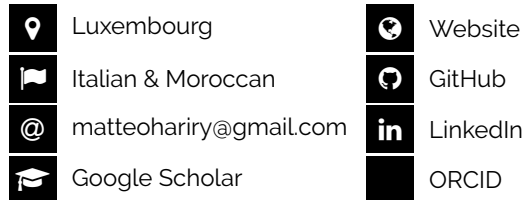


Matteo El Hariry

Postdoctoral Researcher
RL | Autonomous Robotics



WHO AM I?

Currently developing simulators and Reinforcement Learning algorithms for autonomous complex robotic systems (satellites, WIG aircrafts, wheeled rovers & more). Interested in why and how specific AI technologies work and how they can benefit humanity and our planet, as well as help us make new discoveries and unlock new stepping stones.

SKILLS

Python

PyTorch

C/C++

ROS/ROS2

Git / Docker

TensorFlow

IsaacLab / Omniverse

Scikit-learn / Pandas

Project Management

Research Development

EXPERIENCE

06/2026 – Present	Chief Technology Officer & Co-founder	NaubotiX, Luxembourg
01/2026 – Present	Postdoctoral Researcher	University of Luxembourg, Luxembourg
Leading AI-driven research for autonomous robotic systems within Horizon Europe and EIC Pathfinder projects. Responsible for technical coordination of work packages, development of simulation and control frameworks, mentoring 2 PhD students, 1 Master's student and 1 Research Engineer, and delivering project milestones to the European Commission.		
01/2022 – 12/2025	Doctoral Researcher	University of Luxembourg, Luxembourg
Research on ML and RL for autonomous navigation of space and terrestrial robots. Lead developer of simulation frameworks integrating realistic dynamics, sensing, and control for satellites, aerial, and aquatic robots. Publications in IROS, ICRA, TMLR, RSS, CLAWAR.		
07/2019 – 01/2022	Machine Learning Engineer	Argotec - R&D Unit, Turin, Italy
Developed RL controllers and simulation environments for satellite GNC. Deployed AI-based visual navigation on embedded flight hardware for LICIAcube (NASA DART mission) and ArgoMoon (NASA SLS mission). Implemented genetic algorithms for attitude controller tuning and authored awarded ESA and regional project proposals.		

PROJECTS

2025 – Present	ICE2THRUST – Solar-Electric Water Propulsion	EIC Pathfinder Project, Univ. of Luxembourg
Lead Research Scientist for RL-based autonomous navigation in an in-space resource utilisation (ISRU) propulsion demonstrator that converts ice into thrust. Developed modular 3DoF/6DoF spacecraft simulators for proximity operations, docking, and propellant refilling; designed deep RL policies for robust autonomous rendezvous under uncertainty; and integrated controllers in Zero-G floating-platform Hardware-in-the-Loop setups to study sim-to-real transfer.		
2023 – Present	AIRSHIP – Autonomous GNC for WIG Vehicles	Horizon Europe Project, Univ. of Luxembourg
Lead Research Scientist for RL-based autonomous navigation in a multi-partner project on unmanned Wing-in-Ground (WIG) vehicles. Built a modular flight-dynamics simulator (MATLAB & Python) capturing ground-effect aerodynamics; implemented RL-based control strategies for autonomous low-altitude flight; and benchmarked against classical GNC baselines (PID, LQR, MPPI) to enable fully autonomous maritime and coastal operations.		

PROFESSIONAL ACTIVITIES

2025	Workshop Organizer – AI4OPA	iSpaRo 2025, Japan
Co-organized the AI4OPA workshop on AI for On-Orbit and Planetary Autonomy, coordinating the scientific program and contributing to the organization of an international forum connecting researchers in AI, robotics, and space autonomy.		

Ongoing

Peer Reviewer

AI & Robotics

Reviewer for ICRA, IROS, CoRL, RA-L, CRL, and IEEE Transactions on Artificial Intelligence (TAI).

EDUCATION

2022 – 2025

PhD in Computer Science

University of Luxembourg, Luxembourg

Thesis title: "Deep Reinforcement Learning Control for Autonomous Robots Mobility in Highly Uncertain Environments".

2016 –
2019

MSc in Computer Science and Engineering

Politecnico di Milano, Italy

Focus on Machine Learning and AI. MSc thesis on RL for nanosatellite attitude control.

2014 –
2015

Double Degree in Information Technologies and Engineering

Tongji University, Shanghai, China

SELECTED PUBLICATIONS

2026

Fixed-Wing Robots in GE: A High-Fidelity Aerodynamic Sim Framework for Flight Control

T-RL Transactions on Robot Learning (under review)

Matteo El-Hariry, Pedro Lima, Andrej Orsula, Matthieu Geist, Miguel Olivares-Mendez.

2025

RoboRAN: A Unified Robotics Framework for RL-Based Autonomous Navigation

Transactions on Machine Learning Research (TMLR)

Matteo El-Hariry*, Antoine Richard*, Ricard M. Castan*, Luis F. W. Batista*, Matthieu Geist, Cedric Pradalier, Miguel Olivares-Mendez.

2025

RL-AVIST: Reinforcement Learning for Autonomous Visual Inspection of Space Targets

International Astronautical Congress (IAC)

Matteo El-Hariry, Andrej Orsula, Matthieu Geist, Miguel Olivares-Mendez.

2025

Towards Active Excitation-Based Dynamic Inertia Identification in Satellites

International Conference on Space Robotics (iSpaRo)

Matteo El-Hariry, Vittorio Franzese, Miguel Olivares-Mendez.

2025

Spacecraft Angular Rate Estimation via Event-Based Camera Sensing

Advances in Space Research (ASR)

Vittorio Franzese, Matteo El-Hariry.

2024

DRIFT: Deep Reinforcement Learning for Intelligent Floating Platforms Trajectories

IROS 2024 (oral); MASSpace 2024

Matteo El-Hariry, Antoine Richard, Vivek Muralidharan, Matthieu Geist, Miguel Olivares-Mendez.

2023

Highly-Parallelised Simulator for Reinforcement Learning-based Autonomous Navigating Spacecrafts

ASTRA 2023

Matteo El-Hariry, Antoine Richard, Miguel Olivares-Mendez.

2023

Mobility Strategy of Multi-Limbed Climbing Robots for Asteroid Exploration

CLAWAR 2023

Warley F. R. Ribeiro, Kentaro Uno, Masazumi Imai, Koki Murase, Barış Can Yalçın, Matteo El-Hariry, Miguel A. Olivares-Mendez, Kazuya Yoshida.

2021

Deep Reinforcement Learning Policies for Underactuated Satellite Attitude Control

NeurIPS 2021 – Workshop on Deployable Decision Making

Matteo El-Hariry, Andrea Cini, Giacomo Mellone, Alessandro Balossino.

LANGUAGES

Italian – Native, **English** – Fluent, **French** – Limited Working, **Arabic** – Native (spoken), **Chinese** – Elementary

ABOUT ME

Thinking – Analytical, proactive, and open-minded; able to reason under uncertainty and adapt quickly.

Hobbies – Football (N.3), surfing, bouldering, calisthenics, reading, drawing, world music festivals.

Non profit – Mentoring refugees in Luxembourg (RYSE Association).