

EDUCATION AND TRAINING

01/10/2022 – CURRENT Pisa, Italy
PHD IN TELECOMMUNICATION NETWORKS AND PHOTONIC TECHNOLOGIES Scuola Superiore Sant'Anna, TeCIP Institute

02/09/2018 – 10/01/2019 Shanghai, China
CHINESE LANGUAGE COURSE Fudan University, International Cultural Exchange School

04/09/2016 – 28/06/2018 Shanghai, China
MASTER OF ENGINEERING (MENG) ELECTRONICS AND COMMUNICATION ENGINEERING Fudan University, School of Information Science and Technology

08/01/2017 – 29/06/2017 Turku, Finland
MASTER OF SCIENCE (MSC) INFORMATION AND COMMUNICATION TECHNOLOGY University of Turku, Faculty of Mathematics and Natural Science

06/09/2015 – 21/07/2016 Podgorica, Montenegro
SPECIALIST DEGREE MICROWAVE ENGINEERING University of Montenegro, Faculty of Electrical Engineering

17/08/2014 – 14/05/2015 Cookeville, TN, United States
ONE-YEAR UNDERGRADUATE EXCHANGE PROGRAM Tennessee Technological University, College of Engineering

02/09/2012 – 09/09/2015 Podgorica, Montenegro
BSC ELECTRONICS, TELECOMMUNICATIONS AND COMPUTER ENGINEERING University of Montenegro, Faculty of Electrical Engineering

PUBLICATIONS

2025
SDN-Controlled Open RAN X-Haul with Point-to-Multipoint Transceivers on Horseshoe Network

M. Radovic, A. Sgambelluri, F. Cugini, R. Kapuscinski, M. Hosseini, S. Parker, F. Paolucci, A. Napoli, and N. Sambo
Journal of Optical Communications and Networking (JOCN)

2025
Dynamic Multipoint-to-Multipoint Optical Networking with SDN-Controlled Flexible Digital Subcarrier Multiplexing

M. Radovic, H. Zaid, M. Lawson, C. Schmidt-Langhorst, R. Emmerich, A. Sgambelluri, N. Sambo, C. Schubert, R. Freund
2025 European Conference on Optical Communication (ECOC), Copenhagen, Denmark

2025
Self-Aware Automatic Operational Mode Adaptation

M. Radovic, A. Sgambelluri, F. Cugini, Ó. González de Dios, E. J. E. Zuleta, and N. Sambo
2025 International Conference on Photonics in Switching and Computing (PSC), Sapporo, Japan

2025
SDN Control of Optical Amplifiers in MultiBand Networks: The TDFA Case

M. Radovic, P. N. Goki, A. Sgambelluri, L. Potì, N. Sambo, and P. Castoldi
Journal of Lightwave Technology (JLT)

2024
Multicarrier Transmission Optimization in Elastic Optical Networks

M. Radovic, A. Sgambelluri, F. Cugini, and N. Sambo

2024
On the Control of Multi-Function Reprogrammable Silicon Chip for ROADMs and Sliceable Transceivers

M. Lawson, M. Ali, M. Radovic, N. Sambo, R. Casellas, F. Cugini, M. Svaluto Moreolo, and A. Santome-Valverde
2024 24th International Conference on Transparent Optical Networks (ICTON)

2024
Neural Network-Based Control of TDFA

M. Radovic, A. Sgambelluri, N. Sambo, and P. Castoldi
2024 International Conference on Optical Network Design and Modeling (ONDM)

2024
Power-aware high-capacity elastic optical networks

M. Radovic, A. Sgambelluri, F. Cugini, and N. Sambo
Journal of Optical Communications and Networking (JOCN)

2023
SDN Control of Amplification Stages in Multi-Band Optical Networks

M. Radovic, P. Nadimi Goki, A. Sgambelluri, L. Potì, N. Sambo
2023 European Conference on Optical Communication (ECOC), Glasgow, Scotland

2023
Multiband Optical Networks Control and Provisioning

N. Sambo, M. Radovic, A. Sgambelluri and P. Castoldi
2023 International Conference on Photonics in Switching and Computing (PSC), Mantova, Italy

2023
Experimental Optimization of Power-Aware Super-Channels in Elastic Optical Networks

M. Radovic, A. Sgambelluri, F. Cugini and N. Sambo
2023 International Conference on Optical Network Design and Modeling (ONDM), Coimbra, Portugal

2023
Self-Autonomous Multi-Carrier Optical Transmissions

A. Sgambelluri, M. Radovic, F. Cugini, N. Sambo and P. Castoldi
2023 International Conference on Optical Network Design and Modeling (ONDM), Coimbra, Portugal

2023
Super-channel spectrum saving optimization procedure in elastic optical networks

M. Radovic, A. Sgambelluri, F. Cugini and N. Sambo
Journal of Optical Communications and Networking (JOCN)

2022
Experimental Optimization of Spectrum-Efficient Super-Channels in Elastic Optical Networks

M. Radovic, A. Sgambelluri, F. Cugini and N. Sambo
2022 European Conference on Optical Communication (ECOC), Basel, Switzerland

● **PROJECTS**

01/01/2023 – 31/12/2025
SEASON Horizon Europe Project

The project aims to design and validate a sustainable optical transport network for beyond-5G and emerging services. It combines multi-band transmission and space-division multiplexing across access, aggregation, and long-haul segments, integrating packet/optical and computing layers to cost-effectively increase capacity and energy efficiency.

My role: Investigated spectrum- and power-efficient transmission strategies for super-channels in an SDN-controlled elastic optical network, achieving up to 25% spectrum savings through adaptive filtering and subcarrier spacing optimization. Conducted experimental power consumption studies of super-channels, demonstrating how operational configurations can be adapted to balance energy efficiency and spectrum utilization in response to varying network conditions. Contributed to the experimental demonstration of Open RAN X-haul using point-to-multipoint coherent transceivers in a horseshoe optical network, dynamically activating 5G distributed units (DUs) to optimize energy efficiency based on traffic demands. Implemented state-driven control of disaggregated transponders via local NETCONF agents, enabling autonomous network adaptation.

01/01/2024 – 31/12/2026

PROTEUS-6G Horizon Europe Project

The project focuses on advancing 6G fronthaul and midhaul networks by developing innovative optical technologies that increase capacity, reduce power consumption, and enable flexible, dynamic network control. The project integrates new hardware and software solutions to support emerging 6G services efficiently.

My role: Augmented the OpenConfig YANG data model for terminal devices to enable open/disaggregated control of digital subcarrier multiplexing (DSCM) and coherent point-to-multipoint (P2MP) transceivers. An experimental demonstration is shown in an integrated data and control plane testbed. Building on this, I contributed to extending the YANG model to support broader multipoint-to-multipoint (MP2MP) optical connectivity, adding new data plane features. This work involved SDN-based control of subcarrier assignment and spectrum management, with provisioning validated via NETCONF agents and physical-layer emulation employing per-subcarrier digital signal processing.

01/01/2023 – 30/06/2026

ALLEGRO Horizon Europe Project

The project aims to develop and demonstrate an end-to-end optical network architecture that delivers ultra-high capacity, low energy consumption, and enhanced security. It integrates multi-band coherent transmission, AI/ML-driven autonomous control, and quantum-safe security solutions to enable scalable, cost-effective, and reliable next-generation telecommunications.

My role: Contributed to the control and optimization of Thulium-Doped Fiber Amplifiers (TDFAs) for S-band amplification in C+S transmission systems. Developed a YANG data model for SDN-based multi-band amplifier management, performed experimental TDFA characterization, and implemented neural network models to optimize pump currents and predict noise figure. Experimentally validated the proposed approach in a lab testbed, enabling reliable, data-driven amplifier control.

WORK EXPERIENCE

 **TECIP INSTITUTE, SCUOLA SUPERIORE SANT'ANNA – PISA, ITALY**

RESEARCH ASSISTANT – 31/08/2021 – 30/08/2022

During my research assistant year, I was involved in the ZEROTOUCH project funded by the Italian Ministry of Economic Development (MISE). This initiative is part of the broader JUMP (Joint Universities prograM for Proof-of-concept) project, which aims to enhance the value of Italian patents by advancing their Technology Readiness Level (TRL). The project focused on a method for managing a telecommunication network, proposing a way to instruct network devices on actions to take in case of failures/problems without involving centralized controllers, thus speeding up recovery. We achieved experimental proof of concept through control plane experiments. Then, by integrating the implemented control plane with a commercial transponder, the method was validated in the lab.

 **ELEMENTARY SCHOOL "BRACA LABUDOVIC" – NIKSIC, MONTENEGRO**

SUBSTITUTE COMPUTER SCIENCE TEACHER – 10/01/2021 – 17/06/2021

Drafted lesson plans for both remote and in-class teaching. Supervised the assigned class, monitoring student absences and providing them with supplementary learning materials during the COVID-19 pandemic.

 **WUXI INSTITUTE OF FUDAN UNIVERSITY – WUXI, CHINA**

RESEARCH ASSISTANT – 01/09/2019 – 27/02/2020

Analyzed Hardware-aware Learning methods for Deep Neural Networks deployment on mobile and energy-constrained embedded devices.

 **FUDAN UNIVERSITY, SCHOOL OF INFORMATION SCIENCE AND TECHNOLOGY – SHANGHAI, CHINA**

AMBASSADOR OF THE MASTER PROGRAM IN ELECTRONICS AND COMMUNICATION ENGINEERING – 03/03/2019 – 29/08/2019

Facilitated International Program Expansion and Student Inclusion. Promoted the program at more than 20 presentations at universities in Europe and Asia. Created a network of potential collaborative institutions from East Europe.

 **SOLBAT-TTU ENERGY RESEARCH LABORATORY – COOKEVILLE, TN, UNITED STATES**

Researched synthesis, electrochemical analysis, and testing of lithium-ion battery technologies. Performed experiments on rechargeable and non-rechargeable batteries and evaluated their performance.

SKILLS

Python | C | C++ | MATLAB | VHDL | MySQL | NETCONF | YANG

LANGUAGE SKILLS

Mother tongue(s): MONTENEGRIN

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C2	C2	C2	C2
SPANISH	B1	A2	A2	A2	A2
CHINESE	A2	A2	A2	A2	A2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

SCHOLARSHIPS

01/10/2022 – CURRENT

PhD Scholarship

I have been awarded a scholarship for my ongoing PhD studies by Scuola Superiore Sant'Anna.

04/09/2016 – 14/07/2018

Chinese Government Scholarship

Was awarded a scholarship by the Chinese Scholarship Council to pursue my Master's degree at Fudan University.

17/08/2014 – 14/05/2015

Global Undergraduate Exchange Program Scholarship

One-year undergraduate exchange program at Tennessee Technological University funded by the United States Department of State.