Gennaro Scarati

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Portfolio: gennaroscarati.com

EXPERIENCE

Robotics & AI Engineer, *Eurecat – Barcelona, Spain* *July 2023 – Present*

- Develop and deploy robotics and AI software modules for real-world robots in industrial and agricultural applications.
- Designed and integrated a real-time perception pipeline for detection, segmentation, tracking, 6D pose estimation, and size measurement, achieving **sub-centimeter** accuracy and validated under real-world deployment conditions.
- Implemented modular behavior trees to orchestrate high-level dexterous manipulation tasks, reducing development time by **50%** compared to prior solutions, while improving both trajectory optimality and feasibility.
- Train and deploy embodied AI pipelines, including Vision-Language-Action models and Diffusion Policies, to solve dexterous manipulation tasks such as fruit harvesting and industrial assembly.

Key Technologies: C++, Python, ROS2, Docker, OpenCV, PyTorch, Linux, Git

Control Systems Engineer, *Dumarey Softronix – Turin, Italy* *Mar 2022 – July 2023*

- Developed and maintained control systems for **General Motors** vehicles, deployed on around **100,000 units** in 2024 alone.
- Enhanced fault diagnostic performance by **~50%** by combining RNN-based system prediction with classical model-based methods, while reducing calibration effort by **~30%**.
- Collaborated with cross-functional teams in Italy and the U.S. to meet development, calibration, and testing milestones.

Key Technologies: C, Python, Git, MATLAB, Simulink, DOORS

PROJECTS

Master Thesis - Autonomous Drone Landing on Moving UGVs, *PIC4SeR – Turin, Italy* *Mar 2021 – Dec 2021*

- Developed autonomous drone landing system achieving **centimeter-level** precision on moving UGVs, using an EKF-based localization pipeline integrating drone, UGV, and Ultra-Wideband (UWB) data.
- Designed perception, pose estimation, control, and state machine pipelines for chase and landing, validated through Gazebo simulations and real-world field tests. Refer to portfolio for video demonstrations and further information.

Key Technologies: Python, C++, ROS2, Gazebo, MATLAB, Simulink, Git

AI-based NLP application for education, *Politecnico di Torino – Turin, Italy* *Sep 2020 – Mar 2021*

- Co-ideated and developed an AI NLP app for education, which evolved into a startup raising over **€1.5 million.**

Key Technologies: Python, Flask, AWS, HTML, CSS

EDUCATION

Master's Degree in Mechatronic Engineering, *Politecnico di Torino – Turin, Italy* *Sep 2019 – Dec 2021*

- Final grade: **110 with honours/110** (GPA: 4.0/4.0)

Bachelor's Degree in Mechanical Engineering, *Politecnico di Torino – Turin, Italy* *Sep 2016 – Sep 2019*

- Final grade: **110/110**

LANGUAGES

- **Italian** Native
- **English** Fluent (C1)
- **Spanish** Fluent (C1)
- **German** Intermediate (A2/B1)

TECHNICAL SKILLS

C++, Python, ROS2, PyTorch, Docker, OpenCV, Linux, Git, MATLAB, Simulink, Functional Requirements, Behavior Trees

CERTIFICATIONS

- **Machine Learning** Stanford University Online

PUBLICATIONS

- ***Advances on Affordable Hardware Platforms for Human Demonstration Acquisition in Agricultural Applications*** ERF 2025, Springer Proceedings in Advanced Robotics - https://arxiv.org/abs/2506.09494