

Francesco Mazzone

Intelligent Systems for Autonomous Decision-Making

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<https://github.com/airframa>

EDUCATION

Degree	Institute	Field of Study	GPA	Year
Bachelor	Politecnico di Milano	Mechanical Engineering	107/100	2016-2019
Master	ETH Zürich	Mechanical Engineering <i>Concentrations: Controls Systems, Computer Vision</i>	5.3/6.0	2020-2023
Researcher (non-degree)	The Chinese University of Hong Kong (CUHK)	Computer Science	N/A	2024-2025

EXPERIENCE

- **The Chinese University of Hong Kong, MMLab - Computer Science** Hong Kong, HKSAR
Graduate Researcher - Pr. Dr. Hongsheng Li 09.2024 - Current
 - **Intelligent Systems:** graduate researcher at CUHK Multimedia Lab (MMLab)/Centre for Perceptual and Interactive Intelligence, conducting research in the domain of perception, scene reconstruction and rendering with *Gaussian Splatting* under the direction of Pr. Hongsheng Li.
- **Audi F1 Project (fmr Sauber) - FIA Formula 1 Team** Hinwil, Zürich, Switzerland
Computer Vision Graduate Engineer 03.2023 - 08.2024
 - **3D aerodynamic data processing (Master's Thesis):** performed point cloud registration (FPFH/RANSAC and ICP), segmentation and rasterization on 3D wind tunnel model scans, developed CV algorithms for flow features classification, developed application software with an intuitive frontend integrated with the cloud-based data warehouse
Master's Thesis report can be found at this link.
 - **Aeroelastic deflections tracking:** implemented monocular 3D vehicle pose estimation and object detection for front/rear-wing deflection tracking using markers on the Formula 1 car.
- **Beyond Gravity AG - Aerospace** Zürich, Switzerland
Software Engineering Intern 08.2022 - 02.2023
 - **Aerospace Systems Modeling:** developed a micro-vibration model in python for solar array wings control (SADM Solar Array Drive Mechanism for ESA/NASA projects).
- **Pick8ship Technology AG - Robotics, start-up** Zürich, Switzerland
Robotics Intern 05.2022 - 08.2022
 - **Simulation Development:** implemented a simulator in python for a smart warehouse robotic system, achieved 30% system performance improvement.
- **EMPA - Materials Science** Zürich, Switzerland
Research Assistant - Pr. Dr. Giovanni Terrasi 04.2021 - 04.2022
 - **Experimental Research:** contributed to the implementation of a Digital Image Correlation algorithm to monitor crack propagation on plane fuselages (Airbus A320 project)

ACADEMIC PROJECTS

- **ARIS (Academic Space Initiative Switzerland at ETH Zürich)** Zürich, Switzerland
Controls Engineer 10.2020 - 10.2021
 - **Kalman Filter for state estimation:** designed pneumatic stage separation system and controls in C (Kalman filter for state estimation in supersonic flight conditions) for the ARIS rocket.
Awards: 1st place European Rocketry Challenge, 3rd place Spaceport America Cup

SKILLS

- **Programming:** C/C++, Python, SQL
- **Frameworks and Tools:** PyTorch, Git, Vim, Docker, Jira, Matlab, 3D CAD software, Blender
- **Languages:** Italian (C2), English (C1), German (C1), Spanish (C1), French (C1), Portuguese (B2), Mandarin Chinese (A1)

EXTRA-CURRICULAR ACTIVITIES

- **Interests:** sailing, analog film photography, languages, reading
- **Volunteer Experience:** developed and maintained a simple software tool (2011-2016) for *Fondazione Banco Alimentare Onlus*, a non-profit organisation in Italy, to manage food storage and weekly distribution to those in need for the town of Como, Italy