Riccardo Rettore

Robotics & Physical AI engineer passionate about humanoids, embodied intelligence, and robot autonomy

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+39-3407068944 ∘ Trebaseleghe, Padova, IT

EXPERIENCE

- **Resit @ Co-Founder & CTO** *Dec 2025 - Present*
  Smart Seating for healthier employees - resitchair.com Padova - San Francisco
  ∘ Leading the development of learning-based posture classification models, transforming multi-modal sensor data into real-time user state estimation and ergonomic insights.
  ∘ Driving system architecture and integration across embedded sensing, ML inference, and user-facing applications, enabling closed-loop intelligence from physical interaction to real-time feedback.

- **CDEI Group @ University of Catalunya** *Feb 2025 – Aug 2025*
  Prof. A. Gracia (UPC), Prof. G. Susto (UniPd) Barcelona, Spain
  ∘ Developed reinforcement learning–based navigation and control frameworks for autonomous robots using custom **Gymnasium** environments, implementing **PPO** and **SAC** in discrete and continuous action spaces with **Python** and **PyTorch**.
  ∘ Integrated subsurface perception from Ground Penetrating Radar with surface sensing into decision-making pipelines, validating navigation policies in **ROS2**-based simulations with **Gazebo** and visualizing results in **RViz**.

- **Freelancer for Startups** *Jan 2020 - Jan 2024*
  Full-Stack Developer Padova, Italy
  ∘ Collaborated with startups to build cross-platform applications using **Flutter** and **Google technologies**.
  ∘ Built both front-end interfaces and back-end systems to deliver seamless, user-friendly solutions.

EDUCATION

- **MSc in Control Systems Engineering** *Oct 2023 - Oct 2025*
  Università degli Studi di Padova, Final Grade: 110/110 Padova, Italy
  ∘ Final Thesis: Leveraging Ground Penetrating Radar with Deep Reinforcement Learning for Subsurface-Informed Navigation in Autonomous Agricultural Robotics.
  ∘ Relevant Coursework: Reinforcement Learning, Advanced Control Theory, Controls for Robotics Systems, Deep Learning, Machine Learning, Computer Vision, Autonomous Robotics.
  ∘ Erasmus Exchange Program @ Universitat Politècnica de Catalunya, Barcelona, Spain: focused on Reinforcement Learning and Robotics, Physical AI and Autonomous Systems.

- **BSc in Mechatronics Engineering** *Oct 2020 - July 2023*
  Università degli Studi di Padova, Final Grade: 109/110 Padova, Italy
  ∘ Final Thesis: Integration between ROS2 and Unity: performance analysis.
  ∘ Relevant Coursework: Applied Mechanics, Analog Electronics, Electrical Machines and Drives, Instrumentation and Measurement, PLCs and Industrial Networks.

ACADEMIC EXPERIENCE

- **Aurora: Object Classification with Oriented Boosting** *July 2024 - Nov 2024*
  Neural Networks and Deep Learning project Padova, Italy
  ∘ Built a 3D object classification pipeline with multi-task CNNs and oriented boosting, including voxelization, augmentation, labeling, and HDF5 preprocessing using **PyTorch**, **NumPy**, and **OpenCV**.
  ∘ Optimized GPU training and evaluated on ModelNet10/40, executing 3D data processing, CNN optimization, and computer vision pipelines.

- **Advanced Control Systems for Double-Wheel Robot** *April 2024 - June 2024*
  Control Engineering Laboratory Project Padova, Italy
  ∘ Designed nominal and robust LQR controllers for a self-balancing two-wheeled robot, modeling dynamics via Lagrange formalism, linearizing around equilibrium, and implementing sensor fusion with complementary filtering in **MATLAB/Simulink**.
  ∘ Performed simulation and on-hardware testing of designed controllers, analyzing system stability, state-feedback, observer performance, and system robustness.