Leonardo Maglanoc

Robot Student Researcher

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LeoMaglanoc
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Research Interests

- Robots in various forms: manipulators, drones, humanoid
- Computer vision: simultaneous localization and mapping (SLAM)
- Mobile robotics and Robot control
- bio-inspired methods and neuroscience-inspired algorithms

Programming

C++ (ROS)

Python (Pytorch)

Linux and Git

Java

Languages

English (C2)

German (C2)

Norwegian (mother tongue)

French (B1)

Short Profile

3rd-semester Robotics & AI Master's student at the Technical University of Munich (TUM), worked there for over a year as a robotics research assistant, and am a mentee at Siemens. I have an international background: Asian heritage, born in Norway and raised in Germany. I'm interested in making autonomous machine intelligence, taking humans as an inspiration, and enabling robots to sense, plan, and act cognitively in our physical world. In my free time, I like to spend time with my family, do sports (calisthenics and bodybuilding), and read books about philosophy and self-improvement.

Work Experiences

2023-2024 **Robotics Research Assistant** Technical University Munich, Germany, 1 year, part-time
Working for the Cyber-Physical Systems Group. Research funded by EU project CONCERT (CONfigurable CollaborativE Robot Technologies). Making physical human-robot interaction (pHRI) provably safe with formal verification. Enabling provably safe pHRI in close interactions with a human by limiting impact velocity. Applications of model-based methods to reinforcement learning. Implementation of kinematics and trajectory planning algorithms. Contributions to open-source robotics software. Video demo.

2020 - 2021 **Teaching Assistant** Technical University Munich, Germany, 6 months, part-time
Teaching responsibilities for introduction to informatics. Basics of object-oriented programming with Java and general problem-solving in computer science. Explaining hard concepts intuitively to students. Correcting weekly coding homework and exams.

Education

since 2023 **M.Sc. Robotics, Cognition, Intelligence** Technical University Munich, Germany
Interdisciplinary Master of Science program of the Departments of Informatics, Electrical Engineering, and Mechanical Engineering. Broad methodological and theoretical grasp of robotics, cognition, and intelligent autonomous systems. Knowledge in robot control, perception, and machine learning. Personal specialization in robotics and computer vision. Expected graduation September 2025.

2019 - 2023 **B.Sc. Informatics** Technical University Munich, Germany, 3.5 years
Bachelor of Science in computer science with a minor in mathematics. Knowledge in algorithms, data structures, software engineering, databases, and scientific computation. Specialization in mathematical modeling, cyber-physical systems, and artificial intelligence. Bachelor Thesis at Chair for Robotics: *Provably Safe Human-Robot Interaction for Manipulation using Power and Force Limiting* (Grade: 1.3).

2017 - 2019 **TUMKolleg, Abitur** Werner-Heisenberg-Gymnasium, Germany
Special abitur program in cooperation with the Technical University Munich for pupils gifted in the natural sciences and mathematics. Organized projects to expose pupils to STEM-subjects. Abitur Thesis at Chair for Efficient Algorithms: *Stochastisches Scheduling von Outtrees* (Grade: 1.0).

Projects

since 2024 **Siemens Mentoring Programme** Siemens, Munich, Germany
Career-building by Siemens senior-executives for ambitious students. Presented the hackathon project Smart 3D Printing with Machine Learning at Siemens RIE Conference and almost got 1st place.

2023 - 2024 **Autonomous Drone Practical** Technical University Munich, Germany, 4 months
The goal was for the user to be able to set the goal position with a haptic device, the Novint Falcon Haptic Device, and then an AR Drone 2 to autonomously reach the goal while avoiding obstacles. Video demo (Grade: 1.0).