Elia Trevisan

Postdoc at Autonomous Multi-Robots Lab, Cognitive Robotics
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Robotics researcher with a PhD in sampling-based Model Predictive Control for autonomous systems. Experienced in planning under uncertainty, interaction-aware decision-making, and large-scale GPU-based simulation. Proven track record of deploying real-time planning algorithms on robotic platforms—including autonomous boats, ground robots, and robotic arms. Passionate about building robust, intelligent systems that bridge theory and real-world deployment.

Education

•Postdoc and PhD in Robot Motion Planning *October 2020 - March 2025*

TU Delft, Netherlands

- Contributed to optimization and sampling-based Model Predictive Control (MPC) (e.g., MPPI), Risk-Awareness, Machine Learning (ML) for trajectory prediction, and collaborated on Task and Motion Planning (TAMP).
- Performed experiments with **vessels** (Roboat) in outdoor environments, **ground robots** (Jackal), and **mobile manipulators** (Boxer with Panda arm) for pushing and grasping using **Isaac Gym** as a dynamic model.
- **Mentored six master thesis** students, one internship, one master student's research assignment, and two bachelor projects. All students were very successful, and **all** theses so far **resulted in a publication**.
- Published several papers in **top robotics workshops, conferences and journals** (ICRA, MRS, RAL), with **two** nominated **Best Paper Finalists**: one at the IEEE International Symposium on Multi-Robot & Multi-Agent Systems and one at the Embracing Contacts Workshop at ICRA 2023.

•MSc in Systems and Control *Sep 2018 - Aug 2020*

TU Delft, Netherlands ***Cum Laude***

- Courses on control theory, robust and multivariable control design, filtering & identification, optimization in systems and control, nonlinear systems theory, model predictive control, adaptive control, fault diagnosis and fault tolerant control, digital control.
- Graduated **top of my class**, thesis with Prof. Michel Verhaegen on modeling and identification for High Numerical-Aperture microscopy. Developed an algorithm that could both retrieve a clear image of the specimen and estimate the aberration in the microscope from very few out-of-focus images via alternating projections.

•BSc in Automation Engineering *Sep 2014 - Feb 2018*

University of Bologna, Italy and Tongji University, China

- **Won** AlmaTong, **a merit-based scholarship** to perform half of the bachelor's at Tongji University in Shanghai.
- Courses on automatic controls, mechanics, electronics, computer architectures, automatic machines, and robotics.
- Led a collaboration between my university and Electrolux and developed a simulator in Gazebo, using ROS, MoveIt, and Aruco markers to detect and manipulate household appliances with a UR5 Robot.

•Electrical Engineering High School *Sep 2009 - Jul 2014*

ITST J.F. Kennedy, Italy

- Theory and laboratories on electric machines, control, and design of civilian and industrial power systems.

Experience

•Teaching Assistant *Sep 2019 - Jun 2020*

TU Delft, Netherlands

- Supported teachers and students in three compulsory master courses: SC42005 Introduction Project, SC42060 Nonlinear System Theory, SC42035 Integration Project Systems and Control.

•Board Member *Mar 2019 - Mar 2020*

Delft Students Association Kalman, Netherlands

- Arranged courses evaluation for the master in Systems and Control.
- Organized business and social events, like our Start-Up drinks, to connect students and businesses.

•PLC Programmer *Mar 2018 - Aug 2018*

Tecnoquadri, Italy

- Designed PLC software for several production and palletizing lines, integrating custom automation with standard machines (e.g. industrial KUKA arms).
- Coordinated mechanics and electricians in several factories across the Italian North-East.

Skills and Interests

Programming: Proficient in Matlab and Simulink, competent in C/C++, Python (with PyTorch), Siemens TIA Portal.

Robotics: Competent in ROS1 and ROS2, motion capture (Vicon and OptiTrack), experience with Lidar Odometry (KISS-ICP and LIO-SAM), Gazebo, Pybullet, IsaacGym, Docker, and several robotics platforms.

Languages: Fluent in Italian and English, beginner in Spanish and Dutch.

Personal Interests: I competed in athletics many years ago. I now still enjoy running, but I recently got into bouldering. I love to hike, and I miss my Alps! I always snorkel when I get the chance. Since I scuba-dived on the reef in Okinawa I wanted to get a license. I used to play the drums as a teenager, and I am always up for some live music.