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| Francesco  sarno | Chemin du Fréne 9, Lausanne  +41 774988061  sarnof96@gmail.com  https://www.linkedin.com/in/francesco-sarno/  https://francescosarno.github.io |

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|  | Education |

## M.Sc. in Robotics, System and Control | ETH Zürich

### 2018 – 2021

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

### **Grade**: 5.61/6.00

### IEEE RAS Summer School on Multi-Robot Systems**|** **CTU Prague** 2022

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

### 2015 – 2018

### **Grade**: 106/110

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

### 2010 – 2015

### **Grade**: 95/100

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|  | Experience |

## Computer Vision and Robotics Research Engineer |

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

### 02/2023 – Current

Application of deep reinforcement learning and computer vision for battery disassembly.

## 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, 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, view synthesis. Research concluded with 2 publications at WACV22.

## Computer Vision Engineer |Solera Holdings, Qapter [Zürich, CH]

### 08/2021 – 12/2021

Deep learning and neural radiance fields algorithms applied to 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.

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|  | 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****:* development of an automatically designed pipeline achieving 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 to localize a four-wheels 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***: development of 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.

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|  | Skills |

## Programming Skills

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

## Language Skills

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

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|  | 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.

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|  | 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).

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|  | Voluntering |

## 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

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|  | References |

###### *Prof. Dr. Luc Van Gool*

###### *Prof. Dr. Pascal Fua*

###### *Prof. Dr. Roland Siegwart*

###### *Dr. Suryansh Kumar*

###### *Dr. Berk Kaya*

###### *Dr. Udaranga Wickramasinghe*