

Wednesday November, 04 th , 2026	🕒 09:00-09:30	Registration
	🕒 09:30-10:00	Opening Ceremony
	🕒 10:00-11:00	Plenary Session 1: Embodied AI for Next Generation Intelligent Systems 👤=Pr. Fakhreddine (Fakhri) Karray, IEEE Life Fellow, Mohamed bin Zayed University of Artificial Intelligence, University of Waterloo, Canada
	🕒 11:00-11:30	☕ Coffee Break
	🕒 11:30-12:30	Plenary Session 2: Low Power Challenges in IoT and IoE 👤=Pr. Ricardo Reis, Instituto de Informática, Universidade Federal do Rio Grande do Sul, at Porto Alegre, Brazil
	🕒 12:30-14:00	🍴 Lunch Break
	🕒 14:00-15:40	Session 1: Optimization, Security and Design of Digital Systems
	🕒 15:40-16:10	☕ Coffee Break
	🕒 16:10-17:30	Session 2: RF Antennas and Sensors
Thursday November, 05 th , 2026	🕒 08:30-09:00	Registration
	🕒 09:00-10:00	Plenary Session 3: Test and Diagnosis Challenges for High-Yield Manufacturing in the Ångström Era 👤= Dr. Aymen Laadhar, Intel, Ireland
	🕒 10:00-10:30	☕ Coffee Break & Poster session
	🕒 10:30-12:10	Session 3: AI-Assisted Medical Diagnosis
	🕒 12:10-13:30	Special Session 1: Blockchain & IA integration in embedded systems 👤= Pr. Jalel Ktari, Dr. Yassine Aouadni and Pr. Tarek Frikha, ENIS, Tunisia
	🕒 13:30-14:30	🍴 Lunch Break
	🕒 14:30- 15:30	Embedded Tutorial: Software Defined Radio: From Fundamentals to Rapid Prototyping and Cost-Effective Testing of Modern Wireless and IoT Systems 👤= Pr. Sahbi Baccar, ESIGELEC, France
	🕒 16:00- 19:30	Social activities
	🕒 19:30-21:30	🍷 Gala Dinner
Friday November, 06 th , 2026	🕒 09:00-10:00	Plenary Session 4: Embedded Systems application in systemic approach with societal issues 👤= Pr. Samir Bouaziz, Paris Saclay University France
	🕒 10:00-11:40	Session 4: Wireless, Body-Area and IoT Communication
	🕒 11:40-12:20	Special Session 2: Emerging Memory AI Accelerator Test and Reliability 👤=Pr. Hassen Aziza, Aix Marseille University, France & Dr. Moritz Fieback, Delft University of Technology, Netherland
	🕒 12:20-13:00	☕ Coffee Break, Best paper award & Closing ceremony

IEEE DTTIS 2026 Technical Program



21st IEEE International Conference on
Design, Test and Technology of Integrated Systems



Wednesday, November 04th, 2026

🕒 09:00 @ 09:30

Registration

🕒 09:30 @ 10:00

Opening Ceremony

🕒 10:00 @ 11:00

Plenary Session 1

Embodied AI for Next Generation Intelligent Systems

Session chair: 🧑 Pr. Ridha Jmal, ENIS, Tunisia

Speaker: 🧑 Pr. Fakhri Karray, University of Waterloo, Canada

🕒 11:00 @ 11:30

☕ Coffee Break

🕒 11:30 @ 12:30

Plenary Session 2

Low Power Challenges in IoT and IoE

Session chair: 🧑 Pr. Mourad Loulou, ENIS, Tunisia

Speaker: 🧑 Pr. Ricardo Reis, Instituto de Informática, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brasil

🕒 12:30 @ 14:00

🍴 Lunch Break

Session 1

Optimization, Security and Design of Digital Systems

Session chairs: 👤 Pr. Sami Gomri, ENET'Com, Tunisia

👤 Pr. Hassen Aziza, Aix-Marseille Univ - Polytech MT, France

14:00 – 14:20	Navigating the System-Level Pitfalls of Multi-Vendor Chiplet Design <i>Salem Abdennadher</i> <i>Ecosystem Technology Office Intel Foundry, Intel Corporation Laguna Beach, CA, USA</i>
14:20 – 14:40	On Using Graph Theory for Defect Characterization on Top-Level SRAM for Testing and Diagnosis Purposes <i>Danillo Chaves Vieira¹, Gianmarco Mongelli¹, Eric Faehn², Patrick Girard¹ and Arnaud Virazel¹</i> <i>1 LIRMM, Univ Montpellier, CNRS, Montpellier, France</i> <i>2 STMicroelectronics, Crolles, France</i>
14:40 – 15:00	Clock Path Optimization of a PCIe Gen6 Transmitter in 2nm CMOS Using Machine Learning Techniques <i>Marcel Kossel¹, Matthias Brändli¹, Carrie Cox³, Jaewon Lee^{1,2} and Pier Andrea Francese¹</i> <i>1 IBM Research – Europe, 8803 Rüschlikon, Switzerland</i> <i>2 Department of Information Technology and Electrical Engineering, ETH Zurich, Switzerland</i> <i>3 IBM Infrastructure, Durham, NC, United States</i>
15:00 – 15:20	A Hardware-Efficient FPGA Implementation of NB-IoT Downlink Synchronization <i>Zohra Rabet¹, Sahbi Bacchar¹, Moncef Kadi¹, Habib Boulzazen¹, François Hedin² and François Lefevre³</i> <i>1 ESIGELEC, IRSEEM (UR 4353), Université de Rouen Normandie, Saint-Étienne-du-Rouvray, France</i> <i>2 WEAccess Group, Saint-Étienne-du-Rouvray, France</i> <i>3 NXP, Caen, France</i>
15:20 – 15:40	Voice Encryption on FPGA Using an Artificial Neural Network based Hyperchaotic Generator <i>Wafaa Al Nassan and Talal Bonny</i> <i>College of Computing and Informatics University of Sharjah, Sharjah, UAE</i>

☕ Coffee Break

Session 2

RF Antennas and Sensors

Session chairs: 👤 Pr. Jalel Ktari, ENIS, Tunisia

👤 Pr. Hassen Drira, iCUBE, France

16:10 – 16:30	Design and Optimization of a Symmetrical Double-Slot Microstrip Patch Antenna for 28 GHz 5G Applications <i>Ismail Maaroufi¹, Sanae Elhafidi¹, Asmae El Beqal¹, Seddik Bri², Imade El Hajjami³ et Bachir Benhala¹</i> 1 Faculty of Sciences Dhar El Mahraz, Sidi Mohamed Ben Abdellah University, Fez, Morocco 2 High School of Technology, Moulay Ismail University, Meknes, Morocco 3 Faculty of Sciences Meknes, Moulay Ismail University, Meknes, Morocco
16:30 – 16:50	A Compact Asymmetric Multi-Band RF Sensor for Non-Contact Detection of Oil Adulteration <i>Sarra Boudokhane¹, Sehmi Saad², Afif Belkacem¹, Darine Kaddour³, Pierre Lemaître-Auger³ et Hatem Garrab^{1,4}</i> 1 Laboratory of Electronics and Micro-Electronics (LEμE), Sciences Faculty of Monastir, University of Monastir, Tunisia 2 RF2S Spectrum Solutions, 18 Street of the Faïencerie, 33300 Bordeaux, France 3 Université Grenoble Alpes, Grenoble-INP, Laboratoire de Conception et d'Intégration des Systèmes (LCIS), Valence, France 4 Higher Institute of Applied Sciences and Technology of Sousse, University of Sousse, Street Taher Ben Achour, 4003 Sousse, Tunisia
16:50 – 17:10	PCB-Based Self-Resonant Spiral Ammonia Sensor with PVDF/HKUST-1 Bilayer <i>Raoudha Gabbouj^{1,2}, Mohamed Hadj Said², Tianqi Lu³, Salma Bizid^{2,4}, Olfa Kanoun³, Ayoub Haj Said² et Farès Tounsi¹</i> 1 SI2E Laboratory, National Engineering School of Sfax, University of Sfax, Tunisia 2 Center for Research on Microelectronics and Nanotechnology of Sousse, Tunisia 3 Professorship of Measurement and Sensor Technology, Chemnitz University of Technology, Chemnitz, Germany 4 Laboratory of Microelectronics and Instrumentations, Faculty of Sciences of Monastir, Tunisia
17:10 – 17:30	Axisymmetric Multiphysics Modeling of Oxygen-Induced Surface Depletion in Zinc Oxide Nanowire Sensors <i>Najeb Elgeme and Sami Gomri</i> SI2E Laboratory, National Engineering School of Sfax, University of Sfax, Tunisia

Thursday, November 05th, 2026

🕒 08:30 @ 09:00

Registration

🕒 09:00 @ 10:00

Plenary Session 3

Test and Diagnosis Challenges for High-Yield Manufacturing in the Ångström Era

Session chair: 🧑 Salem Abdennadher, Intel, USA

Speaker: 🧑 Dr. Aymen Laadhar, Intel, Ireland

🕒 10:00 @ 10:30

☕ Coffee Break & Poster Session

Stuck-At Fault Resilience in Memristor-Based Neural Networks for Robust Edge AI

Dalel Troudi¹, Faten Ouaja. Rzig¹, Hassen Aziza², Kamel Besbes¹

1 Laboratoire de Microelectronique et Instrumentation FSM

2 Aix-Marseille University, CNRS, IM2NP, 13451 Marseille Cedex 20, France Aix-Marseille Univ - Polytech MT

Gas Detection and Classification System Using an Electronic Nose with MQ Sensors

Khitouni Nizar, Sreib Mariem, Hbila Alaa, Gomri Sami and Masmoudi Mohamed

Systems Integration & Emerging Energies Sfax University, National Engineers School of Sfax, Tunisia.

Extending the Technology Acceptance Model with AI: A Systematic Review in Higher Education

Khalid Waregh¹, Jalel Ktari¹ and Abdalmonem Tamtam²

1 CES Lab, ENIS National School of Engineers of Sfax (ENIS) University of Sfax Sfax, Tunisia

2 Department of Computer Science, College of Education Nalut University Nalut, Libya

People-Centric Parking Allocation via Deterministic, Randomized and VNS Heuristics

Oumaima Chandoul¹, Mahdi Jemmali², Kais Belwafi³ and Ridha Djemal¹

1 Advanced Technologies for Medical and Signal (ATMS), National Engineering School of Sfax (ENIS), Tunisia

2 Computer Science Department, College of Computing and Informatics, University of Sharjah, Sharjah, United Arab Emirates

3 Computer Engineering Department, College of Computing and Informatics, University of Sharjah, Sharjah, United Arab Emirates

Session 3

AI-Assisted Medical Diagnosis

Session chairs: 👤 Pr. Ridha Jmal, ENIS, Tunisia

👤 Dr. Moritz Fieback, Delft University of Technology, Netherlands

10:30 – 10:50	From Cloud to Bedside: Deploying Longitudinal LSTM Models for Alzheimer's Diagnosis on FPGA <i>Hanedi Loukil^{1,2}, Nasr Siala³, Heni Loukil⁴, Tarek Frikha^{1,3} et Hassen Drira⁵</i> <i>1 Data Engineering and Semantics, (FSS), University of Sfax, Sfax, Tunisia</i> <i>2 ENET'Com, University of Sfax, Sfax, Tunisia</i> <i>3 DGIMA, National Engineering School of Sfax (ENIS), U. of Sfax, Sfax, Tunisia</i> <i>4 (INSAT), University of Carthage, Tunis, Tunisia</i> <i>5 ICube Laboratory, UMR 7357, U. of Strasbourg, F-67412 Strasbourg, France</i>
10:50 – 11:10	Complexity-Aware Comparative Study of Attention-Enhanced 3D U-Net Architectures for Brain Tumor MRI Segmentation <i>Amira Frih, Noura Benhadjyoussef et Mohsen Machhout</i> <i>Faculty of Sciences of Monastir, Laboratory of Electronics and Micro Electronics, University of Monastir, Monastir, Tunisia</i>
11:10 – 11:30	Mainly Digital BPSK Transmitter and Non-Coherent Receiver Architectures for Human Body Communication <i>Rym Assila Belhadj Mefteh, Remy Vauche, Mathieu Guerin, Salimar Al-Zaouk and Nicolas Dehaese</i> <i>Aix Marseille University, University of Toulon, CNRS, IM2NP, Marseille, France</i>
11:30 – 11:50	Swin Transformer for Histopathologic Cancer Classification: A Comparative Study Against Vision Transformers and Modern CNN Architectures <i>Feisal Alaswad¹, Batoul Aljaddouh¹, Maher Alrahal² et Talal Bonny³</i> <i>1 Department of Computing Technologies, SRM Institute of Science and Technology, Kattankulathur, Chennai, India</i> <i>2 Department of Computer Science, Amity University Dubai, Dubai, UAE</i> <i>3 College of Computing and Informatics, University of Sharjah, Sharjah, UAE</i>
11:50 – 12:10	Smart Wearable Device for Assisting Deaf and hard-of-hearing Individuals <i>Shams Alani, Alisawi and Talal Bonny</i> <i>Department of Computer Engineering, University of Sharjah Sharjah, UAE</i>

🕒 12:10 @ 13:30

Special Session 1

Blockchain & AI Integration in Embedded Systems

Session chairs: 👤 Pr. Jalel Ktari, ENIS, Tunisia
👤 Dr. Yassine Aouadni, ENIS, Tunisia
👤 Pr. Tarek Frikha, ENIS, Tunisia

12:10 – 12:30 Embedded MLP Inference for Alzheimer’s Classification on a Zynq-7000 FPGA Using Longitudinal Hippocampal Features

Nasr Siala^{1,3}, Hanedi Loukil^{1,2}, Emna Ghorbel¹, Imen Ahmed¹, Sirine Dammak¹, Yathreb Bouzouraa¹, Tarek Frikha^{1,3} and Hassen Drira⁴

1 Data Engineering and Semantics, FSS, University of Sfax, Tunisia

2 ENET'Com, University of Sfax, Tunisia

3 DGIMA, National Engineering School of Sfax (ENIS), Tunisia

4 ICube Laboratory, UMR 7357, University of Strasbourg, France

12:30 – 12:50 EEGAuth: A Modular Framework for Subject Authentication Using Motor Imagery EEG Signals

Sawsen Bouslimi, Walid Kaaniche, Kais Belwaf and Ridha Djemal

ATMS Lab, National Engineering School of Sfax (ENIS), Tunisia

12:50 – 13:10 Embedded Alzheimer’s Disease Classification on a Zynq-7010 FPGA: A 2.5D Late Fusion Pipeline with 4-Bit Expert Networks

Etienne Carnino¹, Eros Vandenbussche¹, Nasr Siala^{2,3}, Tarek Frikha², Samir Bouaziz¹ and Mahdi Louati⁴

1 Paris Saclay University, France

2 Data Engineering and Semantics, (FSS), University of Sfax, Tunisia

3 DGIMA, National Engineering School of Sfax (ENIS), Tunisia

4 SM@RTS, University of Sfax, Tunisia

13:10 – 13:30 Wide ResNet-Enhanced YOLO11 for Drone-Based Military Object Detection: Design, Implementation, and Performance Evaluation

Amira guesmi, Oussema Ghorbel, Jalel Ktari and Roua Saadaoui

CES Lab, ENIS National School of Engineers of Sfax (ENIS), Tunisia

🕒 13:30 @ 14:30

🍴 **Lunch Break**

🕒 14:30 @ 15:30

Embedded tutorial

Software Defined Radio: From Fundamentals to Rapid Prototyping and Cost-Effective Testing of Modern Wireless and IoT Systems

Session chair: 👤 Pr. Tarek Frikha, ENIS, Tunisia

Speaker: 🗣️ Pr. Sahbi Baccar, ESIGELEC, France

🕒 16:00 @ 19:30

Social Activities

🕒 19:30 @ 21:30

🍴 **Gala Dinner**

Friday, November 06th, 2026

🕒 09:00 @ 10:00

Plenary Session 4

Embedded Systems Application in Systemic Approach with Societal Issues

Session chair: 🧑 Dr. Aymen Laadhar, Intel, Ireland

Speaker: 🧑 Pr. Samir Bouaziz, Paris Saclay University, France

🕒 10:00 @ 11:40

Session 4

Wireless, Body-Area and IoT Communication

Session chairs: 🧑 Pr. Mohamed Masmoudi, ENIS, Tunisia

🧑 Pr. Sahbi Baccar, ESIGEELEC, France

10:00 – 10:20 **Design of an Embedded Real-Time Multimodal HMI for Electric Wheelchair Control**

Wassim Ghiloufi¹, Wadie Ben Abdallah¹, Lassaad Zaway² et Nader Ben Amor¹

1 Computer and Embedded Systems (CES) Laboratory, National School of Engineers of Sfax (ENIS), University of Sfax, Tunisia

2 Laboratory of Innovative Technologies, LAMIH UMR-CNRS 8201, Hauts-de-France Polytechnic University and INSA Hauts-de-France, Valenciennes, France

10:20 – 10:40 **Exploring Federated Learning for X-ray-Based Bone Fracture Detection**

Nesrine Affes and Jalel Ktari

Computer and Embedded System Laboratory, National Engineering School of Sfax, University of Sfax, Tunisia

10:40 – 11:00 **BLZi: A Lightweight Neural Network-Based Cross-Technology Communication System**

Boubaker Abdallah^{1,3}, Rym Cheour^{1,2}, Jalel Ktari¹ et Olfa Kanoun³

1 Computer and Embedded System Laboratory, National Engineering School of Sfax, University of Sfax, Tunisia

2 Higher Institute of Applied Science and Technology of Kasserine (ISSAT), University of Kairouan, Kasserine, Tunisia

3 Measurement and Sensor Technology Laboratory, Technische Universität Chemnitz, Reichenhainer Straße 70, 09126 Chemnitz, Germany

11:00 – 11:20 **RF Front-End Detector Approaches for a Low-Power BJT-LNA Based Sub-GHz Wake-Up Receiver**

Sarah Ouerghemmi, Robert Fromm and Faouzi Derbel

Faculty of Engineering, Leipzig University of Applied Sciences, Leipzig, Germany

11:20 – 11:40 **People-Centric Fairness-Aware Smart Parking Assignment Using Constructive Heuristics and Gorilla Troops Optimization**

Oumaima Chandoul¹, Mahdi Jemmali², Kais Belwafi³ and Ridha Djemal¹

1 Advanced Technologies for Medical and Signal (ATMS), National Engineering School of Sfax (ENIS), Tunisia

2 Computer Science Department, College of Computing and Informatics, University of Sharjah, Sharjah, United Arab Emirates,

3 Computer Engineering Department, College of Computing and Informatics, University of Sharjah, Sharjah, United Arab Emirates

🕒 11:40 @ 12:20

Special Session 2

Emerging Memory AI Accelerator Test and Reliability

Session chairs: 🧑 Pr. Hassen Aziza, Aix-Marseille University, France

🧑 Dr. Moritz Fieback, Delft University of Technology, Netherlands

11:40 – 12:00 **Novel Test and Reliability Approaches for Chiplet-based AI Accelerators**
*Moritz Fieback¹, Hassen Aziza², Emmanouil-Anastasios Serlis¹, Karine Coulie²,
Mottaqiallah Taouil^{1,3}, Wenceslas Rahajandraibe², Said Hamdioui^{1,3}*

1 QCE Department, Faculty EEMCS, Delft University of Technology

*2 CNRS, IM2NP, Aix-Marseille University, University of Toulon, Marseille,
France*

3 CognitiveIC, Delft, The Netherlands

12:00 – 12:20 **Beyond the Die: Testing Chiplets for Complete System Solutions**
Salem Abdennadher
*Ecosystem Technology Office Intel Foundry, Intel Corporation Laguna Beach, CA,
USA*

🕒 12:20 @ 13:00

☕ **Coffee Break, Best paper award & Closing Ceremony**
