti, H. Fathallah

YOLO Model for Inflammatory Bowel Diseases

J. Fiaidhi, S. Mohammed

BreatheEasy: Real-Time Sleep Apnea Detection

K. Belwafi, M. Jemmali, S. Mahfood, O. Naqaweh, A. Johar

2 | Draft Version – Subject to Changes

 Lunch Break

13:00 – 14:30

 **PANEL**

14:30 – 15:30 | Room 2

AI in Healthcare – Future of Digital Medicine

Moderator: Prof. Adel Ben Mnaouer (UPM)

Panelists: Prof. R. Gouider (WFN) • Prof. M. Guizani (MBZUAI) • Dr. M. Bahloul (Alfaisal) • Dr. A. Ahmed (UPM)

Topics: Agentic LLMs, 6G Healthcare, Medical AI, Digital Twins

 15:30 – 16:30 | Parallel Sessions

Session 5: AI – Medical Image Analysis Room 1

YOLO for Kidney Stone Segmentation on CT Scan
F. Safi, F. Kacem, W. Jallouli, H. Fathallah

MRI Denoising: Classical Filters vs Deep Learning GANs
N. Yahyaoui, S. Batti, H. Fathallah

GANs for Multi-Plane MRI Augmentation
H. Charaabi, E.H. Ridha, M. Njah, F. Kolsi

Optimal Transport–Based MRI-to-CT Image Synthesis
M. Bahloul, S. Jabeen, Z. Belkhatir

Session 6: Cybersecurity – Smart Cities Room 2

BGP Hijack Detection in SD-WAN Architectures
H. Dachraoui, W. Mefteh, A.M. Frihida

AI-Driven Obfuscated Malware Detection
M. Aljowaied, Y. Bouteraa, A.O. Assiri

Collaborative Application Attacks on Mobile
A. Ahmed, A. Ben Mnaouer

Blockchain-Based NFT for Sports Assets
A. Ben Mnaouer, A. Ahmed, et al.

DAY 2

Research & Innovation Day

Friday, December 26

 **KEYNOTE**

09:00 – 10:00 | Room 1

Large Action Models & Agentic AI

Prof. Wadii Boulila | Prince Sultan University, KSA | IEEE Senior Member

From AI understanding to autonomous execution: LAMs that map multimodal context into concrete actions over tools, interfaces, and robots.

 Coffee Break & Networking

10:00 – 10:30

 10:30 – 11:30 | Parallel Sessions

Session 7: Cybersecurity – Secure Smart Cities Room 1

LoRaWAN Security: Vulnerabilities & Countermeasures
E.H. Ridha, M. Njah

Sm-CF2: Motion Planning for Autonomous Robots
S. Ziadi, E.H. Ridha, M. Njah

Cybersecurity in Construction: Data Protection
A. Ahmed, M. Hassan, A. Ben Mnaouer, et al.

Session 8: AI – City Intelligence & IoT Room 2

Satellite Remote Sensing for Groundwater Monitoring
E. Dridi

ML-Driven Risk Scoring for IoT Insurance
M.A. Khemakhem, E.H. Ridha, M. Njah

Security in Agent-to-Agent Protocols
B. Zaabar, O. Ben Fredj, O. Cheikhrouhou, K. Mershad

 11:30 – 12:30 | Parallel Sessions

Session 9: AI – Arabic LLMs Room 1

Enhanced LLMs for Maliki Jurisprudence
H. Ben Ayed, O. Cheikhrouhou

Optimizing Academic Chatbot Design
S. Chaffar, R. Ashawe

MadinahGPT: Historical Guide with RAG & LLM
A. Hassan, M. Naseif, A. Elhayek, J. Alghamdi, A. Koubaa

Session 10: Cybersecurity – Detection & Privacy Room 2

Self-Attention for Phishing Detection
M. Thaalbi, R. Bouattour, A. Azzouz

AI Lie Detector Test: Turnitin, Grammarly, ZeroGPT
T. Hoke, A. Koubaa

Preserving Ownership in Generative AI
A. Ahmed

Privacy-Preserving DL for Pneumonia Classification
M. Krichen, A. Javaid

 Lunch Break

12:30 – 13:30

 **PANEL**

13:30 – 14:30 | Room 1

AI in Education – Transforming Learning

Moderator: Prof. Anis Koubaa (Alfaisal University / ScaleX Innovation)

Panelists: Prof. K. Amiri (Former Deputy Minister, Tunisia) • Dr. S. Askoul (UPM) • Dr. T. Hoke (PSU)

Topics: Agentic AI, Personalized Learning, Quality Assurance, Digital Transformation

 14:30 – 15:30 | Parallel Sessions

Session 11: AI – Autonomous Systems Room 1

Intelligent Energy Management in Hybrid EVs
T. Ghada, S. Abdelaziz, M. Hela

Agentic UAVs: LLM-Driven Autonomy
A. Koubaa, K. Gabr

Private 5G Meets Global Networks
J. Schmidt, M. Sonnberger, G. Stangelmayer

Session 12: Quantum & Immersive – Metaverse Room 2

Immersive XR for Autism Intervention
A. Ahmed, M.B. Hossain

Systems Mapping for Metaverse Economies
W. Alharthi

DCDM: Generative AI and Metaverse
A. Ahmed, A. Ben Mnaouer, N.M. Bahbouh, et al.

Silicon Photonics for AI & Quantum Computing
D. Benhaddou, N. Alshamrani, A. Alsolami, D. Almutairi, A. Almansouri

★ Social Event	15:30 – 18:00
★ Conference Dinner	19:30 – 23:00

DAY 3

Future & Closing Day

Saturday, December 27

 **KEYNOTE**

09:00 – 10:00 | Room 1

Quantum Information – The New Frontier

Dr. Hichem Eleuch | University Polytechnique Hauts-de-France | Fellow, African Academy of Sciences

Prof-Chair of Excellence in Quantum Information and AI. Quantum computing promises reduced computation times; quantum cryptography offers enhanced security solutions.

 **Coffee Break & Networking**

10:00 – 10:30

 **PANEL**

10:30 – 11:30 | Room 1

AI-Driven Zero Trust for Critical Infrastructures

Moderator: Prof. Mohamed Hamdi (Sup'Com, Tunisia)

Panelists: Prof. D. Benhaddou (Alfaisal) • Prof. I. AlMomani (U. Jordan/PSU) • Prof. H. Kaffel (U. Tunis El Manar)

Topics: Zero Trust, Adversarial AI, Neuro-Symbolic Integration, Gradient Leakage, Privacy

 **Closing Ceremony, Awards & Certificates**

11:30 – 12:00

 **Best Paper Award • Best Presentation Award • Participation Certificates**

Thank you for attending SmartTech 2025!

We look forward to seeing you at future conferences

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Co-organized by **MUST University** and **ALECSO** | Technical Sponsorship by **IEEE Tunisia Section**

 Paper Index

Complete list of accepted papers organized by session, with paper IDs for reference.

DAY 1 – Thursday, December 25, 2025

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16	S2	Gradient Boosting for Predicting Missing Ratings	A. Adam, L. Abuowaimer, K. Alnutaifi, A. Taha, N. Nasser
37	S2	Heuristic-Based Data Transmission in Two-Router Networks	M. Jemmali, A. Hanfy
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21	S3	Fine-Tuning vs RAG for Arabic QA	S. Chaffar, M. Bamuqabil, J. Alrimi, Y. Hireche
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40	S3	Multi-Channel EEG–EMG for Bionic Hand Control	I. Ben Abdallah, Y. Bouteraa
8	S4	Brain MRI Segmentation via MEDU-Net+	N. Yahyaoui, S. Batti, H. Fathallah
20	S4	YOLO Model for Inflammatory Bowel Diseases	J. Fiaidhi, S. Mohammed
28	S4	BreatheEasy: Real-Time Sleep Apnea Detection	K. Belwafi, M. Jemmali, S. Mahfood, O. Naqaweh, A. Johar
4	S5	YOLO for Kidney Stone Segmentation on CT Scan	F. Safi, F. Kacem, W. Jallouli, H. Fathallah
7	S5	MRI Denoising: Classical Filters vs Deep Learning GANs	N. Yahyaoui, S. Batti, H. Fathallah
15	S5	GANs for Multi-Plane MRI Augmentation	H. Charaabi, E.H. Ridha, M. Njah, F. Kolsi
58	S5	Optimal Transport–Based MRI-to-CT Image Synthesis	M. Bahloul, S. Jabeen, Z. Belkhatir
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41	S6	AI-Driven Obfuscated Malware Detection	M. Aljowaied, Y. Bouteraa, A.O. Assiri
43	S6	Collaborative Application Attacks on Mobile Platforms	A. Ahmed, A. Ben Mnaouer
49	S6	Blockchain-Based NFT for Sports Assets	A. Ben Mnaouer, A. Ahmed, et al.

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ID	Session	Paper Title	Authors
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27	S7	Sm-CF2: Motion Planning for Autonomous Robots	S. Ziadi, E.H. Ridha, M. Njah
47	S7	Cybersecurity in Construction: Data Protection	A. Ahmed, M. Hassan, A. Ben Mnaouer, et al.
9	S8	Satellite Remote Sensing for Groundwater Monitoring	E. Dridi
29	S8	ML-Driven Risk Scoring for IoT Insurance	M.A. Khemakhem, E.H. Ridha, M. Njah
52	S8	Security in Agent-to-Agent Protocols	B. Zaabar, O. Ben Fredj, O. Cheikhrouhou, K. Mer-shad
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23	S9	Optimizing Academic Chatbot Design	S. Chaffar, R. Ashawe
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6	S11	Intelligent Energy Management in Hybrid EVs	T. Ghada, S. Abdelaziz, M. Hela
30	S11	Agentic UAVs: LLM-Driven Autonomy	A. Koubaa, K. Gabr
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56	S12	Silicon Photonics for AI & Quantum Computing	D. Benhaddou, N. Alshamrani, et al.

Session Legend: S1–S6 = Day 1 Sessions | S7–S12 = Day 2 Sessions
 Paper IDs correspond to the original submission reference numbers