


# FILIPPO GRAZIOLI

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## Experience

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### Cruise (General Motors)

April 2023 – Present

*Senior Machine Learning Engineer II - Computer Vision*

*Munich, Germany*

- Implementation, research and deployment of 3D object detection models for self-driving cars.
- Deep learning and LiDAR/camera/radar sensor fusion.
- Scene and vehicle understanding with multimodal, multi-task, Transformer-based temporal models.

### NEC Laboratories Europe

July 2020 – March 2023

*Research Engineer - Biomedical AI*

*Heidelberg, Germany*

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

### Bosch Engineering

July 2018 – July 2020

*Software Engineer - Camera Perception*

*Abstatt, Germany*

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

### Ferrari

October 2017 – June 2018

*Visiting Researcher - Computer Vision*

*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

June 2016 – September 2017

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

*Aachen, Germany*

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

*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.*

## Education

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### RWTH Aachen University

September 2015 – October 2016

*Erasmus+ EU International Exchange Program*

*Aachen, Germany*

### Polytechnic University of Turin

October 2014 – March 2017

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

*Turin, Italy*

### University of Ferrara

September 2011 – October 2014

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

*Ferrara, Italy*

## Technical Skills

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

**Machine learning:** Multi-task learning, geometric deep learning, graph convolutional networks, variational inference, information bottleneck, multimodal learning, deep sets, Transformers, out-of-distribution detection, generative models

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

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

**DevOps / Software development:** Docker, Git, Scrum, Jira, GitLab, Continuous Integration, Test-driver development

**Data engineering:** SQL, Google Cloud Platform, Dataflow, BigQuery, Apache Beam, Apache Avro, Apache Parquet

## Selected Publications

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*NeoAgDT: Optimization of personal neoantigen vaccine composition by digital twin simulation of a cancer cell population*, A Moesch, **F Grazioli**, P Machart, B Malone, Bioinformatics, 2024

*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, Neural Information Processing Systems (NeurIPS), 2023

*Attentive Variational Information Bottleneck for TCR-peptide Interaction Prediction*, **F Grazioli**, P Machart, A Moesch, K Li, LV Castorina, N Pfeifer, MR Min, Bioinformatics, 2022

*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

## 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