AI-Enhanced Fiber-Wireless Optical 6G Network in Support for Connected Mobility

6GEWOC

Our 4th Plenary Meeting:
Setting up Demo Activities

The 6G-EWOC partners met again in Athens – this time putting the prime emphasis on planning demonstration activities. With the technical development work packages progressing, time has come to explore how the constituent technologies can enrich the demonstration of 6G support for automated mobility.

Three demos will be conducted, focusing on optical wireless access, mobile fronthaul transmission employing novel quasi-coherent reception, and a more complex consolidated demonstration that addresses connected mobility.

We thank Nvidia for taking care of the organization of this plenary meeting. Stay tuned to read more about our upcoming demo activities.
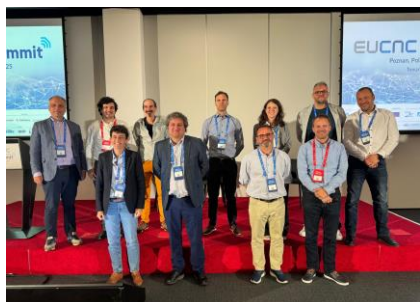
6G Summit 2025:
Our Contribution to the EuCNC Conference

Clustering activities among 6G research projects is essential to disseminate own findings and to cross-pollinate across research initiatives. Towards that ambition, 6G-EWOC contributed to the European Conference on Networks and Communications in Poznan, Poland.

Our researchers contributed to two workshops. José Antonio Lázaro from UPC delivered a talk on how to implement a comprehensive approach to verify key performance indicators across multiple demonstrators at the "6G experimentation methodologies, pitfalls and best practices" workshop. In addition, Bernhard Schrenk from AIT participated in the "Optics and Photonics Innovations" workshop where he presented the project findings towards optical wireless in support of a computing-communication continuum, including I2I fronthaul and V2I / V2V optical access technologies.

Besides delivering our view, EuCNC, which is recognized as the European 6G Summit, provided us with a great opportunity to network with our partner projects. We look forward to the next EuCNC and its great exhibition!

AI/ML for Optical Networking:
6G-EWOC at IEEE ICMLCN Conference

6G-EWOC contributed two-fold to the International Conference on Machine Learning for Communication and Networking, which took place in Barcelona in May 2025. This conference addresses the challenges that reside when deploying 6G networks that require an efficient orchestration and control of all resources deployed at their physical-layer infrastructure.

José A. Lázaro from UPC introduced quantum machine learning to facilitate network intrusion detection in software-defined networks, to monitor and analyze network traffic in an efficient manner for ultimately enabling the identification of malicious activities or policy violations.

Moreover, Josep M. Fàbrega and Ricardo Martínez from CTTC organized a special session on AI/ML for Optical Networks and Communications.

Our Recent Publications

• J.L. Anguera, J.A. Lázaro, J. Ruiz-Hidalgo, A. Solé, J.R. Casas, S. Sarmiento, and A. Lerín, *"Leveraging Quantum Machine Learning for Intrusion Detection in Software-Defined Networks"*, in Proc. Int. Conf. on Machine Learning for Comm. and Netw. (ICMLCN'25), Barcelona, Spain, May 2025, paper SS3.7.

• J.A. Lázaro, J.R. Casas, S. Royo, J. Ruiz-Hidalgo, J. Renaudier, H. Mardoyan, P. Bakopoulos, D. Kalavrouziotis, D. Syrivelis, J.M. Fàbrega, R. Martinez, J.B. Jensen, J.A. Altabás, C. Op de Beeck, B. Schrenk, F. Honz, P. García-Gómez, J. Riu, E. Theodoropoulou, G. Lyberopoulos, A. Shen, J. Ramirez, and J. Thor, *"Verifying Key Performance Indicators Across Multiple 6G-EWOC Demonstrations"*, European Conference on Networks and Communications & 6G Summit (EuCNC), Poznan, Poland, Jun. 2025, WS16.9

• B. Schrenk, F. Honz, and J.A. Lázaro, *"Optical Wireless in Support of a Computing-Communication Continuum for Connected Mobility"*, European Conference on Networks and Communications & 6G Summit (EuCNC), Poznan, Poland, Jun. 2025, WS13.7

Meet the 6G-EWOC Team

We are delighted to present further project results at two more conferences. Take the opportunity to meet us at

• *European Conference on Optical Communication (ECOC), Copenhagen, 28th September – 2nd October*

• *25th Int. Conf. on Transparent Optical Networks (ICTON), Barcelona, 6th – 10th of July*

Co-funded by
the European Union

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