

12th CONASENSE Symposium

1. Title and theme

12th CONASENSE Symposium: 6G Communications, services, and sustainability

2. Overview

6G is currently under definition, being often addressed from a plain telecommunications perspective, as an evolutionary paradigm that represents an extension of 5G. Having as horizon 2030, 6G initiatives are being deployed across the globe, to further ignite the development of 6G services. In its philosophy core, 6G embodies the "human in the loop" principle.

The research effort being developed towards 6G requires an interdisciplinary approach that ignites discussion across different key technological sectors, ranging from communications until services and business cases.

The 12th CONASENSE Symposium provides an interdisciplinary view, based on the CONASENSE vision, which considers 6G as a paradigm that can be addressed by working together 4 different computational areas: communications; satellites and navigation; sensing; services.

The proposed topics include but are not limited to:

- Communications aspects:
 - Unified architectural communications involving ground to spaceborne infrastructures.
 - Quantum communications and their role and challenges in 6G
 - Machine-to-machine and device-to-device communication aspects.
 - The role of ML in the development of unified and flexible ground to space communications
 - Security aspects in 6G, including mitigation of attacks and architectural challenges
 - Network architectures and protocols for 6G
- Navigation and Satellite Integration:
 - AR/VR advanced navigation approaches, considering both indoor and outdoor scenarios.
 - New navigation applications, e.g., navigation systems for visually impaired people; navigation based on wireless systems.
 - The role of satellite systems and space communications in supporting future IoT systems
 - Geolocalization services and challenges
 - Data verification, data curation aspects, data privacy aspects.
- Sensing
 - Internet of Things and its integration in different vertical markets
 - Internet of Everything and AIoT
 - Interfacing to the real world, in particular tactile interfacing, user-centric, context-aware man-machine interfacing
- Services
 - The role of the Metaverse, AR/VR development towards 6G
 - Semantic technologies and their role in the development of a 6G unified architectural communications vision.
 - ML application, in particular federated learning and decentralised learning approaches (e.g., swarm, hybrid federated learning approaches) required to support 6G services
 - New services and use-cases, e.g., emergency services, remote surgery, smart manufacturing, space exploration, underwater communications.
 - New Edge-based services and the role of Edge computing
- Sustainability and Greenness
 - Methodological analysis and research focused on automated evaluation of sustainable solutions towards 6G
 - Analysis of 6G business advantages, proposal of business models and green business frameworks, etc.

3. Important Dates

- Extended Abstract registration: 28th February 2022
- Full paper submission Deadline: 30th March 2022
- Acceptance Notification: April 30th 2022
- Camera-Ready Submission: May 31st 2022
- Workshop Date: 27th-29th June 2022

4. Committees

Organizing Committees

- **General Chairs**
 - Rute C. Sofia, fortiss GmbH
 - Ramjee Prasad, CGC, Aarhus University
- **Publicity Chair:** Paulo Rufino, CGC, Aarhus University
- **Student Forum Chair:** Ernestina Cianca, University of Rome
- **TPC Chair:** Alben Mihovska, CGC, Aarhus University
- **Hackathon Chairs:** Nisrine Bnouhanna, Mitula Donga, fortiss GmbH

Technical Programme Committee

To be defined, circa 20 names

5. Structure

- Keynote speeches
- Technical sessions, short-papers and long-papers
- Student workshop (co-located)
- Hackathon (co-located)

The symposium takes place in Munich, 3 days.

Day 1, 27th June 2022

- Registration, 9:00-09:30
- CONASENSE student workshop, 9:30-13:00
 - 10:00-10:15, Welcome
 - 10:15-10:40, Keynote
 - Student sessions
- Lunch Break
- Hackathon opening and tutorials, 14:00-16:00

Day 2, 28th June 2022

- **Opening** – 09:30 CET
- Keynotes, 09:30-10:30
- Break
- Technical sessions, 11:00-17:00
- Hackathon sessions (Parallel)

Gala Dinner

Day 3, 29th June

- Opening
- Keynotes
- Technical sessions
- Awards session
 - Best paper award
 - Best PhD Forum paper award
 - Hackathon awards
- Closing