PERSONAL INFORMATION

Massimo Teppati Losè

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in https://www.linkedin.com/in/massimo-teppati-lose

Gender Male | Date of birth 15 November 1997 | Nationality Italian

EXPERIENCE

Jan 2023 – Nov 2023

Multi-Robot Leonardo Drone Contest 2023: Team Leader

The team leader of Scuola Superiore Sant'Anna university with the aim to design and develop a multi-robot heterogeneous collaborative team with ROS2 to autonomously perform a mission in an unknown GNSS-denied environment. The team of robots is composed of a mobile robot and a quadrotor. Mission tasks involve control, motion planning, exploration, computer vision and visual and laser SLAM.

Website - Drone Contest

June 2022 – 6-7 Oct 2022

Leonardo Drone Contest 2022: Team Member

Supporting the Scuola Superiore Sant'Anna university as a team member to design and develop with ROS a quadrotor to perform an autonomous mission in a partially unknown GNSS-denied environment. Mission tasks involve obstacle avoidance, visual localization and motion planning.

Website - Drone Contest   Competition - Video   Related Paper

Feb 2022 – Jun 2022

Third place in ICUAS '22 UAV Competition

Implementation of algorithm able to perform UAV navigation through an obstacle dense unknown environment using ROS framework and Docker containerization. The name of my team was *SantDrone*.

Website - ICUAS '22 Competition   Competition - Video   Releated paper under review

EDUCATION

Oct 2022 – Present

Ph.D. Student in Perceptual Robotics

Scuola Superiore Sant'Anna - Pisa, Italy

- Phd Topic: "*Multi-Robot Collaborative System for Localization and Search and Rescue in GNSS-Denied Environments*"
  Supervisors: Prof. Carlo Alberto Avizzano, Dr. Massimo Satler

Mar 2022

Professional Qualification for the Engineering Profession Section A - Information Engineering Sector

Università di Pisa - Pisa, Italy

Sept 2019 – Sept 2022

Master's Degree in Robotics and Automation Engineering (110/110 cum laude)

Università di Pisa - Pisa, Italy

- Thesis Title: "*Design and Implementation of Reactive Obstacle Avoidance System for Quadrotors*"
  Supervisors: Prof. Carlo Alberto Avizzano, Dr. Massimo Satler, Eng. Michael Mugnai

Sept 2016 – Oct 2019	**Bachelor's Degree in Biomedical Engineering, October 2019 (105/110)**

Università di Pisa - Pisa, Italy

- Thesis Title: "*Piezoresistive Sensors for Sleep Quality: Position Classification*"
  Accepted publication: MobiHealth 2019 - *Preliminary Assessment of a Smart Mattress for Position and Breathing Sensing* [1]
  Supervisors: Prof. Alessandro Tognetti, Prof. Nicola Carbonaro

2011 – 2016	**Secondary School Diploma, June 2016 (80/100)**

Liceo Scientifico T. Parentucelli - Sarzana (SP), Italy

ACADEMIC PROJECTS

July 2021 – January 2022   **Depth Estimation and Object Detection for Low Cost Mobile Robot**

Implementation in ROS framework of a perception system able to perform object detection (with computer vision) and depth estimation (with an extended Kalman filter), using monocular camera and IMU for a two wheeled robot with an on-board computer (ROS, C++, Python).

July 2021 – December 2021   **Autonomous Landing of Quadrotor based on Computer Vision**

Development and implementation in ROS framework of a vision algorithm robust to variations in ambient brightness, able to detect a colored marker. Software tracks the landing platform and performs autonomous landing maneuvers for a quadrotor (ROS, C++, Python, Unity).

April 2021 – May 2021   **Convolutional Neural Networks for Fruit Classification**

Development of Convolution Neural Networks able to classify fruits by type and ripening stage. U-Net has also been trained to highlight the presence of any rotten areas in the fruits (Python, TensorFlow).

Mar 2021 – May 2021   **Graphic Real-Time Simulation of Skeet Shooting**

Implementation of a real time application in the C language with pthread library, of a skeet shooting simulation. An alternative mode involves the simulation of an automatic system that can hit the center of the skeet in different situations, with a tunable PID controller.

August 2020 – November 2020   **Kinematic Reconstruction of a 5R manipulator with 2 IMUs**

Development of an acquisition system in a STM32 NUCLEO-F767ZI, sensor characterization and implementation of a Motion Tracking Algorithm with a Kalman filter (Simulink, C++).

PERSONAL SKILLS

Mother tongue   Italian

Other languages

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
B2	B2	B2	B2	B2
A2	A2	A2	A2	A2

(English row: B2 / B2 / B2 / B2 / B2; Spanish row: A2 / A2 / A2 / A2 / A2)

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
Common European Framework of Reference for Languages

Job-related skills

- Problem Solving
- ROS / ROS2
- OpenCV
- Python
- C / C++
- PX4
- Docker / Docker Compose
- MATLAB & Simulink
- TensorFlow / Pytorch
- $\LaTeX$
- Git

Computer skills
- Operating Systems (Linux, Windows)
- Microsoft Office (word processor, presentation software)

Communication skills
- Team Work: I have worked in various types of teams for different academic projects.
- Acting: I took a theater course for 4 years which helped me improve public speaking skills.

Driving licence   B

PUBLICATIONS

[1]   Lucia Arcarisi, Carlotta Marinai, **Massimo Teppati Losè**, Marco Laurino, Nicola Carbonaro, and Alessandro Tognetti. "Preliminary Assessment of a Smart Mattress for Position and Breathing Sensing". In: *International Conference on Wireless Mobile Communication and Healthcare*. Springer. 2019, pp. 249–255.

[2]   Michael Mugnai, **Massimo Teppati Losè**, Edwin Paúl Herrera-Alarcón, Gabriele Baris, Massimo Satler, and Carlo Alberto Avizzano. "An Efficient Framework for Autonomous UAV Missions in Partially-Unknown GNSS-Denied Environments". In: *Drones* 7.7 (2023), p. 471.

[3]   Riccardo Bezzini, Luca Crosato, **Massimo Teppati Losè**, Carlo Alberto Avizzano, Massimo Bergamasco, and Alessandro Filippeschi. "Closed-Chain Inverse Dynamics for the Biomechanical Analysis of Manual Material Handling Tasks through a Deep Learning Assisted Wearable Sensor Network". In: *Sensors* 23.13 (2023), p. 5885.