IVAN ALBERICO RESEARCH ASSISTANT

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WORK

Robotics and Perception Group, University of Zürich Zürich, Switzerland
Research Assistant 2024.07 - 2024.12 *(expected)*
- Project funded by *META Research*. Developing low-latency deep learning solutions for fast moving object tracking on META Aria glasses.
- Advisor: Prof. Davide Scaramuzza

NASA Jet Propulsion Laboratory, *Aerial Mobility Group* Pasadena (CA), USA
Visiting Student Researcher 2023.03 - 2023.11
- Developing novel navigation solutions (SLAM and visual-odometry) for the *Mars Science Helicopter* (MSH) for autonomous landing on Mars.

Verity AG, *Localization Team* Zürich, Switzerland
Computer Vision Engineer 2022.04 - 2023.01
- Developing deep-learning solutions running real-time on autonomous indoor drones for warehouse inventory.

Rehabilitation Engineering Lab, ETH Zürich Zürich, Switzerland
Teaching Assistant 2021.09 - 2022.01
- Course: *Physical Human-Robot Interaction*
- Tasks: Directing laboratory courses, preparing and correcting assignments and supervising student projects.

Pirelli Tyres S.p.A Bologna, Italy
Computer Vision Intern (Bachelor's Thesis) 2020.02 - 2020.07
- Design of a robust defects detection system (detection and classification of surface defects present on the tyre), based on 3D image acquisition via laser profilametry, using artificial intelligence algorithms.

EDUCATION

ETH Zürich Zürich, Switzerland
Master's Degree in Robotics, Systems and Control 2020 - 2023
- Thesis: *Vision-based Navigation for Mid-Air Delivery on Mars* (GPA: 3.71/4.0)
- Research area: Computer Vision, State Estimation & SLAM, Deep Learning

University of Bologna, Alma Mater Studiorum Bologna, Italy
Bachelor's Degree in Automation Engineering 2017 - 2020
- Final grade: 110/110 *cum laude* (GPA 4.0/4.0, top 5 %)
- Thesis: *Defects detection during manufacturing of tyres with CNNs*

Tongji University Shanghai, China
Double Degree Bachelor's Program (Exchange year) - GPA 4.0/4.0 2018 - 2019

F. Quercia Scientific High School Caserta, Italy
Focus on scientific subjects. Final grade: 100/100 cum laude 2018 - 2019

PUBLICATIONS

1. **Ivan Alberico**, J. Delaune, G. Cioffi, D. Scaramuzza. *Structure-Invariant Range-Visual-Inertial Odometry*, IROS 2024. *(oral presentation)*

SKILLS

Languages: Italian, English, German (A1), Chinese (A1)

Programming: `Python`, `C++`, `MATLAB`, `C#`, `SQL`

Libraries: ROS, OpenCV, PyTorch, TensorFlow, Scikit-learn, SciPy, NumPy, Pandas

Frameworks: Unity3D, Unreal Engine, Blender, LabVIEW

ACADEMIC PROJECTS (RESEARCH)	**Monocular markerless 6D pose estimation of ANYmal**	
	Robotics Systems Lab, ETH Zürich	2022.02 - 2022.06
	Instinctive Robot Control via Microsoft Hololens2	
	Mixed Reality Lab, ETH Zürich	2021.09 - 2022.01
	Learning to Generate Events using Spiking Neural Networks	
	Robotics and Perception Group, University of Zürich	2021.09 - 2022.01
	End-2-end self-supervised monocular SLAM	
	*Google Research Zürich	Computer Vision and Geometry Group*	2021.01 - 2021.06

ACADEMIC PROJECTS (COURSES)	**Spacecraft navigation in a complex dynamical environment**	
	Course: Planning and Decision Making for Autonomous Robots	2021.11 - 2022.02
	3D object detection and tracking with LiDAR point clouds	
	Course: Deep Learning for Autonomous Driving	2021.06 - 2021.07
	Multi-task learning on semantic segmentation and depth estimation	
	Course: Deep Learning for Autonomous Driving	2021.04 - 2021.06
	Sensor calibration and synchronization for multimodal driving data	
	Course: Deep Learning for Autonomous Driving	2021.02 - 2021.04
	Skater Blob game on Unity3D	
	Course: Virtual Reality I	2021.02 - 2021.06
	Hybrid EKF for state estimation of a boat in hostile conditions	
	Particle Filter for mobile robot tracking in partially known environment	
	Course: Recursive Estimation	2021.02 - 2021.06
	LunarLander-v2 on OpenAI Gym with Deep Reinforcement Learning	
	Course: Probabilistic Artificial Intelligence	2020.10 - 2020.12
	Admittance controller on an Haptic Paddle	
	Course: Physical Human-Robot Interaction	2020.10 - 2020.12
	Brain age prediction using MRI features	
	Heart rhythm classification from raw ECG signals	
	Sleep staging classification from EEG/EMG	
	Course: Advanced Machine Learning	2020.09 - 2020.12

ACADEMIC SERVICES	**Reviewer for**: *IEEE/RSJ International Conference on Intelligent Robots and Systems*
	Summer school: *Robotics Summer School (RobotX, ETH Zurich)*

AWARDS AND HONORS	• ***Academic Scholarship***, University of Bologna	2020.05
	• ***AlmaTong Project Scholarship***, University of Bologna	2018.06
	• ***Best student***, highest GPA in the school, F. Quercia High School	2016.12

HOBBIES	PIANO, PHOTOGRAPHY, HIKING, KARATE.