

PROFESSIONAL SUMMARY

Extremely determined and highly ambitious **PhD student** with strong mathematical background. Eager to learn and dive deep into problems to have a crystal-clear understanding of how things work. Highly organized hard worker who is able to change plans and be flexible when circumstances require. Standing out for dedication, meticulousness and critical thinking. Exceedingly interested in **machine learning**, **information theory** and **coding theory**. Currently looking for a **Research Scientist** position.

WORK EXPERIENCE

RESEARCH ASSISTANT

July 2019 – Present

EURECOM, Sophia Antipolis, France

- Research conducted under the supervision of Prof. Petros Elia and supported by the European Research Council (ERC) through the EU Horizon 2020 Research and Innovation Program under Grant 725939 (Project DUALITY).
- Teaching assistant for the course **Information Theory** (2021), for the semester project **6G Communications for Virtual Reality Networks** (2022).

MATLAB STUDENT AMBASSADOR

October 2017 – July 2018

The MathWorks srl, Torino, Italy

- Managed a community of students at the Politecnico di Torino through a Facebook group.
- Organized seminars/events about the MATLAB software and its toolboxes.
- Organized special events about the MATLAB role in image processing applications and in linear algebra field.

SOFTWARE DEVELOPER

March 2017 – June 2017

VEM Solutions S.r.l., Venaria Reale, Italy

- Analyzed and interpreted data from accelerometers.
- Implemented an instrument of data extraction and processing of binary files in C# with the Visual Studio environment.
- Exploited digital filters to make statistical analysis on the extracted data with the developed application.

EDUCATION

PHD IN COMPUTER SCIENCE, TELECOMMUNICATIONS AND ELECTRONICS

Expected December 2022

Sorbonne Université, France

Thesis topic Fundamentals and practice of cache-aided communications

Advisor Petros Elia

MASTER OF SCIENCE IN DATA SCIENCE AND ENGINEERING

January 2021

Institut Mines-Télécom and EURECOM, France

GPA: 4.0/4.0

MASTER OF SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING

August 2019

University of Illinois Chicago, US

GPA: 4.0/4.0

Thesis title Low-Density Parity-Check Code Design for the AWGN Channel with Additive Radar Interference

Advisor Natasha Devroye (co-advisor in Italy) **Co-advisors** Daniela Tuninetti, Roberto Garello (advisor in Italy)

Description Performance analysis of convolutional codes in the AWGN channel with Additive Radar Interference and in-depth study of LDPC codes applied to the same channel model, with final LDPC code design and comparison to LDPC codes optimized for the AWGN channel.

MASTER'S DEGREE IN COMMUNICATIONS AND COMPUTER NETWORKS ENGINEERING

July 2019

Politecnico di Torino, Italy

Grade: 110/110 Summa Cum Laude (highest grade)

The thesis work was the same as the one conducted in the US since it was related to the joint project TOP-UIC between the Politecnico di Torino and the University of Illinois Chicago.

BACHELOR'S DEGREE IN TELECOMMUNICATIONS ENGINEERING

July 2017

Politecnico di Torino, Italy

Grade: 110/110

SKILLS

Software/frameworks ANSYS HFSS, AWS, Code::Blocks, GNU Emacs, JupyterLab, MS Office, Visual Studio, Wireshark
Programming and markup languages Bash, C, C#, JavaScript, \LaTeX , Markdown, MATLAB, Python
Languages fluent in English, native Italian

PUBLICATIONS

Submitted/Preprints

- [S1] **F. Brunero** and P. Elia, “Coded caching does not generally benefit from selfish caching,” in *2022 IEEE International Symposium on Information Theory (ISIT)*, 2022. arXiv: 2202.03032 [cs.IT], accepted.
- [S2] **F. Brunero** and P. Elia, “Multi-access distributed computing,” *IEEE Transactions on Information Theory*, 2022. arXiv: 2206.12851 [cs.IT], submitted.
- [S3] **F. Brunero** and P. Elia, “The exact load-memory tradeoff of multi-access coded caching with combinatorial topology,” in *2022 IEEE International Symposium on Information Theory (ISIT)*, 2022. arXiv: 2202.03039 [cs.IT], accepted.
- [S4] **F. Brunero** and P. Elia, “Fundamental limits of combinatorial multi-access caching,” *IEEE Transactions on Information Theory*, 2021. arXiv: 2110.07426 [cs.IT], accepted.
- [S5] **F. Brunero** and P. Elia, “Unselfish coded caching can yield unbounded gains over symmetrically selfish caching,” *IEEE Transactions on Information Theory*, 2021. arXiv: 2109.04807 [cs.IT], submitted.

Conferences

- [C1] **F. Brunero**, D. Tuninetti, and N. Devroye, “On code design for wireless channels with additive radar interference,” in *2019 IEEE Information Theory Workshop (ITW)*, Aug. 2019, pp. 1–5. DOI: 10.1109/ITW44776.2019.8989014.