

RAPHAEL CANNATÀ

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EDUCATION

École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland Enrolled: Sept 2022 — Graduated: Sept 2024
M.Sc. in Communication Systems Overall average: 5.64/6
Thesis: Next-Gen Private 5G: Orchestrating the RAN with Adaptive Scheduling and Customized Network Slicing

Politecnico di Torino, Turin, Italy Enrolled: Sept 2019 — Graduated: Jul 2022
B.Sc. in Electronics and Communication Engineering Overall average: 109/110
Thesis: *Doppler frequency estimation, Automatic Gain Control and Phase Locked Loop for MEO satellite communications*
Credit standing: Graduated as part of *Giovani talenti*

PUBLICATIONS

SliceGuard: Secure and Dynamic 5G RAN Slicing with WebAssembly

Raphael Cannatà, Aoyu Gong, Arman Maghsoudnia, Dan Mihai Dumitriu, Haitham Hassanieh
MobiCom '24 - The 30th Annual International Conference on Mobile Computing and Networking, November 18-22, 2024, Washington D.C., DC, USA

Towards Seamless 5G Open-RAN Integration with WebAssembly

Raphael Cannatà, Haoxin Sun, Dan Mihai Dumitriu, Haitham Hassanieh
HOTNETS '24 - The 23rd ACM Workshop on Hot Topics in Networks, November 18-19, 2024, Irvine, CA, USA

RESEARCH EXPERIENCE

Open RAN and intelligent controllers **SENS Lab**, EPFL, Lausanne, Switzerland
Optional research project Sept 2023 – Ongoing

- Integration of a near-RT RAN Intelligent Controller (RIC) to the previously developed 5g testbed to allow for dynamic resource allocation, mobility, and spectrum sharing.

Automatic deployment of 5G private network testbed **SENS Lab**, EPFL, Lausanne, Switzerland
Summer research project Jul 2023 – Sept 2023

- Continuation of the previous project, aimed at packaging the testbed in an easy-to-deploy framework by means of Helm charts and Docker images on a Kubernetes cluster.

Exploratory work in open source 5G private networks **SENS Lab**, EPFL, Lausanne, Switzerland
Research project Feb 2023 – Jul 2023

- Project conducted in collaboration with Pavonis Sàrl and EPFL SENS lab with the aim of exploring open source projects in the private 5G network area, to create a framework which will serve as testbed for future research.

WORK EXPERIENCE

Network slicing in 5G New Radio (NR) **Pavonis Sàrl**, EPFL, Lausanne, Switzerland
Internship and master thesis Feb 2023 – Jul 2023

- Implementation of network slicing in the 5G NR Radio Access Network (RAN) in order to cater to different traffic classes.

PROJECTS

Improvements to the classical periodogram EPFL, Lausanne, Switzerland Feb 2023 – May 2023

- Comparison of non-parametric methods to improve the Power Spectral Density estimation of the classical periodogram. Considered methods: Bartlett, Blackman-Tukey, Daniell, Welch, Multitaper and Lomb-Scargle.

B.Sc. Final project Politecnico di Torino, Turin, Italy Jul 2022

- Develop a preamble routine for Doppler frequency estimation, Automatic Gain Control and Phase Locked Loop for MEO satellite communications.

Algorithms for Music Processing Politecnico di Torino, Turin, Italy Feb 2022 – May 2022

- Project aimed at developing a working real time autotune in C++ using JUCE framework.

LANGUAGES

English C1

French C1

Italian Native

Common European Framework of Reference for Languages (CEFR):

A1 – A2 – B1 – B2 – C1 – C2

Lowest to highest

SKILLS

- **Software:** C, Python, MATLAB, Simulink, Wireshark, Docker, Kubernetes, Helm charts, YAML, L^AT_EX, Linux, Office Suite.