Leonardo Maglanoc
Robotics & AI Research Engineer

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Research Interests

- Safe humanoid loco-manipulation
- Robot learning & foundation models
- Neuro-inspired computation for embodied AI
- 3D computer vision and SLAM for robotics

Programming

Python (PyTorch, ROS2)

Linux (Git, Docker)

C++

Web Apps (FastAPI)

Languages

German (mother tongue)

Norwegian (mother tongue)

English (C2)

French (B1)

Short Profile

Robotics & AI research engineer focused on safe humanoid systems. My mission is to make humanoid autonomy deployable at scale in human environments through formal safety guarantees — from semantic intent to torque-level execution.

Publications

- J. Thumm, J. Balletshofer, L. Maglanoc, L. Muschal, and M. Althoff, "A general safety framework for autonomous manipulation in human environments," *IEEE Transactions on Robotics*, accepted for publication, 2025. [Demo]

Work Experiences

Sep 2025 - On-going — **Master Thesis Student** — Foundation Robotics, Munich, Germany, full-time
Conducting research on language-guided dexterous manipulation with foundation models in collaboration with a Silicon Valley-based humanoid robotics startup.

Feb 2025 - Aug 2025 — **AI/ML Research Intern** — BMW Group Research, Munich, Germany, full-time
Developing neuro-inspired Oscillatory Neural Networks (ONNs) in collaboration with IBM. Designing Python/PyTorch simulators and evaluating them on data collected from a tactile hardware user study (10 participants) for a human-vehicle interaction demonstrator.

Apr 2023 - May 2024 — **Robotics Research Assistant** — Technical University Munich, Germany, part-time
Working on formally verified safe physical human-robot interaction for the TUM CPS group. Implementing kinematics and trajectory planning algorithms and contributing to a publication accepted in IEEE Transactions on Robotics.

Nov 2020 - Apr 2021 — **CS Teaching Assistant** — Technical University Munich, Germany, part-time
Teaching introductory computer science with a focus on object-oriented programming in Java and algorithmic problem-solving, and grading weekly assignments and exams.

Education

Apr 2023 - On-going — **M.Sc. Robotics, Cognition, Intelligence** — Technical University Munich, Germany
Interdisciplinary degree spanning computer science, electrical engineering, and mechanical engineering with specialization in robotics, computer vision, and machine learning.

Feb 2024 - Aug 2024 — **Siemens Mentoring Programme** — Siemens, Munich, Germany
Career development programme for high-performing students. Presented the project "Smart 3D Printing with Machine Learning" at the Siemens RIE Conference.

Sep 2019 - Mar 2023 — **B.Sc. Informatics** — Technical University Munich, Germany
Computer science degree with focus on cyber-physical systems and artificial intelligence. Bachelor's thesis: *Provably Safe Human-Robot Interaction for Manipulation using Power and Force Limiting* (Grade: 1.3).

Projects

Feb 2026 — **Hack-Nation Global AI Hackathon** — MIT & CDTM
Built "EasyBuy," an AI e-commerce assistant. Selected for the Venture Lab programme (15–20 teams chosen from 6,000+ applicants). [Demo], [Code]

Dec 2025 — **RoboTUM Hackathon** — RoboTUM & Motius, Munich, Germany
Built a full robot learning pipeline for an SO-101 platform, including teleoperation data collection, fine-tuning of diffusion models, and real-time inference for pick-and-place tasks.

Since Nov 2025 — **AI Grid** — National AI Research Network (Germany)
Participating in a research-oriented AI network connecting academia and industry to advance applied artificial intelligence.