NEWSLETTER #2

CONVERGE-PROJECT.EU

CONVERGE
view-to-communicate and communicate-to-view

Co-funded by the European Union

CONVERGE project has received funding under the European Union's Horizon Europe research and innovation programme under Grant Agreement No 101094831, including top-up funding by UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee.

Milestones & Highlights

- 2024 EuCNC & 6G Summit
- ETSI ISG RIS, ISG ISAC participation
- Third Meeting in Paris
- CONVERGE Dashboard
- ICASSP24 SUPERCLAM
- Review of CONVERGE Y1
- CONVERGE Advisory Board
- 6G Symposium 2024
- MWC24 Demo

2024 EuCNC & 6G Summit - Antwerp

CONVERGE participation in the latest edition of **EuCNC & 6G Summit 2024**, which took place in Antwerp (Belgium), had multiple dimensions, a joint booth co-organised with other projects, the presentation of a paper and the organisation of a workshop. The j**oint booth** with other projects focusing on 6G communications (TERRAMETA, TIMES and SUPERIOT) favored great networking moments with national and international partners, providing great visibility to the developments being conducted in CONVERGE.

The paper **A Vision-Radio Research Infrastructure Towards 6G and Beyond** presented the development of the tools and the high-level architecture planned for the CONVERGE project.

The workshop "**Strengthening EU-US Cooperation in Experimental Infrastructures Towards 6G**", co-organised by CONVERGE, focused on improving relations between Europe and the USA in the area of research infrastructures, and gathered representatives of the 6G-SNS (Europe) and the National Science Foundation (USA). During the workshop, INESC TEC presented the CONVERGE project.

Project Coordinator
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Participation in ETSI ISG RIS, ISG ISAC

As part of the CONVERGE project, various partners collaborated on **standardization activities,** contributing significantly to groups like **ETSI ISG RIS** and **ETSI ISG ISAC**. Notably, InterDigital and INESC TEC proposed two use cases to ETSI ISG ISAC: "Vision-aided Smart Traffic Management" and "Emergency Vehicle Driving and Route Management." These use cases aim to integrate diverse sensing technologies to support sensitive applications, such as traffic control and emergency vehicle routing. Additionally, the CONVERGE project's key technologies were presented to both ETSI ISG RIS and ETSI ISG ISAC, highlighting its innovative advancements.

Third Meeting in Paris

Greenerwave had the pleasure of hosting the last round of Face-to-Face CONVERGE project meetings in April 2024 at its offices in Paris!

The face-to-face meeting served as a comprehensive platform for reviewing progress, assessing tasks, planning for the future, making decisions, and reporting, bringing together stakeholders to effectively guide the project.
Additionally, attendees got a taste of Paris and the dynamic startup culture at Greenerwave.

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Furthermore, partners had the opportunity to tour Greenerwave laboratories and development facilities, gaining a deeper understanding of the technology, products, and processes.

CONVERGE Dashboard

The CONVERGE dashboard is a web-based platform designed for both visualization and configuration of the CONVERGE chamber. It offers a comprehensive set of features to facilitate real-time monitoring of CONVERGE tools, along with pre-defined, user-friendly configuration scripts accessible through intuitive menus to support hands-on experimentation across CONVERGE use cases. In its current implementation, the gNB FR2 achieves a stable downlink of 500 Mbps and uplink of 100 Mbps over a 200 MHz bandwidth at 28 GHz. Figure 1 shows the impact of line-of-sight blockage events on the 5G FR2 downlink bit rate.

IEEE ICASSP24 SUPERCLAM Workshop

This workshop, organized by EU projects CONVERGE and TERRAMETA, was held at ICASSP 2024 in Seoul. Integrated sensing and communications (ISAC) with reconfigurable intelligent surfaces (RIS) is a major 6G trend, leveraging higher frequencies for super-resolution sensing. TERRAMETA develops sub-THz RIS hardware and algorithms for communications, localisation, and sensing. Line-of-sight requirements open new opportunities for computer vision, which CONVERGE explores to predict channel dynamics and build 3D maps. In turn, radio-based sensing strengthens computer vision against occlusion and poor lighting.

Workshop Organizers: Dirk Slock, Luis Pessoa, George C. Alexandropoulos, Filipe B. Teixeira (EURECOM, INESC TEC, FEUP, NKUA)

CONVERGE successfully passed its 12M Review

CONVERGE is a 3-year project funded by the European Commission (EC) under the call HORIZON-INFRA-2022-TECH-01. The CONVERGE project will have a total of 3 Reviews, each covering a 12 months period. In the project review, the EC covers the performed project activities, aiming mainly at evaluating the degree to which the work plan has been carried out and whether all deliverables were completed, whether the objectives are still relevant and provide scientific or industrial breakthrough potential, among other aspects. In these reviews, the EC is assisted by external experts.

CONVERGE has successfully passed its 12M Review, with the EC considering that the project has achieved most of its objectives and milestones for the period, with relatively minor deviations. The EC considered that the progress reported is in line with objectives and the specified work plan, and that the objectives of the project are still relevant, while pointing out that the activities of the project in the field of radio communications, radio sensing, and vision sensing are expected to be the basis of the future networks such as 6G, and that the considered use cases are expected to provide impact in different 6G verticals.

In fact the project achieved relevant impacts during the first year, with the organization of an industry panel at IEEE GLOBECOM 2023, key standardization efforts within 3GPP and ETSI, resulting in a contribution published in the ETSI ISG-THz public Group Report GR001, published in January 2024, the submission of 4 patents and the engagement with Research Infrastructures, both nationally and pan-European. The project also organized a training session with SLICES-RI covering topics such as data management principles, interoperability issues, and reproducible research methodologies, and started the organization of the SUPER-CLAM Workshop at IEEE ICASSP 2024 (in partnership with the SNS TERRAMETA Project), as well as the Organization of Booth/Demo at Mobile World Congress 2024. Overall, the project is on track and expecting to further increase its impact in the coming periods.

CONVERGE Advisory Board

To ensure that CONVERGE is grounded in real-world needs and impactful outcomes, we've gathered a diverse group of industry leaders, academic experts, and key stakeholders to form our Advisory Board. Their collective insights and experience are instrumental in guiding us to develop practical use cases, craft effective exploitation strategies, and align our goals closely with industrial and end-user demands. This esteemed board will play a pivotal role in validating key decisions and setting our project up for success. We're excited to introduce here these exceptional advisors who are helping to shape the future of our work.

Andreas Mueller
Bosch/5G-ACIA, Germany

Andreas Mueller is the Head of Communication and Network Technology in Robert Bosch GmbH in Stuttgart, Germany and Chief Expert for communication technologies for the IoT. He also serves as General Chair of the "5G Alliance for Connected Industries and Automation" (5G-ACIA), which is the globally leading organisation for driving and shaping Industrial 5G.

Olli Liinamaa has had a long career at Nokia in R&D and product management. In his current role as Ecosystem Manager he is responsible for Nokia/Oulu cooperation within the ICT industry, academy and public sector.

Olli Liinamaa
Nokia, Finland

José Pedro Borrego
ANACOM, Portugal)

José Pedro Borrego is a Deputy Director-General for Information and Innovation at ANACOM, the Portuguese Regulatory Authority for Communications. He developed his career as a senior radio engineer, at the Spectrum Control and Monitoring Centre. He is the Chairman of the URSI Working Group E6 on Spectrum Management.

Naser Damer is a Senior Researcher at Fraunhofer IGD, as a member of the Competence Center 'Smart Living & Biometric Technologies. He is also a Principal Investigator at the National Research Center for Applied Cybersecurity CRISP in Darmstadt, Germany. He represents the German Institute for Standardisation (DIN) in ISO/IEC SC37 biometrics standardisation committee.

Naser Damer
Fraunhofer IGD, Germany

Carlos Cordeiro
Intel, USA

Carlos Cordeiro is an Intel Fellow and serves as the wireless CTO in Intel's client computing group. Carlos leads Intel's global wireless connectivity standards and ecosystem team and is responsible for defining Intel's next generation wireless connectivity technology strategy, ecosystem engagements, and technical regulatory work.

Sumit Roy has been a faculty member in Electrical & Computer Engineering at the University of Washington since 1998, where he is presently CoE/ECE Integrated Systems Professor and directs Fundamentals of Networking lab. His research spans the gamut wireless communication and sensor network systems with a diverse emphasis: 4G and emerging 5G technologies, multi-standard wireless inter-networking and spectrum coexistence using cognitive radio platforms, terrestrial vehicular, aerial and underwater networks.

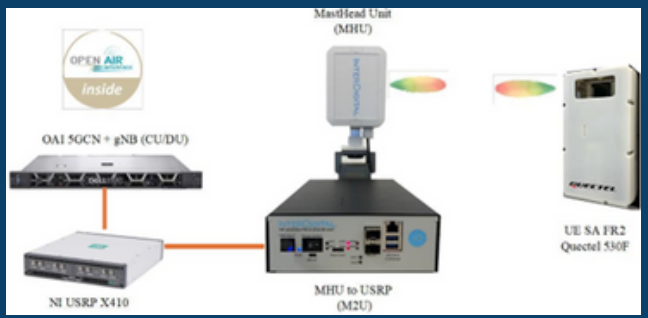
Sumit Roy
Whashigton University, USA

6G Symposium 2024

The EU CONVERGE project presented its work at the 6G Symposium in Levi, Finland (April 9–11, 2024). Over 100 experts attended, exploring around 30 presentations and 20 exhibition stands on 6G innovations. CONVERGE featured prominently with a stand among other European 6G projects, sharing materials on its goal of merging computer vision and 6G communications. Associate Professor Miguel Bordallo López delivered a talk on “The Convergence of Computer Vision and 6G Communications,” detailing tools and methods to leverage visual data for advanced 6G applications. This participation highlighted CONVERGE’s innovative approach, combining wireless communications and computer vision, and sparked valuable discussions with industry stakeholders on achieving seamless 5G/6G convergence.

Demo at Mobile World Congress 2024

Developed under Horizon Europe’s CONVERGE project, this OAI 5G SA mmWave demo features a split gNB (O-RU, O-DU, O-CU-CP, O-CU-UP). An InterDigital RU links via an NI USRP NI X410 to the OAI stack, with the OAI 5GC on RedHat OpenShift. Testing used 100 MHz bandwidth, 120 kHz SCS, a 1.25 ms TDD slot, and a Quectel RM530F UE. Deployed at SLICES-RI in Sophia Antipolis, it enables FR2 research with commercial UEs and off-the-shelf radio units, demonstrating next-generation use cases (integrated communications, sensing, and RIS). CONVERGE merges radio and vision-based communications for advanced “view to communicate and communicate to view” research.



OAI gNB SA FR2 at 28 GHz Prototype with COTS UE

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