

# DEVIGILI MARIANO, PH.D.

## FELLOW RESEARCHER & ENGINEER | OPTICAL COMMUNICATIONS AND SENSING | MACHINE LEARNING

I am a passionate engineer and researcher in the field of optical communications. Currently I am based in Dublin, Ireland working as Engineer at LightSensAI Limited and as Research Fellow within CONNECT / School of Engineering at the Trinity College Dublin.



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### EXPERIENCES

| Timing   | Role                     | Institution                                |                                                                                     | Main Activities                                                                                                                                                                                                                                                  | Location         |
|----------|--------------------------|--------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Now      | Engineer                 | LightSensAI Limited                        |    | - Research and on Joint optical sensing and communications.<br>- Development of innovative technologies to improve the performance of optical networks.<br><b>ICON EU-Funded Project</b>                                                                         | Dublin, Ireland  |
| Jul 2025 | Research Fellow          | Trinity College Dublin                     |    |                                                                                                                                                                                                                                                                  |                  |
| Jun 2025 | Research Fellow          | University of Trento                       |    | - Deployment ML-driven EDFA models for OSNR estimation.<br>- Implementation of a LoraWAN Smart Farming System.<br><b>MUR PNRR IF SOW Project</b>                                                                                                                 | Trento, Italy    |
| Dec 2024 |                          |                                            |                                                                                     |                                                                                                                                                                                                                                                                  |                  |
| Sep 2024 | Research Engineer Intern | FiberCop S.p.A.                            |    | - Control of Pluggable Devices (EDFAs, ZR/ZR+ transceivers)<br>- Experimental characterization of EDFA pluggable modules.<br>- Modelling EDFA based on deep and ensemble learning.<br><b>MENTOR MSCA EID EU-Funded Project</b>                                   | Turin, Italy     |
| Dec 2023 |                          | TIM S.p.A.                                 |    |                                                                                                                                                                                                                                                                  |                  |
| Dec 2023 | Research Engineer Intern | Coriant R&D GmbH (now part of Nokia group) |    | - Experimental characterization of filtering penalties in digital subcarrier multiplexed (DSCM) signals.<br>- Modeling filtering penalties in DSCM signals through simulations, deep learning and analytical models.<br><b>MENTOR MSCA EID EU-Funded Project</b> | Munich, Germany  |
| Jan 2023 |                          |                                            |                                                                                     |                                                                                                                                                                                                                                                                  |                  |
| Oct 2024 | Early-Stage Researcher   | Universitat Politècnica de Catalunya       |    | - Research on the applications of optical layer digital twins: from failure management to QoT estimation for lightpath provisioning and Optical Amplifier Control.<br><b>MENTOR MSCA EID EU-Funded Project</b>                                                   | Barcelona, Spain |
| Nov 2021 |                          |                                            |                                                                                     |                                                                                                                                                                                                                                                                  |                  |
| May 2018 | Student Intern           | Teleco SL                                  |  | - Field experience (e.g., fiber splicing, failures localization)<br>- Design of a FTTH/GPON access network (~560 IU).<br><b>Erasmus + EU-Funded Project</b>                                                                                                      | Valencia, Spain  |
| Feb 2018 |                          |                                            |                                                                                     |                                                                                                                                                                                                                                                                  |                  |

### EDUCATION

| Timing   | Degree                                                                              | University                           |                                                                                     | Thesis                                                                                                                                                                         | Location         |
|----------|-------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Nov 2024 | Doctor of Philosophy (PhD)                                                          | Universitat Politècnica de Catalunya |  | “Applications of the OCATA Optical Layer Digital Twin” (Prof. L. Velasco, Dr. A. Napoli) <a href="#">LINK</a><br><b>MENTOR MSCA EU Funded Project</b>                          | Barcelona, Spain |
| Nov 2021 |                                                                                     |                                      |                                                                                     |                                                                                                                                                                                |                  |
| Sep 2021 | Master in Photonic Integrated Circuits Sensors and Networks                         | Scuola Superiore Sant’Anna           |  | “An experimental study on the multiband optical networks assisted by GNPpy” (Prof. N. Sambo) <a href="#">Related publication LINK</a><br><b>PIXNET EMJMD EU Funded Project</b> | Pisa, Italy      |
|          | Master of Engineering                                                               | The University of Osaka              |  |                                                                                                                                                                                | Osaka, Japan     |
| Sep 2019 | MSc in Photonic Integrated Circuits Sensors and Networks                            | Aston University                     |  |                                                                                                                                                                                | Birmingham, UK   |
| Jul 2019 | BSc in Information and Communications Engineering (w/ 10 months Erasmus + exchange) | University of Trento                 |  | “Design rete ottica passiva nella Comunità Valenciana” (Prof. F. Granelli)                                                                                                     | Trento, Italy    |
| Sep 2015 |                                                                                     |                                      |                                                                                     |                                                                                                                                                                                |                  |

### SELECTED LIST OF PUBLICATIONS

**M. Devigili**, E. Riccardi, A. Nespola, R. Morro, S. Straullu, R. D’Ingillo, V. Curri, L. Velasco, F. Granelli “ML-Based Modeling of EDFA Pluggable Modules for OSNR stimation,” Proc. IEEE ONDM, 2025. [LINK](#)

**M. Devigili** D. Sequeira, P. Torres-Ferrera, S. Srivallapanondh, M. Ruiz, N. Costa, C. Castro, A. Napoli, J. Pedro, and L. Velasco, “Twining Digital Subcarrier Multiplexed Optical Signals with OCATA for Lightpath Provisioning,” IEEE JLT, pp. 1–10, 2024. [LINK](#)

**M. Devigili**, M. Ruiz, N. Costa, C. Castro, A. Napoli, J. Pedro, and L. Velasco, “Extending the OCATA Digital Twin for Optical Connections based on Digital Subcarrier Multiplexing” in Proc. IEEE/OPTICA OFC, 2024. [LINK](#)

**M. Devigili**, M. Ruiz, N. Costa, A. Napoli, C. Castro, J. Pedro, L. Velasco, “Applications of the OCATA time domain digital twin: from QoT estimation to failure management,” in IEEE/OPTICA JOCN, vol. 16, no. 2, pp. 221-232, 2024. [LINK](#)

**M. Devigili**, M. Ruiz, S. Barzegar, N. Costa, A. Napoli, J. Pedro, and L. Velasco, “Degradation Detection and Severity Estimation by Exploiting an Optical Time and Frequency Digital Twin” in Proc. IEEE/OPTICA OFC, 2023. [LINK](#)

**M. Devigili**, M. Ruiz, N. Costa, A. Napoli, J. Pedro, and L. Velasco, “Dual Time and Frequency Domain Optical Layer Digital Twin” in Proc. IEEE/OPTICA ECOC, 2022. [LINK](#)