Andrea Tantucci

Curriculum Vitae

Education

2015–2018 **Bachelor in Computer and Automatic Engineering**, *The University of Rome*, Sapienza, *110/110 summa cum laude*

I have worked with two other collegues to a project regarding the topic of Neural Network, in particular we have tackled the problem of image classification. We have used the Python Framework to build a Deep Convolutional Neural Network, then we have proceeded through its training on a labeled dataset which have been modified using specific metodologies so as to increase the effectiveness of the training, such as data augmentation.

2018-2020 **Master Degree in Control Engineering**, *The University of Rome*, Sapienza

○ I have worked with another collegue in a project regarding the Optimal Control Problem of an Active Suspension System using the LQR approach. We have analyzed this problem with and without the presence of an electro–hydraulic actuator which has a nonlinear dynamics.

○ I have worked with two other collegues in a project concerning gait generation for a humanoid robot with five degrees of freedom. The aim was to apply and compare two different approaches: the first one was characterized by the use of a feedback linearization control law, while the second one was the tracking of a center of mass trajectory obtained through differential kinematics.

○ I have worked with three other collegues in the analysis and application of a mechanical KERS system on a Formula 1 vehicle. The aim was to develop a PID controller in order to regulate the flow of energy between the flywheel and the vehicle by acting on the difference of the angualar velocities of the flywheel and the wheels. Then we have performed other simulations changing the parameters of the controller and also changing the cost function from a linear to a nonlinear one.

Present **PhD Student in Automatic Control, BioEngineering and Operation Research**, *University of Rome*, La Sapienza

○ I have collaborated with Thales Alenia Space on the development of a Matlab environment aimed to perform the visibility analysis of a satellite with respect to GNSS constellation satellites.

○ I am collaborating with Thales Alenia Space on a project called *crater matching*. It consists of an ODTS algorithm for Moon navigation boosted by neural networks. The role of the AI is to provide vision-based measurements by detecting the Moon craters underneath the satellite.

○ I am participating in an ESA Challenge named *OrbitalAI* with Thales Alenia Space which is centered in using neural networks in order to recognize the presence of fires. The database for the training has been provided by ESA.

Experience

July 2022– July2023	**Fixed-Term consultant**, THALES ALENIA SPACE, Rome I have worked as a System Integration and Verification (SIV) Engineer consultant for Thales Alenia Space in the framework of Galileo 1st generation. I was supporting the SIV team in the execution of system and functional tests both by remote and on-site (Galileo Control Center in Fucino) and in the preparation of test procedures and test reports.

Computer skills

Basic	JAVA, C, C++
Intermediate	MATLAB & SIMULINK, LATEX, Docker
Advanced	Python, Python for AI (Pytorch and Tensorflow)

Languages

English	Intermediate	*Cambridge FCE*

Attitudes

I am well disposed to work in a team, i am a precise person with a strong attitude to problem solving. I like to work on multidisciplinary projects because in my opinion it allows to increase a person's knowhow and to develop the skill to think for 'out of the box' solutions.

Interests

My work interests are related to the aerospace field, in particular in the navigation framework and in the development of control algorithms for satellite applications. Regarding my personal interests i love sports, in particular tennis. I like going to the cinema and i like listening to music in my free-time.