6G-XCEL NEWS

Project goals | Dissemination | Publications

Plenary at CCI Virginia Tech

6G-XCEL Commonwealth Cyber Initiative (CCI) Joint Workshop took place at Virginia Tech on 25-26 February 2025. The workshop provided an opportunity for 6G-XCEL partners to assess technical progress, align future plans, and reinforce collaboration toward advancing 6G innovation. Virginia Tech hosted the event, with contributions from Luiz DaSilva and Joao Santos.

AAU on International ITG Conference on Systems, Communications and Coding (SCC) 2025

Our academic team from Aalborg University presented at International ITG Conference on Systems, Communications and Coding (SCC) 2025 on TinyML Model Distribution for Energy-Efficient Data Retrieval using MQTT.
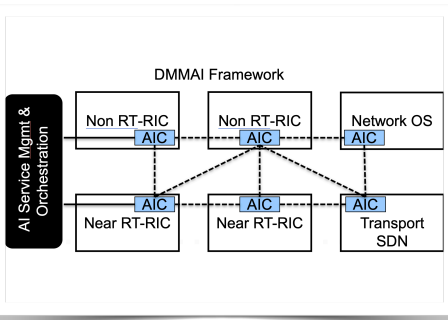

6G-XCEL Commonwealth Cyber Initiative (CCI) Joint Workshop at Virginia Tech happened on Feb 25-26 2025, with lot of good discussions on Work Package Updates, Deliverables and Milestones review, 6G Architecture discussions around the components of DMMAI, use-cases features and requirements, Testbed updates and deployments as well as a wide range of Research Presentations. Research Presentations included topics around AI & 6G Research, Data Models, as well as Intelligent Networks.

Visit https://www.6g-xcel.eu/ to learn more on the project.

1/1/24	36	10	10	2
Start Date	Month	EU Partners	US partners	Use cases

DMMAI Framework

6G-XCEL Reference Use Cases in D2.1

D2.1 led by imec was a significant milestone hit by 6G-XCEL partners and provides a comprehensive report on 6G-XCEL use case categories and their network and service requirements.

Multi-Party, Multi-Network Requirements & Data Management

The two use-cases investigated are:

1. AI-powered Spectrum Management

2. AI-enhanced Resource management

MQTT-based Framework

➤ Message Queuing Telemetry Transport (MQTT) as a communication backbone
  ➤ Lightweight protocol optimized for IoT
  ➤ Publish-Subscribe architecture
  ➤ Scales well for massive devices setting

a) Model Distribution   b) Data Retrieval
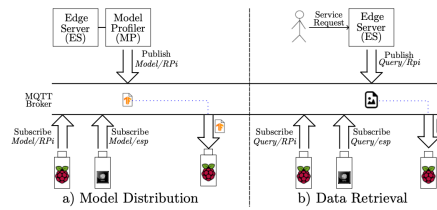
➤ Phase a) Model Distribution
  1. **ES** estimates model requirements using the **MP** & publishes via MQTT (Topic: Model/RPi, Model/esp).
  2. The model is sent through the **MQTT Broker** and distributed to subscribed devices.

➤ Phase b) Data Retrieval
  1. User submits a data request.
  2. **ES** publishes a query (Topic: Query/RPi, Query/esp).
  3. IoT devices compute matching scores (e.g., cosine similarity).
  4. IoT devices publish only relevant images.

Our academic team from Aalborg University presented at International ITG Conference on Systems, Communications and Coding (SCC) 2025 on TinyML Model Distribution for Energy-Efficient Data Retrieval using MQTT.

Their work explores a Pull-based Communication Framework, achieving high energy efficiency while maintaining retrieval accuracy—a key step toward smarter, low-power AI-driven IoT solutions. This work acknowledges 6G-XCEL project's contributions to low-power AI and efficient IoT communication. Read more https://www.linkedin.com/posts/6g-xcel_aalborg-university-at-ieee-scc-2025-acknowledging-activity-7312721490590810113-UJm3?

AI Urban Planning Workshop 2025

Our team supported by 6G-XCEL project researched Pretrained Transformers & Transfer Learning to address data scarcity and adapt to distribution shifts, enabling smarter, more efficient communication networks. See the detailed results in poster presented at AAAI Urban Planning Workshop.

Curious? See https://ai-for-urban-planning.github.io/AAAI25-workshop/

Live Demo at OFC Conference 2025 in San Francisco, California

6G-XCEL Team demoed at OFC 2025 on March 31 - April 3rd in San Francisco California! On demo zone, Merim Dzaferagic Assistant Professor at Trinity College of Dublin demonstrated live the Cooperative Transport Interface (CTI).

This demo showcased CTI running over an open source 7.2x split RAN and a virtualised Open PON network, illustrating how coordination between RAN and PON schedulers can reduce upstream latency and improve performance.

Read https://www.6g-xcel.eu/live-demo-at-ofc-conference-2025-in-san-francisco-california/
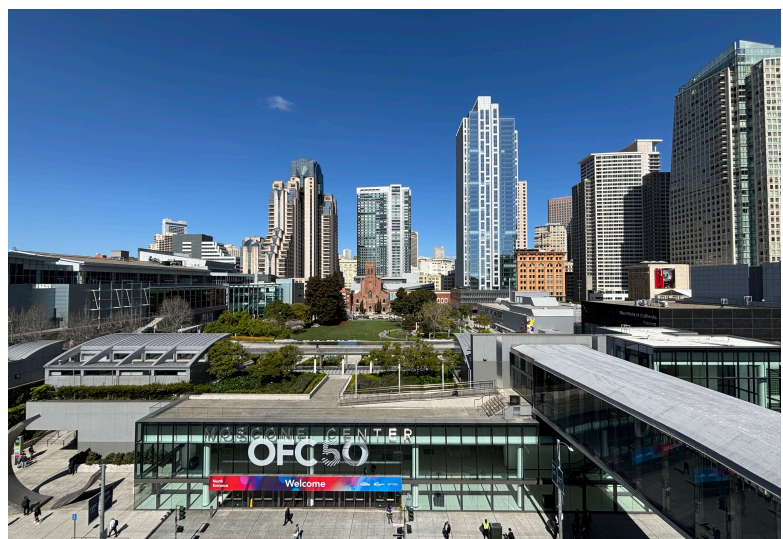
Upcoming Plenary

- 4th plenary Meeting, July 10-11, hosted by DT and HHI, Berlin, Germany

In addition, 6G-XCEL will be participating in a number of public events in 2025 including EuCNC & 6G Summit 2025, June 3-6, Poznań, Poland.

See you in one of our venues!

Project Publications

6G-XCEL has published in a number of conferences. Find details on our website:

https://www.6g-xcel.eu/publications/