




FEDERICO NESTI

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 Federico Nesti

PROFILE

I am a hard-working and fast-learning **Robotics and Automation Engineer**, with Electronics Engineering background; I work at Scuola Superiore Sant'Anna in Pisa as a **PhD Student**. I truly believe in a future where robots will help humans to live better lives on a daily basis and I would love to work to make this happen. My goal and my dream is to be a **researcher**, and I would love to work in a space-related field, one day. I have a solid computer vision background and I love multi-disciplinary work, research and open challenges.

EXPERIENCE



Consulting Engineer

SCUOLA SUPERIORE SANT'ANNA (TECIP INSTITUTE), PISA [Jul. 2020 - Ongoing]
[Architectures and algorithms for train localization systems]



Scholarship Holder (Safety for learning-based autonomous systems)

SCUOLA SUPERIORE SANT'ANNA (TECIP INSTITUTE), PISA [May 2019 - Sep. 2019]
[Reinforcement Learning, software architectures for predictable and safe Deep Learning]



Robotics R&D Engineer

FABRICA MACHINALE SRL - ROBOTICOM, PISA [Sep. 2018 - Apr. 2019]
[Dev.ment of automated procedures for multi-brand industrial robots - EE change, calibration, ...]



Visiting Scientist (M.Sc. Thesis: Eye Tracking for Proton Clinic Environment)

TU DELFT (DCSC), NETHERLANDS [Jan. 2018 - Jun. 2018]
[Development of an Eye Tracking device - computer vision, machine learning, Bayesian filters]



Internship

FERMILAB, BATAVIA (IL), USA [Aug. 2017 - Sep. 2017]
[Automatic position control for automatic magnet centering; pose estimation for solenoids]



Electronics and Control Engineer

U-PHOS PROJECT (REXUS-BEXUS PROGRAMME) [Sep. 2015 - Jun. 2017]
[PCB design and test, heating control of device under test]

SKILLS

Competences Control Theory (Good), Computer Vision (Good), Machine Learning (Good), Deep Learning (Good), Navigation (Good), Reinforcement Learning (Medium)

Software Matlab/Simulink (Excellent), ROS (Medium), Latex (Good)

Programming C/C++ (Medium), Python3 (Good), Industrial Robots (Good), Tensorflow 1.x (Good), PyTorch (Medium)

Languages Italian, English

EDUCATION



International PhD Student in Emerging Digital Technologies

SCUOLA SUPERIORE SANT'ANNA (TECIP INSTITUTE), PISA [October 2019 - Ongoing]

[Trustworthy Deep Learning, real-world adversarial attacks and defenses]



Deep Learning + Reinforcement Learning Summer School

CIFAR, MILA [August 2020], Online

[Reinforcement Learning, Deep Learning]



Computer Vision NanoDegree

UDACITY

January 2019 - April 2019



M.Sc. Robotics and Automation Engineering (110/110 cum Laude)

UNIVERSITY OF PISA

September 2015 - July 2018



B.Sc. Electronics Engineering (110/110 cum Laude)

UNIVERSITY OF PISA

September 2012 - July 2015

PUBLICATIONS

[TO APPEAR] F. Nesti et al., "Detecting Adversarial Examples by Input Transformations, Defense Perturbations, and Voting". **IEEE Transactions on Neural Networks and Learning Systems**, 2021

A. Biondi et al. "A Safe, Secure, and Predictable Software Architecture for Deep Learning in Safety-Critical Systems". **IEEE Embedded Systems Letters**, 2019

P. Nannipieri et al. "U-PHOS Project: Development of a Large Diameter Pulsating Heat Pipe Experiment on board REXUS 22". **Journal of Physics: Conference Series** 796 012044, 2017

P. Nannipieri et al. "The U-PHOS experience within the ESA student REXUS/BEXUS programme: A real space hands-on opportunity". **Global Engineering Education Conference (EDUCON)**, 2017

P. Nannipieri et al. "Application of FBG sensors to temperature measurement on board of the REXUS 22 sounding rocket in the framework of the U-PHOS project". **International Workshop on Metrology for Aerospace**, 2017

TEACHING ACTIVITY

- 8 hours of lectures (since 2019-2020) for the course "Deep Learning and Neural Networks" (PhD course by prof. Buttazzo, Scuola Superiore Sant'Anna), on the topics "Neural network-based control" and "Adversarial attacks and defenses"

REFERENCES

Giorgio Buttazzo (Full Professor, Scuola Superiore Sant'Anna), g.buttazzo@santannapisa.it

Michel Verhaegen (Full Professor, TU Delft), m.verhaegen@tudelft.nl

Thomas Strauss (Associate Scientist, Fermilab), strauss@fnal.gov