Federico Brunero
PhD Student in Communication Systems

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Professional Summary

Extremely determined and highly ambitious **PhD student** with strong analytical and time management skills. I love working on projects identifying milestones to achieve the final goal, structuring my work with well-defined deadlines and being always ready to redefine the path if it is required. Standing out for dedication, meticulousness and critical thinking. Current interests include **information theory**, **coding theory** and **machine learning**.

Work Experience

Research Assistant   July 2019 – Present
EURECOM, Sophia Antipolis, France

Research conducted under the supervision of Prof. Petros Elia. Work supported by the European Research Council (ERC) through the EU Horizon 2020 Research and Innovation Program under Grant 725939 (Project DUALITY).

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 2022
Sorbonne Université, France

Master of Science in Data Science and Engineering   January 2021
Institute Mines-Télécom and EURECOM, France
GPA: 4.0/4.0

Master of Science in Electrical and Computer Engineering   August 2019
University of Illinois at 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 at 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, Linux, MS Office, Visual Studio, Wireshark
Programming/scripting languages Bash, C, C#, CSS, HTML, JavaScript, LaTeX, MATLAB, Python
Languages fluent in English, native Italian

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PUBLICATIONS

Submitted/Preprints

[S1]   **F. Brunero** and P. Elia, "Unselfish coded caching can yield unbounded gains over symmetrically selfish caching," *IEEE Transactions on Information Theory*, 2021, 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.