



# Juan Muñoz Villalón

Telecommunications  
Engineer

## CONTACT

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**Portfolio:** <https://juanmv7.github.io/>

## ABOUT ME

I am currently pursuing a Master's in Machine Learning for Health. I consider myself a responsible, multidisciplinary person with the ability to self-learn and work in a team.

I am interested in the use of artificial intelligence and machine learning in various scientific fields, such as healthcare, which I am currently studying. I am excited to apply the knowledge gained during the master's program in the industry. I am also very fascinated with the photonics integrated circuits.

## PROFESSIONAL EXPERIENCE

### Research and Development Assitant | November 2024

Universidad Carlos III Madrid

- Installation of a probe station and subsequent characterization of Lithium Niobate PICs for functional Near-Infrared Spectroscopy (fNIRS).
- OptSim simulation: I study alternatives to acousto-optic modulators (AOMs) for frequency shifters in this emerging technology.

### Working Student | July 2022 – September 2022

Infineon Technologies AG Munich

- Implementation of a secure sensor in PSoC 64 for incrementing the security in blockchains as it can be used as oracles.
- Development of a JavaScript server in a docker to verify authentication from a hardware key.

## EDUCATION

### Universidad Carlos III Madrid | 2023 – 2025

Double Master in Telecommunication Technologies Engineering and Machine Learning for Healthcare

- GSC Engineer at STAR uc3m (University association)

### University of British Columbia (UBC) | 2022

Electrical and Computer Engineering

- 5 months. Exchange Program.
- Knowledge in semiconductor laser theory and RF Integrated Circuits.

### Universidad de Granada (UGR) | 2019 – 2023

Degree in Telecommunication Technologies Engineering

- Average Grade: 8.817/10.
- TFG: Utilization analysis in Asynchronous TSN Networks
- 18 honors.
- Specialization in telematics.

LANGUAGES

- Spanish – Native
  - English – Advanced (C1 Cambridge Level – 2021)
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SOFT SKILLS:

- **Problem-Solving:** Skilled at analyzing and efficiently solving complex problems.
  - **Collaboration:** Experienced in working with multidisciplinary teams on collaborative projects.
  - **Adaptability:** Quick learner with the ability to adapt to new technologies and environments.
  - **Communication:** Proficient in conveying technical concepts to non-technical audiences.
  - **Critical Thinking:** Strong analytical mindset for informed decision-making.
  - **Time Management:** Effective at organizing and meeting deadlines in demanding projects.
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TECHNICAL SKILLS:

- **Machine Learning:** Skilled in predictive modeling, classification, and clustering, with a focus on healthcare applications.
  - **Deep Learning:** Expertise in Neural Networks and their applications for real-world challenges.
  - **Natural Language Processing (NLP):** Experience in text analysis, sentiment detection, and language modeling.
  - **Image Processing:** Proficient in advanced techniques for image analysis and enhancement.
  - **Computer Vision:** Experience in object detection, recognition, and video processing.
  - **Signal Processing:** Knowledge in filtering and transformation techniques (FFT, Kalman Filters, Particle Filters), applied in telecommunications and system optimization.
  - **Networking Protocols:** Proficient in TCP/IP, SIP, RTP, and VoIP; experience in the implementation and debugging of communication protocols.
  - **Cybersecurity:** Knowledge of secure communication protocols and authentication systems.
  - **Photonic Integrated Circuits (PICs):** Fundamentals of silicon photonics and simulation of photonic Fabry-Perot cavities using tools like Lumerical and Klayout.
  - **Java Programming:** Advanced proficiency in Java, with experience developing robust applications and systems, including secure communication and server-side solutions.
  - **Foundational knowledge:** in the principles of lasers based on silicon photonics, with a strong interest in their applications in communication systems.
  - **Large-Scale Telecommunications Projects:** Hands-on experience in managing and contributing to complex telecommunications projects, from signal processing to network optimization.
  - **Programming:** Proficient in MATLAB, Python, C, C++ and Java.
  - **Version Control and Scripting:** Proficient in Git for version control and collaborative development. Skilled in Linux environments and Bash scripting for automation and system management.
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PROGRAMMING

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|----------|--------------|
| • Python | • SQL        |
| • MATLAB | • JavaScript |
| • Java   | • Git        |
| • C/C++  | • Bash       |
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HOBBIES

- I play the guitar and love skiing.
- I love reading about cosmos, physics, history and fantasy.