Curriculum vitae

PERSONAL INFORMATION

Alessandro Trapasso

⚲ "Ai fini della pubblicazione in ottemperanza all'art. 26 del D. Lgs. 33/2013"

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Gender Male

UNIVERSITY EXPERIENCE

July 2020 – Present

Master Thesis: Multi-UAV reinforcement learning with temporal and priority goal

The goal of this thesis is to implement a Multi-UAV environment, where each UAV has to reach its goal in the shortest possible time based on the priority of the task assigned to it. The scenario is set in Rome, we have eight hospitals and three drones, the colors chosen to define the priorities are the same colors used in Italy, to define the priorities in first aid. Drones, starting from any point on the map, visit the hospital from which they take the *medicine/vaccine/blood tube/organ* and then transport it to the hospital that requested it. In case two trajectories intersect *UAV1* (e.g. red priority) with a UAV2 (e.g. orange priority), the priority *UAV1* emits a signal (e.g. ambulance siren emitting an acoustic signal), when the *UAV2* is at a certain distance which allows it to receive the acoustic signal of the *UAV1*, the *UAV2* stops, in this way the *UAV1* that has priority can pass safely. The generated trajectories are given as input to a controller to then generate a flight plan. The Multi-UAV environment was developed in Python by extending the *Gym* library, reinforcement learning agents learned a policy that meets *LTLf/LDLf* goals.

March 2019 – June 2019

WIMSApp

This project is about the development of a mobile app called *WIMSapp* (Where Is My Seat application) whose main purpose is to provide an easy way for the students of Sapienza University of finding places where they can study in their free time. The app has been developed in Android Studio and contains a database of study rooms and libraries, divided depending on where they are located. Our app offers a user report based system to share information about how many seats are available in the different rooms and libraries; The interface of this app has been designed following the principles of human-computer interaction *(HCI)*.

April 2018 – June 2018

Smartage

Smartage is a solution for the management of garbage aiming to simplify the monitoring and the collection in a city. It measures the fill-level of a garbage collector (Smartage) while monitoring the temperature and the orientation (useful if the bin catches fire or overturns). The sensors used *(temperature, gyroscope, ultrasonic transducer)* are connected to a *STM32 Nucleo*. The Smartage app gives the possibility to show on a map the shortest route between full Smartages, in this way, the garbage company can optimize the route of its trucks by emptying only the full bins. This, in addition to a considerable saving of resources and time by the company, has a significant benefit for city traffic. We also performed demonstrations at *NeaPolis Innovation Technology Day 2018*, held at STMicroelectronics, based in Naples, on November 21, 2018.

2017 – 2020	**Projects and Homework**
	I realized different projects and accomplished many Homeworks, both individually and/or in a team. The topics of the projects focus on Facial Expression Recognition, Object Detection, Network Security, and Penetration Test. All these topics have been investigated using Python libraries such as *Tensorflow, Keras, sklearn, and TFLearn*. One last project that I realized in a team with other students, consisted in creating a video game using *three.js* library focusing on the movements of hierarchical animated objects.

EDUCATION AND TRAINING

2017 – Present	**Master's degree in Engineering in Computer Science**
	Expected degree mark: 110/110
	Sapienza University of Rome, Rome, Italy
	Expected graduation date: 03/2021

2013 – 2017	**Bachelor degree in Computer and Automatic Engineering**
	Degree mark: 90/110
	Sapienza University of Rome, Rome, Italy
	Date: 21/12/2017

2008 – 2013	**High school degree**
	Scientific High school, Luigi Siciliani, Catanzaro, Italy

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)

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

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user
Common European Framework of Reference (CEF) level

Computer skills Python, C, Java, MatLab, Google analytics, Google Data Studio, Google Search Console, HTML, CSS, Bash Scripting, jQuery, Bootstrap, MySQL, Machine and Reinforcement learning libraries, Cisco Packet Tracer, Latex, Microsoft Office, Windows, Unix-like OS, Linux.