

# FILIPPO GRAZIOLI

Heidelberg, Germany

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## Education

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### RWTH Aachen University

*Erasmus+ EU International Exchange Program*

September 2015 – October 2016

Aachen, Germany

### Polytechnic University of Turin

*Master of Science (cum laude) in Automotive Engineering*

October 2014 – March 2017

Turin, Italy

### University of Ferrara

*Bachelor of Science (cum laude) in Mechanical Engineering*

September 2011 – October 2014

Ferrara, Italy

## Experience

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### Cruise (General Motors)

*Senior Machine Learning Engineer II - Computer Vision*

April 2023 – Present

Munich, Germany

- 3D object detection for self-driving cars.
- Deep learning and LiDAR/camera/radar sensor fusion.
- Scene understanding.

### NEC Laboratories Europe

*Research Engineer - Biomedical AI*

July 2020 – March 2023

Heidelberg, Germany

- Machine learning for precision immuno-oncology, personalized cancer vaccines and drug discovery.
- Prediction of protein binding with Transformers, Graph Neural Networks and 1D CNNs.
- Multimodal variational models for disease prediction.
- Probabilistic simulations and mixed integer programming (MIP) for vaccine optimization.

### Bosch Engineering

*Software Engineer - Camera Perception*

July 2018 – July 2020

Abstatt, Germany

- Embedded C++ perception algorithms for the Bosch Multi Purpose Camera for ADAS and autonomous driving.
- Road sign recognition.
- ROS prototype development.

### Ferrari

*Visiting Researcher - Computer Vision*

October 2017 – June 2018

Maranello, Italy

- Computer vision for driver monitoring with depth and RGB images.
- Depth estimation with GANs from monocular RGB images.
- Multimodal face verification from RGB and depth.

### RWTH Aachen University

*Graduate Research Assistant - Software Engineering (May 2017 – September 2017)*

June 2016 – September 2017

Aachen, Germany

- Model-based software engineering (UML/SysML) for automotive research.

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*Student Research Assistant - Institute of Automotive Engineering (IKA) (June 2016 – April 2017)*

- Eye-tracking and driver behaviour understanding for autonomous driving.
- Master thesis: *Development of a Driver State Detector for Autonomous Vehicles*.

## Selected Publications

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*Are you a robot? Detecting Autonomous Vehicles from Behavior Analysis*, F Maresca, **F Grazioli**, A Albanese, V Sciancalepore, G Negri, X Costa-Perez, IEEE International Conference on Robotics and Automation (ICRA), 2024

*Disentangled Wasserstein Autoencoder for T-Cell Receptor Engineering*, T Li, H Guo, **F Grazioli**, M Gerstein, MR Min, NeurIPS, 2023

*Microbiome-based disease prediction with multimodal variational information bottlenecks*, **F Grazioli**, R Siarheyev, I Alqassem, A Henschel, G Pileggi, A Meiser, PLOS Computational Biology, 2022

*Face Verification from Depth using Privileged Information*, G Borghi, S Pini, **F Grazioli**, R Vezzani, R Cucchiara, The British Machine Vision Conference (BMVC), 2018

*Learning to Generate Facial Depth Maps*, S Pini, **F Grazioli**, G Borghi, R Vezzani, R Cucchiara, International Conference on 3D Vision (3DV), 2018

## Technical Skills

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**Computer vision:** Multimodal object detection, camera/radar/LiDAR fusion, segmentation, depth estimation

**Machine learning:** Deep learning, geometric deep learning, graph convolutional networks, variational inference, information bottleneck, multimodal learning, deep sets, transformers, out-of-distribution detection

**Relevant libraries:** PyTorch, PyTorch Geometric, DGL, Tensorflow/Keras, Transformers, Scikit-learn, ROS, OpenCV

**Languages:** Python, C, C++

**Software development:** Docker, Git, Scrum, Jira, GitLab, Continuous Integration

## Languages

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**Italian:** Mother tongue   **English:** Fluent   **German:** Fluent   **Spanish:** Basic

## Interests

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**Favourite movie directors:** David Lynch, Martin Scorsese

**Favourite writers:** Jorge Luis Borges, Gabriel García Márquez

**Hobbies:** Photography, swimming, playing guitar, cooking, gardening