Matteo Calabria

Master's Student in Industrial Automation Engineering

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Profile

Master's student in Industrial Automation Engineering with a focus on AI/ML applications in industrial systems. Proven ability to deliver full-stack machine learning solutions (data processing, model development, and deployment). Seeking internships to leverage expertise in automation, computer vision, and intelligent systems at the intersection of engineering and AI. Contributor to academic research projects with published code repositories.

Education

University of Brescia **Brescia, Italy**

M.S. in Industrial Automation Engineering *2024 – Present*

- **Relevant Coursework:** Numerical Analysis, Control Systems Technologies, Servo Systems and Robotics, Microprocessor Based Instrumentation, Mechatronics Systems Interacting with Humans, Deep Learning and Neural Network Architectures

University of Brescia **Brescia, Italy**

B.Sc. in Industrial Automation Engineering, GPA: 3.28 *2021 – 2024*

- **Thesis:** *Automatic Control of Anesthesia: Data Analysis and Optimization with Machine Learning.* Developed a machine learning-enhanced system within the ACTIVA Project (activa.unibs.it), to predict BIS values and optimize intravenous anesthesia delivery, overcoming traditional closed-loop limitations and enhancing patient safety.

Experience

Dan Di De Antoni S.r.l. **Brescia, Italy**

Technical Office Assistant *2020 – 2021*

- Automated documentation workflows, saving over 8 hours per week.
- Prototyped 3 robotic cell concepts using CAD tools.
- Resolved over 15 technical support cases.

Personal Projects

Downhill Event Detection (ML) GitHub **2025**

- Processed 300k+ sensor samples.
- Achieved 80.6% classification accuracy with Weighted-KNN.
- Addressed class imbalance with bootstrapping technique using synthetic oversampling via the covariance matrix.
- **Tech:** MATLAB, Classification Learner.

Action Recognition System GitHub **2024**

- Enhanced a pose estimation pipeline using OpenMMLab, achieving 89% accuracy on a custom dataset.
- Enabled real-time inference on macOS hardware, overcoming previous compatibility challenges.
- Designed for human-robot collaboration applications.
- **Tech:** Python, OpenCV, PyTorch.

Industrial Vision System GitHub **2023**

- Designed a liquid level detection system reducing manual inspections by 70%.
- Implemented adaptive thresholding for varying lighting conditions.
- **Tech:** MATLAB, Curve Fitter Toolbox, Image Processing Toolbox.

Technical Skills

Languages: Python, MATLAB, C/C++, Java
ML/AI: Scikit-learn, TensorFlow, SciPy, OpenCV, MediaPipe
Robotics: ROS, SLAM, Motion Planning, Humanoid Locomotion
Developer Tools: Git, Docker, Simulink, LaTeX