



Salvatore D'Ippolito

Nationality: Italian

CONTACT

 Italy (Home)

 (+39) 0000000000

WORK EXPERIENCE

Delta Space Leonis S.r.l. Rome, Italy

Embedded Systems Engineer

15/05/2024 – 31/07/2024

After my Master's Degree in Robotics I've been contacted by a small startup working in the IoT and microsatellite sector to join as head of their engineering team. I was tasked with full system design and implementation. In particular I had to design remote measurement stations equipped with different types of sensors. I selected the different electronic components and wrote code for a small scale proof of concept demonstrator of the company's innovative remote monitoring solutions that has been successfully presented in different meetings with investors. The system designed included three separate units: a measurement station, a basic mock-up of their microsatellite relay and a control station that received measurements from the relay and displayed them on a time graph on a separate computer.

Leonardo S.p.A. Cyber and Security Genoa, Italy

Thesis Intern

17/07/2023 – 01/04/2024

- Development of a framework to create synthetic datasets for object detection training of a YOLOv8 model. By leveraging the capabilities of the NVIDIA Isaac Sim Replicator extension I built a framework that can extract from 3D models of a given workplace environment images of objects of interest seen from different perspectives and lighting conditions within the recreated 3D environment.
- I then developed a python library to organize the raw synthetic data produced by the framework into organized folder structures compatible with the required YOLOv8 input data format. Through this architecture I tested YOLOv8's learning capabilities when trained on different datasets. I therefore created four very large synthetic datasets that I then used to train the same model. I then tested the trained models on unseen non-synthetic visual data extracted from videos and photos collected from the real world environment that was recreated in the 3D model from which the annotated training datasets have been extracted.
- Since the trained models were to be loaded and tested on a real robot, I have also been trained during this internship on two different work security courses of which I passed both certification exams. I was thus given the PES PAV PEI certification which according to the Italian D.Lgs. 81/08 and the European [CEI 11-27](#) are needed for workers exposed to voltages over 50VDC.

TIM S.p.A. Turin, Italy

Consulting Intern

02/04/2020 – 15/05/2020

During my Bachelor's degree I was given the opportunity to gain 6 of my required 180CFU credits by participating in a brief internship program which I managed to find by personally contacting TIM's research division, which at the time were working on creating control software for drone swarms. The program was still in the initial phases so I was asked to create functional 3D URDF models of 3 quadricopters of different sizes. These models were to be inserted within the popular Gazebo simulation environment so I had to model both their geometric and physical properties using the URDF syntax. At the end of my internship, along with the models developed, I also produced a detailed documentation explaining the flight mechanics of quadcopter drones and how I modeled them within the simulation-ready URDF models that I had created. The whole internship was slightly limited by the fact that it had to be carried out remotely since it occurred when the COVID restrictions were still enforced.

EDUCATION AND TRAINING

01/11/2024 – CURRENT Pisa, Italy

PhD Student Università di Pisa and Sant'Anna School for Advanced Studies

Website <https://www.santannapisa.it/it/formazione/dottorato-analisi-e-controllo-di-strutture-e-opere-darte-infrastrutturali>

20/09/2021 – 26/03/2024 Genoa, Italy

Master's Degree in Robotics Engineering Università di Genova

- C++ for Embedded Systems
- Robot dynamics, Control of linear multivariable systems
- Modelling of kinematic chains
- Machine Learning
- Extended experience with ROS and ROS2 middleware for robotics

Website <https://unige.it> | **Field of study** Robotics Engineering | **Final grade** 107/110 | **Level in EQF** EQF level 7 |

Type of credits ECTS | **Number of credits** 120 | **Thesis** Synthetic Dataset Generation for Object Detection Training of a Patrolling Robot

22/09/2015 – 19/07/2021 Turin, Italy

Bachelor's Degree in Aerospace Engineering Politecnico di Torino

Website <https://www.polito.it> | **Level in EQF** EQF level 6 | **Type of credits** ECTS | **Number of credits** 180 | **Thesis** Design and Development of a Test Bench for FBG Optical Sensors

08/09/2011 – 05/07/2015 Rome, Italy

Scientific Highschool with Orientation on the Chinese Language Convitto Nazionale Vittorio Emanuele II

I studied in a public scientific highschool that allowed students to study chinese for 8 hours a week and to travel abroad to China at the end of every school year for about a month in order to prepare for the HSK language exams.

Level in EQF EQF level 5

LANGUAGE SKILLS

MOTHER TONGUE(S): Italian

Other language(s):

English

Listening C2

Spoken production C2

Reading C2

Spoken interaction C2

Writing C2

Spanish

Listening B2

Spoken production B1

Reading B2

Spoken interaction B1

Writing B1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user

SKILLS

PROGRAMMING LANGUAGES

C | C++ | Python | Bash Scripting | PDDL | PDDL+

CAD

Solidworks | Autodesk Fusion360 | PTC Creo | FreeCAD

SIMULATION ENVIRONMENTS

NVIDIA Isaac Sim | Isaac Sim Replicator | Gazebo | Webots

SOFTWARE APPLICATIONS

MATLAB | Simulink | Git | MPLab IDE | Arduino IDE