Bruno De Filippo

PERSONAL DETAILS

Birth	December 30th, 1998
Address	Via Tanari Vecchia 10, 40121 Bologna (BO)
Phone	+39 331 136 49 27
E-mail	`bruno.defilippo2@unibo.it`
ORCID	https://orcid.org/0000-0003-0266-1788
Sector	Telecommunications Engineering

EDUCATION

Ph.D. in "Electronics, Telecommunications, and Information Technologies Engineering" `2022 - Present`

Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" (DEI), University of Bologna

> *Supervisor*: Prof. Alessandro Vanelli-Coralli
>
> *Co-supervisor*: Prof. Luca Benini
>
> *Topic*: Artificial Intelligence techniques for the Physical Layer in Non-Terrestrial Networks

Qualification for the Engineering Profession `Dec. 2022`

Qualification exam taken at University of Bologna

> *Note: the reported date refers to the publication date of the outcomes of the exam*

MSc in Telecommunications Engineering `2020 - 2022`

University of Bologna

> *Final grade*: 110/110 with Honors
>
> *Graduation date*: July 19th, 2022
>
> *Dissertation title*: A novel approach to Non-Orthogonal Random Access with application to NB-IoT NTN systems
>
> *Supervisor*: Prof. Alessandro Vanelli-Coralli
>
> *Co-supervisor*: Dr. Carla Amatetti

BSc in Electronics and Telecommunications Engineering `2017 - 2020`

University of Bologna

> *Final grade*: 110/110 with Honors
>
> *Graduation date*: July 21st, 2020
>
> *Dissertation title*: Random Access procedure in satellite-based NB-IoT systems
>
> *Supervisor*: Prof. Alessandro Vanelli-Coralli
>
> *Co-supervisor*: Dr. Carla Amatetti
>
> *Relevant exam*: Fondamenti di Telecomunicazioni (Grade: 30/30 with Honors)

WORK EXPERIENCE

Teaching tutor 2023
Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi" (DEI), University of Bologna
  Course: Principles of Telecommunications
  Activities: Laboratory activities with MATLAB

RESEARCH ACTIVITIES

PROJECTS

- 6G-NTN (Research Project under the Horizon Europe funding programme)
  - Support to project activities

- EAGER (Research Project funded by the European Space Agency)
  - Literature review of Artificial-Intelligence-based techniques for the Physical Layer in Non-Terrestrial Networks
  - Development of a Neural Network for the demodulation of Sparse Code Multiple Access superimposed transmissions in Non-Terrestrial Networks

- DYNASAT (Research Project under the Horizon 2020 funding programme)
  - Support to project activities

PUBLICATIONS

CONFERENCES:

- B. Ahmad, D. G. Riviello, B. De Filippo, A. Guidotti, and A. Vanelli-Coralli, *"Analysis of Graph-based User Scheduling for Ka-band LEO NTN Systems"*, 28th Ka and Broadband Communications Conference (Ka) - [Accepted]

- B. De Filippo, C. Amatetti, and A. Vanelli-Coralli, *"CNN-based Acoustic Threat Detection for Smart Cities"*, 2024 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2024) - [Under review]

- B. De Filippo, B. Ahmad, D. G. Riviello, A. Guidotti, and A. Vanelli-Coralli, *"Non-Uniform User Distribution in Non-Terrestrial Networks with Application to User Scheduling"*, IEEE International Conference on Communications 2024 (ICC 2024) - [Under review]

SCIENTIFIC ENGAGEMENTS

CONFERENCES:

- 2023 IEEE International Conference on Wireless for Space and Extreme Environments (WiSEE 2023), 6-8 September, 2023, Aveiro (Portugal)
  Tutorial on "AI for Non-Terrestrial Networks"

- 21st Mediterranean Communication and Computer Networking Conference (Med-ComNet 2023), 13-15 June, 2023, Ponza Island (Italy)
  Oral presentation on "NTN for B5G: the ESA EAGER vision"

- 11th Advanced Satellite Multimedia Systems Conference (ASMS 2022), 6-8 September, 2022, Graz (Austria)
  Participation to conference

PHD SUMMER SCHOOLS:

- Satellite Network of Experts (SatNEx) School 2022, 4-6 September, 2022, Graz (Austria)

- Complex Network and Telecommunications (CNTC 2021), 5-9 July, 2021, Como (Italy)

AWARDS, SCHOLARSHIPS, AND MEMBERSHIPS

AWARDS:

- STUDY AWARD FOR DESERVING STUDENTS ENROLLED IN THE A.Y. 2021/22 IN DEGREE PROGRAMMES AT THE UNIVERSITY OF BOLOGNA (2022)
  The position in the official ranking was 1st among the students enrolled in a degree programme of the School of Engineering and Architecture of the University of Bologna in the A.Y. 2021/22

SCOLARSHIPS:

- TOTAL MERIT-BASED EXEMPTION FOR STUDENTS ENROLLED IN THE FIRST YEAR OF SECOND CYCLE DEGREE PROGRAMMES (2020)

MEMBERSHIPS:

- IEEE STUDENT MEMBER (2023 - Present)

- IEEE COMMUNICATIONS SOCIETY MEMBER (2023 - Present)

CERTIFICATIONS

English Proficiency - IELTS Academic   April 2022
Score: 8.0/9.0
Corresponding CEFR level: C1

VOLUNTEERING

Children Entertainer   2014 - 2017
"Estate Ragazzi" summer camp
> *Activities:* Organization of activities for children of age 7 to 14

SKILLS

Languages	Italian (mother tongue) English (CEFR C1)
Programming Languages	C, C++, Python, Java, MATLAB
Software	Simulink, CST Studio Suite, Microsoft 365 suite
Operating systems	Windows, MacOS, Linux
Driving license	B