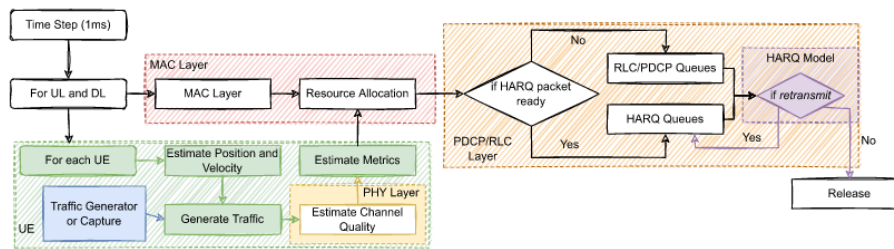


Design of a virtual 5G gNB for the Metaverse



At Nokia eXtended Reality lab, we are creating technology to enable new ways of human communication using Virtual and eXtended Reality (XR) technologies, the basis of the well-known Metaverse. Our goal is to study how 5G and beyond can push the current boundaries of immersive technologies. To understand the impact of the newest generation of wireless networks in the field of XR and, therefore, the future of the Metaverse, we have developed an open-source 5G full-stack emulator: FikoRE (<https://github.com/nokia/5g-network-emulator>). In its current form, FikoRE emulates a generic 5G network from an application-level perspective. However, its modular design allows it to be simply modified to include specific traffic and Quality of Experience (QoE) models to better support XR workloads. In this regard, we plan for this internship:

- Integration of FikoRE on specific hardware to support XR development and to an actual 5G Core. The goal is to have a standalone device which emulates the 5G gNB.
- Design and implementation of algorithms to improve the performance of FikoRE under XR workloads: runtime QoE models for XR services, tailored MAC scheduler, emulation of network slicing...
- Validation of the implementation using a real 5G network in our integration lab.

You will learn the different tools involved in the process, supported by the rest of the team, and then we will define together the focus of your contribution.

Conditions

- Half-time: 20 hours/week
- Scholarship: 750 €/month
- Minimum duration: 6 months (optional extension up to 12)
- Expected start time: September 2022
- Location: Nokia Spain (Las Tablas), Maria Tubau 9, Madrid



Requirements

- Students of Telecommunication Engineering or similar (Master)
- Knowledge of mobile and IP networks. Video coding technology is a plus.
- Programming in C/C++. Python is a plus.
- Usage of Linux systems (command line interface, ssh, bash scripting, etc.).
- Initiative, responsibility, autonomy, teamwork.
- Good English level.

Contact

Send CV, academic marks and short motivation letter to: pablo.perez@nokia.com