

Alexander Marc Spiridonov

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📅 04/09/2000

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Education

09/2022 – present	MSc. Robotics, Systems and Control, ETH Zurich
09/2019 – 09/2022	BSc. Mechanical Engineering, ETH Zurich final grade: 5.5 (Top 3%)
09/2011 – 06/2019	Abitur, Humboldt-Gymnasium Vaterstetten (HGV) final grade: 1.0

Publications, Preprints, and In-Preparation

2024	SpaceHopper: A Small-Scale Legged Robot for Exploring Low-Gravity Celestial Bodies , Alexander Spiridonov, Marco Hutter et. al. IEEE International Conference on Robotics and Automation
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Research Experience

11/2023 – present	Research Assistant, Secure, Reliable, and Intelligent Systems Lab, ETH Zurich Developing a comprehensive benchmarking framework for evaluating compliance of foundation models with the EU AI Act.
11/2022 – 12/2023	Research Assistant, Robotic Systems Lab, ETH Zurich Developing the Deep RL control concept of the robot SpaceHopper as part of the European Space Agencies PETRI Program.

Selected Projects

04/2023 – 06/2023	Course Project, Optimization & Decision Intelligence Group, ETH Zurich Worked on Safe Active Exploration in MDPs with correlated state-action pairs using Convex RL.
11/2022 – 05/2023	Semester Project, Robotic Systems Lab, ETH Zurich Worked on Imitation Learning from graph-based expert demonstrations to pre-train Deep RL path planners for ANYmal robot in parkour terrains.
02/2022 – 07/2022	Bachelor Thesis, Robotic Systems Lab, ETH Zurich Worked on highly parallelized genetic and supervised learning methods for zero shot sim to real transfer of Deep RL policies.
09/2021 – 06/2022	Focus Project, Robotic Systems Lab, ETH Zurich Team Lead - Modeling & Control of SpaceHopper, created the Deep RL control pipeline, trained and deployed locomotion policies.

Teaching Experience

- 02/2022 – 06/2022 **Teaching Assistant, Institute of Electromagnetic Fields**
Taught exercise classes for the course Electronics and Circuits.
- 09/2021 – 02/2022 **Teaching Assistant, Mechanics and Materials Laboratory**
Taught exercise classes for the course Dynamics.

Talks and Presentations

- 12/2022 **IIT Bombay, Official ETH Ambassador at IIT Bombay Techfest 2022.** Presented the legged robot SpaceHopper.
- 05/2022 **TEDxThun, Talked about the potential of legged robots for the exploration of asteroids and moons**

Awards

- 05/2019 **High School Graduate Award in Physics, German Physical Society**

Skills

Programming Languages

Python, C, C++, MATLAB

Frameworks

UNIX, PyTorch

Languages

German, English, Bulgarian, Latin

Certificates

Cambridge English Certificate (C2)

Selected Courses

Mathematics:

Analysis I/II/III, Complex Analysis, Linear Algebra I/II, Probability Theory and Statistics

Computer Science:

Control Theory I/II, Models Algorithms and Data, Dynamic Programming and Optimal Control, Optimization for Data Science, Probabilistic Artificial Intelligence, Foundations of Reinforcement Learning, Machine Perception, Reliable and Trustworthy Artificial Intelligence