

Paolo Rabino

✉ paolotron | ☎ +39 327 731 2804 | ✉ paolo.srabino@gmail.com | in paolo-rabino-072644201 | ID 0009-0001-2843-0614 |
🎓 Google Scholar | 📍 Munich, Germany

Research Lead building learned 3D perception and motion generation for industrial robots. PhD in Artificial Intelligence (expected 2026), 6 publications, 1 patent, 100k+ GPU hours of competitive HPC grants.

Research Highlights

- **FoldPath** (IROS 2025): first end-to-end model generating long-horizon robot paths as neural fields; surpassed the state of the art on robotic spray painting, led to a **patent**
- **MultiGraspNet** (RA-L 2026): one multitask 3D model for parallel-jaw and vacuum grasping that **raised grasp success in real industrial trials** at lower computational cost
- **D3G** (RA-L 2025): end-to-end transformer for grasp-order reasoning in dense clutter; its metric was adopted by the **UNOBench** benchmark and the **ECCV 2026 challenge**; code and benchmark open-sourced (21★ on GitHub)
- **Efficient Odd-One-Out** (ICIAP 2025): state-of-the-art accuracy with **≈1/3 fewer parameters** and **≈3× faster training**; grew out of a co-supervised MSc thesis

Professional Experience



mkind

RESEARCH LEAD

Munich

2026 - Present

- Lead research on **Physical AI** for **surface finishing** in high-mix industrial manufacturing
- Develop **trajectory generation** models building on FoldPath, and learn paint deposition from real 3D recordings of expert operators
- Lead applicant for **EuroHPC AI Factory** GPU allocations, including a granted 50,000 GPU-hour project

Robot Learning 3D Vision PyTorch HPC



Politecnico di Torino

TEACHING ASSISTANT & LAB INSTRUCTOR

Torino

2022 - 2026

- MSc courses: **Advanced Machine Learning, Machine Learning and Deep Learning, Data Analysis and Artificial Intelligence**
- BSc course **Algorithms and Data Structures** (C) and **Models for AI** (2nd-level Master in AI)
- Co-supervised **4 MSc theses** on anomaly detection, multimodal LLMs, point cloud registration and gripper selection, one leading to an ICIAP paper

Python C Machine Learning Deep Learning



Motionness.ai / AnyPath

CO-FOUNDER

Torino

2025 - 2026

- Co-founded an **AI** startup for **robotic path planning** from point clouds, later continued as AnyPath
- Built the full **MLOps** pipeline and full-stack product for learned robotic path generation

MLOps Python TypeScript Full-Stack

Education



Politecnico di Torino & IIT, VANDAL Lab

NATIONAL **PhD** IN ARTIFICIAL INTELLIGENCE (38TH CYCLE)

Italy

2022 - 2026 (expected)

- Thesis: **From 3D Understanding to Action: Learning Methods for Industrial Robotics**, supervised by Prof. Tatiana Tommasi and co-supervised by Prof. Giuseppe Bruno Averta
- Topics: **3D Computer Vision | Robotic Manipulation | Anomaly Detection | Large Pre-Trained Models**
- Industry collaborations on robotic spray painting and multi-gripper bin picking; collaborator in the European BURG Project
- Reviewer for conferences **CVPR, ICCV, ECCV, AAAI, ICRA, IROS, ICIAP** and journals **TPAMI, T-RO, RA-L, IJRR**
- Attended the ICVSS 2023 International Computer Vision Summer School and the PoliTo PhD AI Fall School



Politecnico di Torino

MASTER OF SCIENCE IN COMPUTER ENGINEERING

Italy

2021 - 2022

- Thesis: Deep Learning for Robotic Grasping | **Graduated Cum Laude**



Politecnico di Torino

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

Italy

2019 - 2021

Publications

Ortuno Chanelo, S., **Rabino, P.**, Civitelli, E., Tommasi, T., & Camoriano, R. (2026). MultiGraspNet: A Multitask 3D Vision Model for Multi-Gripper Robotic Grasping. *IEEE Robotics and Automation Letters (RA-L)*; poster at the Industrial Applications of Robot Learning Workshop @ IROS 2026. [arXiv]

Chito, S.*, **Rabino, P.***, Camoriano, R., & Tommasi, T. (2026). QuadricViT: Efficient 3D Semantic Occupancy Prediction. *Under submission*. (*equal contribution)

Rabino, P., Tiboni, G., & Tommasi, T. (2025). FoldPath: End-to-End Object-Centric Motion Generation via Modulated Implicit Paths. *IEEE/RSJ IROS*. [arXiv]

Chito, S., **Rabino, P.**, & Tommasi, T. (2025). Efficient Odd-One-Out Anomaly Detection. *ICIAP*. [arXiv]

Rabino, P. & Tommasi, T. (2025). A Modern Take on Visual Relationship Reasoning for Grasp Planning. *IEEE Robotics and Automation Letters (RA-L)*, presented at IROS. [arXiv]

Rabino, P., Alliegro, A., & Tommasi, T. (2024). 3D Semantic Novelty Detection via Large-Scale Pre-Trained Models. *IEEE Access*, 12, 135352–135361. [DOI]

Rabino, P., Alliegro, A., & Tommasi, T. (2024). Harnessing Large-Scale Pre-Trained Models for 3D Semantic Novelty Detection. *ECCV Workshops*.

Patents

Rabino, P., Tiboni, G., & Tommasi, T. (2025). Robotic Path Generator from Point Clouds / Metodo per imparare la generazione del percorso motorio di robot. *National and international patent application*, Politecnico di Torino. [Knowledge Share]

Honors, Awards & Grants

2026	Best Poster Presentation Award, for MultiGraspNet , 1st Int. Workshop on Industrial Applications of Robot Learning @ IEEE/RSJ IROS 2026	Pittsburgh, USA
2026	Meta Project Aria research grant , wrote the winning proposal to collect an egocentric dataset of human interactions with deformable objects; awarded Meta Project Aria glasses	
2023 - 2026	Competitive HPC compute grants, over 100,000 GPU hours overall , PI of 3 projects (2 EuroHPC AI Factory, 1 CINECA ISCRA) and collaborator on 5 CINECA ISCRA projects, on CINECA Leonardo and BSC MareNostrum 5	
2021 - 2022	Board of Directors, IEEE-HKN honor society , selected for academic performance; co-managed a non-profit with > 50 members and organized conferences and hackathons	Torino

Selected Projects

QuadricViT	CUDA C++, PyTorch C++/CUDA extensions, ViT
Efficient 3D semantic occupancy prediction for autonomous driving (under submission). Wrote the custom CUDA kernels that aggregate thousands of superquadric primitives into the voxel occupancy grid, reformulating them in log space to remove the numerical instabilities of the original implementation. The model runs with $\approx 47\%$ lower latency and $\approx 54\%$ less memory than QuadricFormer on nuScenes.	
baylib [GitHub]	CUDA C++, OpenCL, C++20, multithreading
Co-developer (second-largest contributor) of a high-performance C++ library for approximate inference on discrete Bayesian networks. Wrote the GPU backend: custom CUDA kernels for logic sampling and likelihood weighting (with evidence support, kernel optimizations and platform-independent builds), and OpenCL implementations of logic and adaptive importance sampling with a CPU fallback.	
BlokusRL [GitHub]	Python, reinforcement learning, W&B
Custom simulator and environment for the board game Blokus, used to train reinforcement-learning agents.	

Skills

Languages	English (professional proficiency) Italian (native)
Programming	Python C++/CUDA C TypeScript/JavaScript SQL Bash LaTeX
GPU Computing	CUDA C++ (custom kernels) PyTorch C++/CUDA extensions OpenCL / Boost.Compute C++ multithreading Multi-GPU training on HPC clusters (CINECA Leonardo, BSC MareNostrum 5)
Deep Learning	PyTorch PyTorch Geometric PEFT Accelerate vLLM ONNX FAISS scikit-learn W&B
3D & Vision	PyTorch3D Open3D Trimesh Mask2Former FoundationPose DINOv2
Infrastructure	MLOps Git
Tools	Blender Inkscape Adobe Illustrator VS Code JetBrains Vim
Interests	Reading Board Games Hiking