Pedro Neto Mendes

pedro.neto.mendes@tecnico.ulisboa.pt — Google Scholar — GitHub — LinkedIn

Education

- **PhD in Electrical and Computer Engineering**, Universidade de Lisboa — Instituto Superior Técnico, Portugal
  Dissertation: Entangling measurements to power quantum communication
  Supervisors: **Prof. Emmanuel Zambrini Cruzeiro**, **Prof. Paulo André**
  2027 (expected)
- **Integrated Master in Technological Physics Engineering (Engineering Specialization)**, Universidade de Lisboa — Instituto Superior Técnico, Portugal
  Dissertation: Design of a passive photonic integrated circuit for QKD
  Supervisors: **Prof. Manfred Niehus**, **Prof. João Seixas**
  Grade: 17/20
  2021

Professional Experience

- **Research Fellow**, Instituto de Telecomunicações, Lisbon, Portugal *2024–present; 2021*
- **Analyst**, Capgemini Engineering, Lisbon, Portugal *2022*
- **Higher Technician**, Instituto de Telecomunicações, Lisbon, Portugal *2022*
- **Assistant Professor**, Universidade Lusófona ("Intervenção por Aparatologia") *2024–2025*
- **Teaching Assistant**, Instituto Superior Técnico *2023*

Teaching

- **Teaching Assistant** — Instituto Superior Técnico *2022–2024*
  - Redes de Computadores (RC) — LEIC-A
  - Sistemas de Controlo de Tráfego (SCT) — MEAer21
  - Teoria da Informação e Comunicação (TIComu) — MECD, MEEC21
  - Redes de Computadores e Internet (RCI) — LEEC21 Min-TI
- **Assistant Professor** — Universidade Lusófona (Cuidados de Beleza e Bem-Estar) *2024–2025*
  - Intervenção por Aparatologia

Supervision & Mentoring

- **Master's thesis supervision (ongoing)**
  - **Duarte L. S. V. Barreto** — *Space-based high-speed quantum communication*
  - **Ana F. C. C. Rio** — *Go-Around detection at LPPT based on deep learning models using ADS-B and Meteorological data*
- **Mentoring**
  - **Mariana Dinis** — Entangled photon pair source using a ppKTP crystal in a Sagnac Loop *2024*
  - **Carolina Realinho** — Quantum Keyless communication under turbulence *2024*
  - **Ricardo Figueiredo Ferreira** — High-Speed Free-Space QKD *2023*

– **Luis Barbosa** — Mechanical design for satellite quantum communication *2023*

– **Gonçalo Teixeira** — Entangled Photon Pair Source for Free-Space Quantum Communication *2022*

Research Projects

- **Integrated photonic neuronal probes towards neuromorphic computing**, FCT (Portugal) *2024–present*
- **QuantSat-PT: Portuguese Quantum Communications Cube-Satellite**, FCT (Portugal) *2021*
- **Quantum Internet Alliance (QIA)**, Horizon Europe *2022*

Publications

Journal & Preprint

- **2025** — *Quantum Keyless Private Communication under intense background noise.* P. N. Mendes, D. Rusca, H. Zbinden, E. Z. Cruzeiro. arXiv.
- **2025** — *Simple portable quantum key distribution for science outreach.* P. N. Mendes, P. André, E. Z. Cruzeiro. American Journal of Physics. Link.
- **2024** — *Optical payload design for downlink quantum key distribution and keyless communication using CubeSats.* EPJ Quantum Technology. P. N. Mendes, G. L. Teixeira, D. Pinho, R. Rocha, P. André, M. Niehus, *et al.* Link.
- **2020** — *Design of a passive photonic integrated circuit for QKD.* Master's thesis.

Conference

- **2022** — *QuantSat-PT: an attitude determination and control system architecture for QKD.* J. Revés, I. Viveiros, R. Cunha, R. Rocha, J. P. Monteiro, A. Borralho, P. André, *et al.* 4th SEAC Conference. Link.

Oral Presentations

- **2024** — *Polarization-Multiplexed Quantum Keyless Private Communication for Free-Space Applications.* SCOP24, Barcelona.
- **2024** — *Quantum Keyless Private Communication under intense background noise.* PTQCI Workshop "Free-space Quantum Communications", Lisbon.
- **2023** — *Towards Practical Free-Space Quantum Communication.* 2nd INL–IT Quantum Workshop, Braga.
- **2023** — *Characterization of a Free-Space Portable QKD System.* 17th Portuguese URSI (ANACOM), Lisbon.

Posters

- **2025** — *Quantum Communication in Broad Daylight: A Field Demonstration of QKPC.* National Workshop on Quantum Technologies.
- **2024** — *Polarization-Multiplexed Quantum Keyless Private Communication for Free-Space Applications.* QCrypt 2024.
- **2023** — *Compact nanosatellite design of a downlink platform for quantum communication.* CSIC "Quantum Technologies for Young Researchers".

Awards

- **Prémio Brito Camacho**, Universidade de Lisboa — Instituto Superior Técnico *2023*
- **Academic Merit Award**, Universidade de Lisboa — Instituto Superior Técnico *2017*
- **1st Place**, FIS 12 — PMate Competition, Universidade de Aveiro *2015*
- **3rd Place**, FAQtos Competition, Instituto Superior Técnico *2014*

Skills

- **Research Areas:** Quantum communication, QSDC/QKPC, free-space optics, quantum optics, single-photon systems
- **Languages:** Portuguese (native), English (proficient)