RAPHAEL CANNATÀ

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EDUCATION

École Polytechnique Fédérale de Lausanne (EPFL), Switzerland — Enrolled: Sept 2024 — Ongoing
PhD Student, PI: Haitham Hassanieh

École Polytechnique Fédérale de Lausanne (EPFL), 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, November 18-22, 2024, Washington D.C., DC, USA
Best Demo Award

Towards Seamless 5G Open-RAN Integration with WebAssembly
Raphael Cannatà, Haoxin Sun, Dan Mihai Dumitriu, Haitham Hassanieh
HOTNETS '24, November 18-19, 2024, Irvine, CA, USA

AWARDS

- Best Demo Award [MobiCom'24]
- EPFL EDIC fellowship for doctorate students
- Giocani Talenti program from Politecnico di Torino

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**, 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, LaTeX, Linux, Office Suite.