



CHIARA PULLEGA

BIOMEDICAL ENGINEER

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PROFILE

Dedicated Biomedical Engineer with a strong interest in IT and electronics, specializing in advanced MRI neuroimaging techniques and cognitive-behavioral research. My work involves acquisition, optimization, and sophisticated processing of MRI data, with specific applications in studying neurodegenerative diseases. Passionate about leveraging artificial intelligence to tackle complex challenges in psychology and cognitive neuroscience, I currently serve as a Research Fellow at IRCCS Fondazione Mondino – Neurological Institute, integrating state-of-the-art neuroimaging methods and AI-driven analysis to derive meaningful quantitative insights into the human brain.

EDUCATION

Master's Degree in Bioengineering | October 2022 – September 2024

University of Pavia, ITALY

- Thesis: Exploration of Bias in Deep Learning for Diagnosis of Multiple Eye Conditions from Fundus Image Data.
- Final mark: 110/110

Bachelor's Degree in Bioengineering | October 2019 – September 2022

University of Pavia, ITALY

- Thesis: COVID-19 and Diabetes Mellitus: Evidence from Electronic Medical Records.
- Final mark: 102/110

WORK EXPERIENCE

Research Fellow | January 2025 – Present

IRCCS Fondazione Mondino - Istituto Neurologico, Pavia, ITALY

- Optimization of MRI data quality and resolution using advanced pre-processing, noise reduction, and super-resolution algorithms.
- Automated segmentation and analysis of conventional and advanced MRI images using supervised learning, deep learning, and convolutional neural networks (CNNs).
- Identification and validation of imaging biomarkers for early diagnosis, treatment planning, and prognostic assessment in neurodegenerative diseases.

Electronic LabVIEW Engineer | September 2024 – January 2025

Overtech Consulting in Leonardo S.p.A.

- Development and implementation of test procedures for motherboard validation.
- Analysis and resolution of technical anomalies; drafting of technical reports.

Assistant Researcher | March 2024 – August 2024

Brunel University, London, UK

- Post-processing of ocular fundus images for diagnostic support.
- Implementation of CNNs for diagnosing ocular diseases.
- Analysis and mitigation of demographic bias in deep learning models using Domain Adversarial Neural Networks (DANN).

University Tutor | October 2022 - February 2023

University of Pavia, ITALY

- Design and physical realisation of an integrated circuit useful for cardiac sensors.

PUBLICATIONS

- Pullega C, Dagliati A, Tucker A. Domain-Adversarial Neural Networks to Explore Biases in the Diagnosis of Multiple Eye Conditions from Fundus Image Data. *Artificial Intelligence in Medicine. 23rd International Conference, AIME 2025*, Pavia, Italy, June 23–26, 2025 Proceedings, Part II.

CONFERENCES

- AIME 2025, 23rd International Conference on Artificial Intelligence in Medicine, PAVIA, ITALY - JUNE 23-26 2025. "Domain-Adversarial Neural Networks to Explore Biases in the Diagnosis of Multiple Eye Conditions from Fundus Image Data" (POSTER)
- 8th Computer Science Brunel Symposium 2024, Brunel University, London
"Mitigation of Bias in Deep Learning Models: An Agnostic Approach" (POSTER)

TECHNICAL SKILLS

- Neuroimaging Software: AFNI, FreeSurfer, FSL, ANTs, JIM, SAMSEG, 3Dslicer
- Programming & Data Analysis: Python, TensorFlow, Keras, MATLAB, C/C++, SIMULINK, Bash scripting
- Electronic & Engineering Tools: LtSpice, LabVIEW, Arduino, KiCad, Abaqus.cae
- Scientific Databases & Tools: PubMed, Google Scholar, Git/GitHub, Microsoft PowerPoint, LaTeX
- Operating Systems: Windows, Mac OS, Linux

LANGUAGES

- Italian: Native
- English: Upper Intermediate

SOFT SKILLS

- Adaptability, Flexibility, Punctuality, Teamwork, Resilience, Problem Solving, Critical Thinking.