Pedro Vitor Soares Gomes de Lima

pedro.v.lima@inesctec.pt | pedro-vitorlima | 0000-0001-7373-6076 | Personal Webpage

Education

University of Porto — Porto, Portugal
PhD in Electrical and Computer Engineering — *Sep 2024 - Present*

Federal University of Pernambuco — Recife, Brazil
MSc in Biomedical Engineering — *Mar 2021 – Mar 2023*

Thesis title: Clinical decision support system for the diagnosis of skin cancer and Hansen's disease using digital image analysis and deep neural networks.

Federal University of Pernambuco — Recife, Brazil
BSc in Control and Automation Engineering — *Apr 2014 – Nov 2020*

Undergraduate thesis title: Building a MATLAB application for repetitive controller projects.

National Polytechnic Institute of Toulouse — Toulouse, France
Electrical and Automation Engineering — *Aug 2018 – Jul 2019*

Spent a full academic year as a Visiting Undergraduate Student.

Research Experience

INESC TEC — Porto, Portugal
Doctoral Researcher — *Sep 2024 – Present*

Federal University of Pernambuco — Recife, Brazil
Graduate Student — *Mar 2021 – Mar 2023*

- The aim of my project was to investigate the use of deep neural networks for skin lesion image analysis and classification. The outcome was a clinical decision support system for the early diagnosis of skin cancer and Hansen's disease, considering reports from healthcare professionals.
- Participated in a research group and collaborated in managing the machine learning experiments to support the diagnosis of Covid-19 based on hematological and biochemical tests.
- Main techniques employed: Supervised and Unsupervised Learning, Transfer Learning, Feature Selection, Resampling, and Statistical Analysis.

Selected Work Experience

Weduu Soluções em Data Analytics — São Paulo, Brazil (Remote)
Data Engineer — *Jun 2023 – Oct 2024*

- Developed, tested, and maintained data integration flows to automate order entry for retail companies.
- Ensured compliance with data governance policies, improved data quality, and documented processes.
- Skills: Python, SQL, Shell Scripting, Cloud Computing, Pentaho, Apache Airflow.

beAnalytic Business Intelligence — Natal, Brazil (Remote)
Data Engineer — *Jul 2022 – Jun 2023*

- Provided consulting and outsourcing BI and data engineering services, serving companies from 15+ segments.
- Developed, tested, and maintained data pipeline architectures to unify information from different source systems.
- Collaborated with business intelligence analysts on developing reporting, dashboards, and other BI solutions.
- Skills: Python, SQL, Apache Airflow, Cloud Computing, CI/CD.

Skills

Programming: Python, C, Shell Scripting, SQL, MATLAB.

Machine Learning: Scikit-Learn, Keras, TensorFlow, Weka.

Technologies: Git, Docker, Cloud Computing.

Languages: Portuguese (Native), English (Professional), French (Professional).

Interpersonal: Teamwork, Adaptability, Active listening.

Publications

- *Book chapters*

Lima PVSG, et al. **Skin cancer and Hansen's disease diagnosis.** Biomedical Imaging Principles and Advancements. CRC Press, 2024.

Nunes IB, Lima PVSG, et al. **Clinical Decision Support in the Care of Symptomatic Patients with COVID-19: An Approach Based on Machine Learning and Swarm Intelligence.** Swarm Intelligence Trends and Applications. CRC Press, 2022.

- *Journal articles*

Lima PVSG, et al. **Zero-phase FIR Filter Design Algorithm for Repetitive Controllers.** Energies, 2023.

- *Conference Proceedings*

Lima PVSG, et al. **Improving Early Robotics Education Using a Line-Following Robot Simulator.** 15th IEEE Latin American Robotic Symposium, Brazil, 2018.

Fonseca JR, Lima PVSG, et al. **Turning Pololu 3Pi into a Multi-Programming Platform.** 15th IEEE Latin American Robotic Symposium, Brazil, 2018.

Maggi LO, Teixeira JMXN, Cajueiro JPC, Fonseca JR, Lima PVSG, et al. **3DJPi: An Open-Source Web-Based 3D Simulator for Pololu's 3Pi Platform.** 21st Symposium on Virtual and Augmented Reality, Brazil, 2019.

Fonseca JR, Bezerra MHRA, Lima PVSG, et al. **Open-Source Simulator for Pololu 3Pi Platform.** XXII Brazilian Conference on Automation, Brazil, 2018. Original in Portuguese.

Grants and Funding

- *Grants*

INESC TEC: Research grant within the project HfPT - Health from Portugal. **€1,259.64/month**. Sep 2024 - Present.

CAPES: Study abroad scholarship granted to outstanding undergraduate students supported by the French and Brazilian governments through the BRAFITEC program. **€10,900**. Sep 2018 - Jun 2019.

PROEXC/UFPE: Development of academic teaching, research, and extension activities in state public schools through the Institutional Research, Education and Extension Program (PIPEX). **€1,100**. Feb 2017 - Dec 2017.

- *Projects*

PIBEXC/UFPE: Coordination of the Brazilian Robotics Olympiad in Pernambuco, fully free for participants and annually organized by hundreds of volunteers from several Brazilian universities. **€860**. Apr 2018 - Dec 2018.

PIBEXC/UFPE: Member of the Organizing Committee of a fully free and non-profit robotics event featuring competitions and presentations (RoboticPE 2018). **€750**. Mar 2018 - Dec 2018.

Other relevant Experience

- *Teaching*

Undergraduate Teaching Assistant: Prepared and taught weekly 1-hour review and problem-solving sessions for 50+ undergraduates in the Control Systems Engineering course. Aug 2019 - Dec 2019.

University Extension Program: Taught early robotics concepts to high school students from state schools in a small town located +100 km from the university. Feb 2017 - Jun 2018.

Training Courses: Taught in courses offered by departments of the university during school breaks: Arduino (60 hours), LaTex (30 hours), and MATLAB (4 hours). Jul 2017 - Feb 2022.

Private Tutor: Math and calculus tutoring for high school and college students. Jan 2017 - Jun 2018.

- *University Teams*

Robotics Team Leader: Created and monitored the team's strategic plan (30+ members), participated in national competitions, promoted events, and researched in the field of robotics. Feb 2016 - Jun 2018.

Aeromodelling Team Member: Conceived, designed, and fabricated a radio-controlled cargo aircraft to participate in the SAE Brasil Aero Design competition. Jan 2015 - Nov 2015.