6G Intelligent Connectivity And inteRaction for Users and infraStructures

Newsletter #2

August, 2025

Highlighting Dissemination Activities

IEEE International Conference on Communications

Active Participation in Panels & Workshops

- Panel: "6G Empowered Robotics"
- Workshop: “Security, Trust & Privacy in 6G”
- Workshop: “6G & Global Digital Health Transformation”

IEEE ICC 2024
Denver, USA

IEEE WCNC
Milan, Italy

IEEE Wireless Communications and Networking Conference

Advanced Research Presentation

- Paper Title: “On the Implementation of Temporal Fusion Transformers for Target Recognition and Tracking”

  Constantinos M. Mylonakis, Pantelis Velanas, and Zaharias D. Zaharis

- Collaboration between Aristotle University of Thessaloniki and ACCELIGENCE

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6G ICARUS

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Secondments: Bridging Expertise Across Borders

Aristotle University of Thessaloniki

Zaharias D. Zaharis
AUTH to Sofia Tech Park
Sofia, Bulgaria

Work Focus:
Developing Intelligent ML/DL Algorithms for Real-Time RIS Control

Develop and enhance ML/DL algorithms by integrating evolutionary optimisation techniques. This resulted in a suite of improved models showing faster convergence, increased robustness, and adaptability for reconfigurable intelligent surfaces (RIS) in dynamic 6G environments.

Christos Antonopoulos
AUTH to Sofia Tech Park
Sofia, Bulgaria

Work Focus:
Advanced Modelling and Optimisation of RISs on UAV Platforms

The objective of this secondment was to design and optimise RIS models for aerial deployment on UAVs, a key innovation area in flexible 6G infrastructures.

Alkiviadis Chatzopoulos
AUTH to Sofia Tech Park
Sofia, Bulgaria

Work Focus:
Evaluating Electronic Switching Components for ML-Driven RIS Systems

The focus of this secondment was an extensive study of electronic switching components for use in reconfigurable intelligent surfaces (RISs)—a key enabler for dynamic, real-time 6G systems.

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Secondments: Bridging Expertise Across Borders

Aristotle University of Thessaloniki

Zaharias D. Zaharis
AUTH to ACCELI
Nicosia, Cyprus

Work Focus:
Applying ML/DL for Dynamic RIS Pattern Control

This secondment focused on applying and evaluating ML/DL algorithms for the dynamic control of RIS radiation patterns. Several neural network architectures were implemented and tested to improve adaptability, accuracy, and efficiency in real-world scenarios, including smart cities and IoT environments.

Christos Antonopoulos
AUTH to ACCELI
Nicosia, Cyprus

Work Focus:
Optimising RISs for UAV-Based Deployments

This secondment focused on optimising RIS models for UAV-based deployments. It involved designing compact RIS geometries and developing advanced optimisation algorithms to improve electromagnetic performance under dynamic flight conditions, supporting reliable mmWave and sub-THz communication.

Zaharias D. Zaharis
AUTH to Sofia Tech Park
Sofia, Bulgaria

Work Focus:
Enhancing ML/DL Algorithms for RIS Control with Evolutionary Optimisation

This secondment improved ML/DL algorithms with evolutionary optimisation, boosting their speed, adaptability, and accuracy for real-time RIS control in dynamic environments, supporting future 6G applications.

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Secondments: Bridging Expertise Across Borders

ACCELIGENCE

Rea Levantinou
ACCELI to AUTH
Thessaloniki, Greece

Work Focus:
Administrative Research Support for Channel Modelling for UAV Communications

Contribution by conducting literature and policy reviews, preparing and organizing internal documentation, facilitating communication among project partners, and supporting progress tracking and task alignment.

Christos Malliarakis
ACCELI to AUTH
Thessaloniki, Greece

Work Focus:
Channel Modelling for UAV Communications

Contribution to the development and refinement of channel models for UAV-based communication scenarios. Improvement of model accuracy and adaptability in mmWave/subTHz environments. Active engagement in technical discussions.

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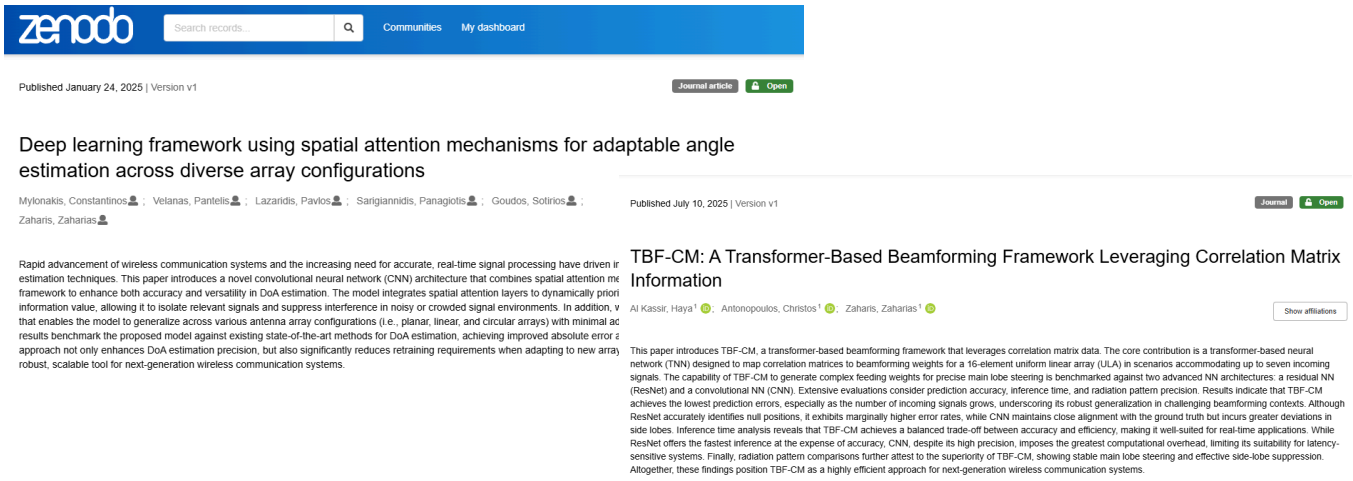
Scientific Publications

Mylonakis, C., Velanas, P., Lazaridis, P., Sarigiannidis, P., Goudos, S., & Zaharis, Z. (2025). Deep learning framework using spatial attention mechanisms for adaptable angle estimation across diverse array configurations. https://doi.org/10.3390/technologies13020046

Mylonakis, C., Velanas, P., & Zaharis, Z. (2025, April 4). On the Implementation of Temporal Fusion Transformers for Target Recognition and Tracking. https://doi.org/10.5281/zenodo.15147925

Al Kassir, H., Antonopoulos, C., & Zaharis, Z. (2025). TBF-CM: A Transformer-Based Beamforming Framework Leveraging Correlation Matrix Information. Zenodo. https://doi.org/10.1109/TAP.2025.3585686

Mahmoud, M., Rizou, S., Panayides, A. S., Lazaridis, P. I., Karagiannidis, G. K., Kantartzis, N. V., & Zaharis, Z. D. (2025, May). STAV360: A Dataset for Subjective Tile-based Assessment of 360° Videos. In 2025 12th International Conference on Information Technology (ICIT) (pp. 67-72). IEEE.



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About the Consortium

BENEFICIARIES

ARISTOTLE UNIVERSITY OF THESSALONIKI

POLITEHNICA BUCUREȘTI

GRUPPO Maggioli

ACCELIGENCE

TECHNICAL UNIVERSITY OF SOFIA

SingularLogic

SOFIA TECH PARK

SmartAvatar

ASSOCIATED PARTNERS SUPPORT BY THE UK RESEARCH AND INNOVATION

UNIVERSITY OF BIRMINGHAM

University of HUDDERSFIELD

ASSOCIATED PARTNERS

OTE

PRINCETON UNIVERSITY

SAMSUNG ELECTRONICS

Fraunhofer FOKUS

SAN DIEGO STATE UNIVERSITY

THE UNIVERSITY OF TEXAS AT DALLAS

TEXAS A&M UNIVERSITY

INSTITUTO FEDERAL Paraíba

UFPB

UFRJ UNIVERSIDADE FEDERAL DO RIO DE JANEIRO

UFCG Universidade Federal de Campina Grande

SIXARMS

About Staying Connected!

Our website

Our LinkedIn

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