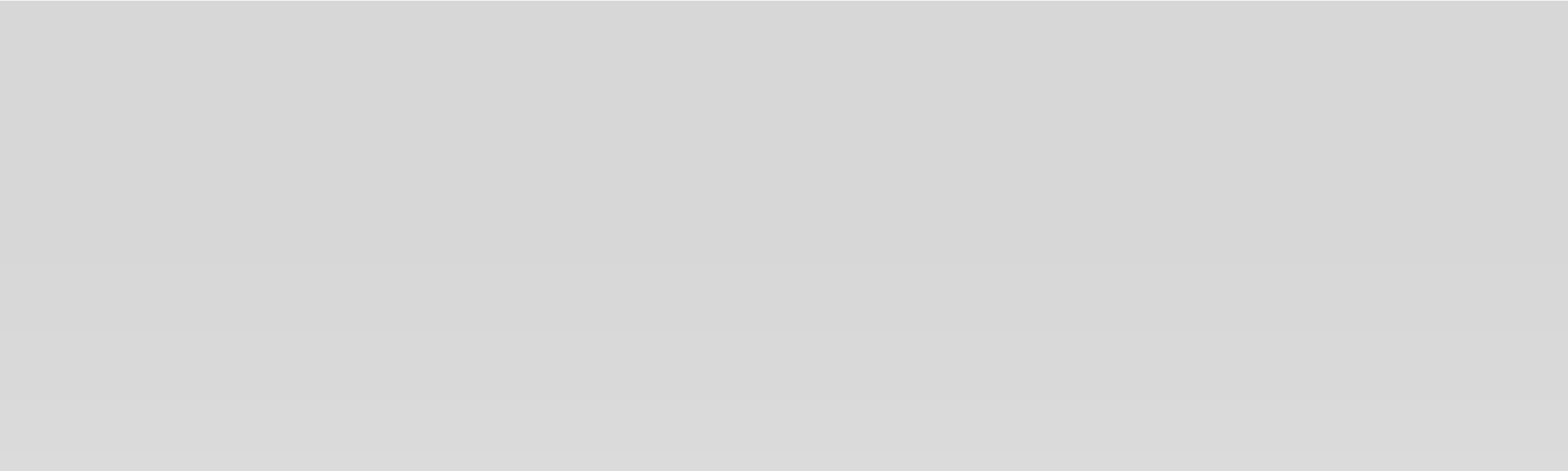
2018 – 2021



FRANCESCO

**SARNO**

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https://francescosarno.github.io

**EDUCATION**

**M.Sc. in Robotics, System and**

**Control**

**|**

**ETH Zürich**

https://www.linkedin.com/in/francesco-sarno/

**Advisor:** Prof. Dr. Roland Siegwart

**Grade**: 5.61/6.00

# B.Sc. in Automation Engineering | Politecnico di Milano

2015 – 2018

**Grade**: 106/110

## High School Diploma | Liceo Scientifico Statale N. Copernico

2010 – 2015

**Grade**: 95/10

# EXPERIENCE

## Computer Vision and Robotics Research Engineer |

### Switzerland Innovation Park Biel/Bienne, Swiss Battery Technology Center [Biel, CH]

02/2023 – Current

Created a pipeline for detection and pose estimation of EV battery components, working towards RL applied to automated disassembly.

### Computer Vision Specialist | Valcambi *via* ETH Juniors [Zurich, CH]

09/2023 – 02/2024

Proof of concept: gold bars fraud detection via deep learning-based feature detection and matching.

**Computer Vision Research Engineer | EPFL, Computer Vision Lab [Lausanne, CH]**

02/2022 – 03/2023

**Advisor:** Prof. Dr. Pascal Fua

Research in 3D reconstruction, GCNN, biomedical imaging, crowd-counting, SFM, and camera calibration.

### Computer Vision Research Assistant | ETH Zürich, Computer Vision Lab [Zürich, CH]

05/2021 – 12/2021

**Advisor:** Prof. Dr. Luc Van Gool, Dr. Suryansh Kumar

Research in automated machine learning, 3D vision, and view synthesis. The study concluded with two publications at WACV22.

### Computer Vision Engineer |Solera Holdings, Qapter *via* ETH Juniors [Zürich, CH]

08/2021 – 12/2021

Deep learning and NeRF-based algorithms for 3D reconstruction, segmentation, and depth estimation.

**Computer Vision Engineer Intern | Rheinmetall Air Defence, Qapter [Zürich, CH]**

02/2020 – 12/2020

Development of algorithms aimed at firings' accuracy evaluation and 3D visualization.

# SELECTED PROJECTS

## Master’s Thesis | ETH Zürich, Computer Vision Lab

**Advisor:** Prof. Dr. Luc Van Gool, Dr. Suryansh Kumar, Dr. Berk Kaya

Completed with distinction 5.75/6.00

*Exploring Automated Machine Learning Framework for Deep Photometric Stereo:* developing an automatically designed pipeline that achieves state-of-the-art results in uncalibrated photometric stereo.

**Semester Project | ETH Zürich, Autonomous Systems Lab Advisor:** Prof. Dr. Roland Siegwart, Dr. Abel Gawel, Dr. Hermann Blum

*Semantically informed localization in building structures*: pipeline allowing localization of a four-wheel robot in indoor environments leveraging out information of a segmentation-oriented neural network and point clouds.

## Course Project | ETH Zürich, Computer Vision and Geometry Group

**Advisor:** Prof. Dr. Marc Pollefeys

*Fully Convolutional Place Recognition Network*: developing an algorithm performing sparse SLAM with point clouds in large outdoor environments.

## Course Project | ETH Zürich, Innovation Center Virtual Reality

**Advisor:** Prof. Dr. Andreas Kunz

*AMazing videogame*: maze-based video game created from scratch, playable with keyboard and HTC VIVE.

# SKILLS

**Programming Skills**

Python, PyTorch, C, C++, ROS, MATLAB, C#, Unity.

**Language Skills**

Italian (Native), English (Proficient), Spanish (Intermediate), German (Basic), French (Basic).

# PUBLICATIONS

[WACV 22] *Neural Architecture Search for Efficient Uncalibrated Deep Photometric Stereo*. Francesco Sarno, Suryansh Kumar, Berk Kaya, Zhiwu Huang, Vittorio Ferrari, Luc Van Gool. IEEE/CVF Winter Conference on Applications of Computer Vision, 2022, Hawaii, USA.

[WACV 22] *Neural Radiance Fields Approach to Deep Multi-View Photometric Stereo*. Berk Kaya, Suryansh Kumar, Francesco Sarno, Vittorio Ferrari, Luc Van Gool. IEEE/CVF Winter Conference on Applications of Computer Vision, 2022, Hawaii, USA.

# RESEARCH INTERESTS

**Computer Vision**

3D Reconstruction, View Synthesis, Photometric Stereo, Segmentation, Camera Calibration.

**Robotics**

Visual SLAM, State Estimation.

## Machine Learning

Deep Neural Networks, Deep Reinforcement Learning, Diffusion Models (T2I, T2V), Generative Models (GAN, Normalizing Flow), AutoML (Neural Architecture Search, Evolutionary learning), LLMs.

# CERTIFICATES

# IEEE RAS Summer School on Multi-Robot Systems| CTU Prague

2022

**IELTS (International English Language Testing System)**

2018

**Grade**: 7.5

# VOLUNTEERING

**Core Team Member| Google Developer Student Club Zürich**

10/2021 – 10/2022

## Football Coach| GSO Azzano Mella

08/2022 – Current

**Volunteer| Gruppo Volontariato Primavera**

08/2022 – Current

# REFERENCES

*Prof. Dr. Luc Van Gool*

*Prof. Dr. Pascal Fua*

*Prof. Dr. Roland Siegwart*

*Dr. Suryansh Kumar*

*Dr. Berk Kaya*

*Dr. Udaranga Wickramasinghe*