Giovanni **Claudio**

ROBOTICS ENGINEER

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Seven years of experience in perception, computer vision, sensor-based robot control and deep learning

Experience

Robotics Engineer - Autonomous Navigation — *London, UK*

ARRIVAL — *Sept 2019 - now*

- Currently working on autonomous navigation and sensor-based control for AGVs.

Autonomous Driving Engineer — *Turin, Italy*

ITALDESIGN GIUGIARO (AUDI GROUP) — *Sept 2017 - Sept 2019*

- Responsible of the perception and software architecture in the *Pop.Up* project: an electric, modular and autonomous flying car.
- Research, implementation and deployment of perception, mapping/localization and control algorithms.
- Training and deployment of deep neural networks for object detection and semantic image segmentation.
- Sensor scouting and evaluation (mainly cameras, lidars and depth cameras).
- Technical lead of smart city projects for new mobility solutions (see Projects section).

R&D Robotics Engineer — *Rennes, France*

INRIA, LAGADIC TEAM, LEAD BY FRANÇOIS CHAUMETTE — *Nov 2013 - Aug 2017*

- Implemented sensor-based algorithms on drones, mobile, serial and humanoid robots for navigation and manipulation.
- Developed detection, real-time tracking and pose estimation algorithms using 2D and RGB-D cameras.
- Built a framework based on ROS, MATLAB/Simulink, and V-REP for a fast prototyping of robot control algorithms.
- Supervised several student internships and published scientific articles at ICRA'17 and Humanoids'16.
- Organized demonstrations to show the robotic platforms to the general public.

Robotics Engineer Internship — *Nantes, France*

IRCCYN — *Feb - Sept 2013*

- Developed a C++ algorithm to estimate the pose and velocity of a high-speed parallel robot using vision.

Education

Master ARIA (Control Engineering, Robotics and Applied Informatics): Advanced Robotics — *Italy and France*

DOUBLE DEGREE: ÉCOLE CENTRALE DE NANTES (ECN) AND UNIVERSITY OF GENOA (UNIGE) — *2011-2013*

Bachelor's Degree in Computer Science Engineering — *Italy*

UNIVERSITY OF GENOA (UNIGE) — *2008-2011*

Self-Driving Car Engineer Nanodegree (SDCN) — *Udacity*

UDACITY IN COLLABORATION WITH MERCEDES-BENZ, NVIDIA, BMW AND UBER — *Feb-Nov 2017*

Skills

Programming	C/C++, Python, MATLAB
Libraries	OpenCV, PCL, Tensorflow, ViSP, Panda3D
Tools and Software	ROS, V-REP, IPG CarMaker, Simulink, Blender, GIT, CMake, Doxygen, Docker
OS	GNU/Linux, Microsoft Windows
Robots	Nao, Romeo, Pepper, Pioneer P3-DX, Thymio, Adept Viper s650, OrthoGlide, Comau robot
Sensors	Camera, Depth Camera, Lidar, Radar, Ultrasonic, IMU, GNSS
Languages	Italian *(Native)*, English *(Fluent)*, French *(Intermediate)*, Spanish *(Basic)*

Projects

Autonomous electric car project

Italdesign

Prototype vehicle equipped with Cameras, Lidars, Radars, GNSS, IMU and ultrasonic sensors — *C++, Python, ROS*

- Designed the sensor set and software architecture of the vehicle. Developed the following functionalities:
  - Perception: 2D and 3D obstacle detection, semantic image segmentation, pedestrian, traffic sign and car detection
  - Mapping and localization with camera, Lidar, IMU, odometry and GNSS
  - Planning: trajectory following and decision-making
  - Control: PID and Model Predictive Control

Pop.up Next

Italdesign

Modular flying taxi in collaboration with Airbus and Audi — *C++*

- Amsterdam Drone Week 2018: 1:4 scale model flying demonstration. Developed the following:
  - Vision-based drone detection and pose estimation from car module.
  - Autonomous navigation for centering and latching with the drone module.

InTo

Italdesign

A service that improves travel on the metro by predicting the least crowded car for boarding. — *Python*

- Machine Learning and Computer Vision technical lead of the project. The system is based on:
  - Convolutional Neural Network for crowd estimation and people counting.
  - Machine learning algorithm to predict the people exiting from the train.
- The system has been deployed at the Re Umberto station in Turin from May 2019.

Wheem-i (Moby)

Italdesign

A sharing service to make traveling easier for wheelchair users — *C++*

- Finalist of the $4 million Mobility Unlimited Challenge from the Toyota Mobility Foundation.
- "Wheel-on" semi-autonomous electric devices located in urban hubs. Developing the following:
  - Perception system for obstacle and free navigable space detection.
  - Human-machine shared control with driver assistance system for obstacle avoidance.

Romeo project (with Softbank Robotics) and Comanoid project (with Airbus)

INRIA

Perception, navigation, sensor-based control and human-robot interaction — *C++, Python, ROS*

- Delivered the following demonstrations: object localization and grasping, dual arm manipulation, door handle detection and opening, camera-based and audio-based navigation, people following and obstacle avoidance.
- Demonstrations based on object detection, model-based tracking, template tracking, 3D point cloud segmentation, augmented reality, text detection on natural images, face detection and recognition, sound localization and speech recognition.
- Visual servoing in an optimization framework for the whole-body control of humanoid robots.

Extracurricular Activities

OpenLab

Genoa, Italy

Officer — *2009 - 2014*

OpenLab is a club recognized by the University of Genoa. The aim of the club is to spread IT culture and Free Software both inside and outside the university. We organize talks, projects, thematic events, workshops and open courses.

Other interests

Music: Pop/rock singer

Member of Mika's choir: Concert at Roundhouse in Chalk Farm, 13 Dec 2012 — *London, UK*

AIMS Summer School: Courses attended: Cabaret class, Vocal Technique, Musical class — *Eastbourne, UK*

1st Place: Singing competition "Solo per una voce". Jury headed by TOSCA. Prize: AIMS Summer School (2012) — *Genoa*

Courses: Pop/Rock singing (2008-2012) and piano lessons (1998 - 2002) — *Genoa*

Choir: Bariton in the polyphonic choir "I polifonici di Genova"(2003 - 2008) and "JanuaVox" (2001-2003) — *Genoa*