

Democratic and Popular Republic of Algeria Ministry of Higher Education and Scientific Research



Laboratory of Parallel, Embedded architectures and Intensive Computing of University Oran 1

(LAPECI: https://www.lapeci-dz.org/index.php)
Organizes

Thematic days on IoT, Big data and Real-time data processing

May 26-27, 2025 University Oran1

- •These thematic days are dedicated to exploring the latest innovations in the Internet of Things (IoT), Big Data, and real-time data processing. Through a blend of theoretical sessions and hands-on workshops, participants will gain practical experience working with time-series data from IoT sensors and discover advanced tools for real-time monitoring and decision-making.
- At this event, an advanced platform for real-time processing of IoT sensor data will be presented, with a specific focus on agricultural applications. The main purpose is to introduce IoT data collection methods using sensors, ESP32, Arduino, Raspberry Pi. The WALLeSmart project will also be presented, showing how Big Data, Cloud Computing and IoT can revolutionize digital agriculture by improving farm management and traceability.
- •In addition, the National Research Program project 'EUB-AGR*: Integrated, efficient and intelligent management of bio-treated wastewater for agriculture' will be presented. A **prototype IoT** platform for real-time monitoring of wastewater quality will be presented.

Organization committee:

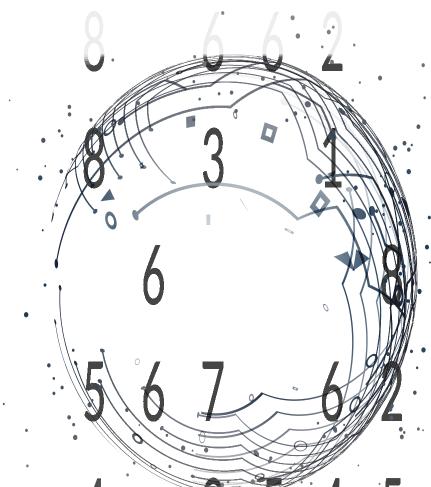
- Abdeldjalil AIDI
- Abou El Hassane BENYAMINA
- El Abbassia DEBA
- Kheira MECHACHE
- Lougmiri ZEKRI
- Bakhta AMRANE
- Walid BENZINEB
- Lakhdar LOUKIL
- Karima MOKHTARI
- Sarah BALBOUZI



Said MAHMOUDI

Professor at University of Mons,
Faculty of Engineering,
Computer Science department.

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Noureddine BENDJELLOUL

Master's in Information Systems Engineering and a Research engineer in the ILIA team.



08:15-09:00 Reception and registration 09:00-09:30 Opening allocution:

- Pr BENYAMINA Abou El Hassane:
 - I A DECI lab director
 - LAPECI lab director
 - Pr LOUKIL Lakhdar, Chairman of the workshop organizing committee
 - Pr HAMADOUCHE Mohammed, Dean of the Faculty of Exact and Applied Sciences
- 09:30 11:00 (1h30)
- Pr. Said MAHMOUDI, University of Mons, Belgium
- Introduction to IoT and data collection techniques at scale.

11:00 – 11:15 (15min)

Coffee Beak

11:15 - 12:15 (1h00)

- Pr. Said MAHMOUDI, University of Mons, Belgium
- Presentation on the challenges of Smart Farming and the exploitation of agricultural data.

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12:30 – 14:00 (1h30)

Lunch Break

14:00 – 15:30 (1h30)

- Pr. Said MAHMOUDI, University of Mons, Belgium
- Presentation of WALLeSmart's technical architecture.
- Real-time demonstration: collection, processing, and analysis of IoT sensor data.
- Case studies: resource optimization and traceability of agricultural production.

10:30 – 10:45 (15min)

15:30 – 17:30 (2h00)

09:00 - 10:30 (1h30)

- 10:45 12:45 (2h30)
- Coffee Beak

Practical workshop

lored to the agricultural sector.

Tuesday, May 27th, 2025

visualization, and advanced analysis.

Dr. Nourredine BENDJELLOUL, University of Mons, Belgium

• Deployment of a Big Data processing infrastructure tai-

• Real-time data manipulation: ingestion, storage,

Pr BENYAMINA Abou El Hassane : LAPECI lab director

Presentation of LAPECI's international and intersectoral

Presentation of the project 'Integrated, efficient and intelligent

management of bio-treated wastewater intended for agricul-

Presentation of the architecture of an IoT platform for waste-

ture (EUB-AGR'), National Research Program (PNR), 2023-2025.

water monitoring. Application to the Mascara wastewater treat-

projects.

Pr. Lakhdar LOUKIL

ment plant.

- Real-time data manipulation: ingestion, storage,
- visualization, and advanced analysis (continued).
- Experimentation on real-life scenarios and feedback.

- Dr. Nourredine BENDJELLOUL, University of Mons, Belgium

12:45 - 14:15 (1h30)

Lunch Break

15:30 – 15:45 (15min)

Coffee Beak

14:15 – 15:30 (1h15)

Round table and closing of the thematic days.

*This event is partly funded by the National Research Project project 'EUB-AGR'.

