LORENZO BIANCHI

PERSONAL INFORMATION

Place of birth	Frosinone (FR), Italy
Date of birth	4^{th} *March* 1993
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FIELDS OF INTEREST

Robotics · Mobile Robotics · Planning · Localization · Control Systems · Automotive · Autonomous Driving · Drones · Neural Networks

WORKING EXPERIENCES

Università degli Studi di Roma "Tor Vergata"

March 2021 (ongoing)

Autonomous systems and machine learning researcher

- Working on Leonardo Drone Contest as software and test engineer of Tor Vergata team
- Developing algorithms for image classification, segmentation, tracking using CNNs

Prima Sole Components, Ferentino (FR), Italy

October 2019 - March 2021

Permanent contract as "Maintenance technician for innovation activities"

- Maintenance, quality and logistics engineer
- Launch manager for Maserati Grecale new project

FCA research centre, Orbassano (TO), Italy

July 2019

Two weeks of internship at the end of the course "Autonomous Driving" working as Engineering Specialist

EDUCATION

Università degli Studi di Roma "Tor Vergata"

State Exam July 2021

Attended State exam for Information Engineer, section A, Automation Engineering class
Final mark: 50/50

Università degli Studi di Roma "Tor Vergata"

1^{st} Level Master March 2021 (ongoing)

Design, application, regulation of Unmanned Aerial Vehicle
Link to the main site

Experis Academy

Specialization Course June 2019

High specialization course "Autonomous Driving"
Designed by Experis Academy and FCA with the aim of training professionals in order

to work in the research and development of autonomous driving projects. The course includes lectures, exercises and a final project work to be submitted to FCA

Università di Pisa

Master Degree
2016-2019

Robotics and Automation Engineering
Final mark: 110/110 with honors
Thesis: *Real-time algorithms for planning and control of autonomous racing cars*
In collaboration with *Roborace*
Description: Aim of this work is to analyse and provide efficient algorithms to drive a racing car inside a known circuit through the best trajectory dynamically computed
Advisors: Prof. Lucia Pallottino, Ph.D. Danilo Caporale

Università degli Studi di Roma "Tor Vergata"

Bachelor Degree
2012-2015

Computer Science Engineering, curriculum Robotics and Automation
Final mark: 110/110 with honors
Thesis: *Inverse kinematics algorithms for manipulators based on differential kinematics*
Description: This thesis deals with kinematic control of a 7DOF redundant robot manipulator and its simulation in Processing
Advisors: Prof. Francesco Martinelli

Liceo scientifico "F. Severi", Frosinone

High School
2007-2012

Final mark: 100/100

COMPUTER SKILLS

Python, C, C++, ROS, ROS2, Gazebo, Rviz, LaTeX, Git, Creo Parametric, Solidworks, Arduino, Raspberry Pi, OpenCV, R, Processing, Matlab, Simulink, Mathematica, Maple, TensorFlow, Linux, Ubuntu, Microsoft Windows, Adobe Lightroom, Adobe Photoshop, Cura, 3D printing, Word, Excel

PROJECTS

Experis Academy

Final group project whose aim was to produce a virtual autonomous guide car following given points on a track.
This project was performed by groups working with an Agile methodology.
Agile method · ROS · C++ · Git

ACADEMIC PROJECTS

Robotics

Cartesian impedance control of 7DOF KUKA LWR-IV,
ROS · C++ · Matlab · Simulink

Guidance and Navigation

Drones recognition through Convolutional Neural Networks,
ROS · Python · TensorFlow · Matlab

Underwater Systems

Design and implementation of 2DOF NPS-AUV control system,
Matlab · Simulink

Vehicle Dynamics

Telemetry analysis of three GP2 race car laps,
Mathematica

Aerospace Robotics

Project of an interplanetary mission from Earth to Uranus with two flybys,
Matlab

Uncertain Systems Control

Robust control of a Hard Disk Drive,
Matlab · Simulink

Robots Mechanics — *Realization of a 3D printer plate based on 6-DOF Stewart platform,*
Mathematica · Creo Parametric · Python · Arduino

Physiological Cybernetics — *Implementation of an MPC non-recursive strategy applied to HIV model,*
Matlab

Industrial Robotics — *Design and virtual implementation of a robot made up of a 7DOF manipulator placed on a rover, controlled by user with hands gestures through the LeapMotion device,*
Processing · Python

CERTIFICATES

ENAC/EASA — *UAV Pilot (Non-Critical Operations)*

Coursera
Introduction to Self-Driving Cars
State Estimation and Localization for Self-Driving Cars
Modern Robotics, Course 1: Foundations of Robot Motion
Modern Robotics, Course 2: Robot Kinematics
Robotics: Aerial Robotics
Robotics: Computational Motion Planning
Robotics: Estimation and Learning
Using Python to Access Web Data
Using Databases with Python
Capstone: Retrieving, Processing, and Visualizing Data with Python
Data Collection and Processing with Python
Python Project: pillow, tesseract, and opencv
Camera Control
Cameras, Exposure and Photography
Photography Techniques: Light, Content and Sharing
Principles of Photo Composition and Digital Image Post-Production

PUBLICATIONS

2020 — *N. Esposito, U. Fontana, G. D'autilia, L. Bianchi, M. Alibani, L. Pollini,*
A Hybrid Approach to Detection and Tracking of Unmanned Aerial Vehicles,
AIAA Scitech 2020 Forum

OTHER INFORMATION

Languages
Italian · Mothertongue
English · Upper Intermediate/Advanced, attended one year of C1 course
French · Basic

Interests — Photography · Travelling · Sport · Technology · Puzzle games