

# Rémi PAUTRAT

Segantinistrasse 5  
8049 Zurich, Switzerland  
pautratrmi@microsoft.com  
+41 78 234 06 53  
<https://rpautrat.github.io/>  
<https://github.com/rpautrat>  
French nationality



## Education

- 07/2019 – 10/2023 **Computer Vision and Geometry group  
ETH Zurich, Switzerland**  
PhD in CS under the supervision of Prof. Marc Pollefeys  
*Research interests:* features detection and  
description, image matching, visual localization
- 09/2017 – 04/2019 **ETH Zurich, Switzerland**  
MSc in Computer Science (Visual computing track)  
Focus on deep learning, robotics and computer vision
- 09/2014 – 08/2017 **École polytechnique, Palaiseau, France**  
Specialized in computer vision and machine learning
- 09/2012 – 08/2014 **Lycée du Parc, Lyon, France**  
Studied maths and physics in “classes préparatoires”,  
an intensive two-year preparation for the competitive  
exams of engineering schools
- 07/2012 **A-Levels in science** with High Honours

## Research & Work Experience

- 12/2023 – Present **Research Scientist in the Mixed Reality & AI  
Lab of Microsoft in Zurich**
- 03/2022 – 07/2022 **Part-time work with the Reality Labs of Meta**
- 09/2021 – 12/2021 **Research internship at Facebook Reality Labs  
in the London SURREAL team**  
Enhanced visual localization through mid-level primitives
- 08/2019 – 10/2019 **TrimBot, Horizon 2020 European project**  
Adapted visual SLAM to challenging environments  
(outdoors, with light and seasonal variations)

09/2018 – 04/2019

### Master thesis at the Autonomous Systems Lab (ETH Zurich)

Worked on interactive perception: improve the vision  
of an ABB Yumi by interacting with the environment

03/2018 – 06/2018

### Part time work at Leica Geosystems

Object detection in 3D from Lidar and RGB images

04/2017 – 07/2017

### Research internship at INRIA Nancy

Bayesian optimization for robotic damage recovery

06/2016 – 08/2016

### Internship in the robotics company MetraLabs in Germany

## Teaching

- 09/2019 – 10/2023 Head TA in the Visual Computing course at ETH Zurich  
(Bachelor level in Computer Science)
- 09/2019 – Present Supervised 20+ students for bachelor/master theses
- 09/2015 – 07/2019 Private maths lessons on the web platform LiveMentor

## Skills

### Languages

*French:* native language  
*English:* fluent (TOEFL iBT: 108/120)  
*German:* good knowledge (B2)

### IT skills

*Languages* Python, C++, Java, Matlab, OCaml, HTML, PHP  
*Libraries* PyTorch, Tensorflow, Scikit-learn, OpenCV, ROS

## Selected Publications

- **R. Pautrat\***, I. Suárez\*, Y. Yu, M. Pollefeys, V. Larsson, *GlueStick: Robust Image Matching by Sticking Points and Lines Together*, ICCV 2023
- **R. Pautrat**, D. Barath, V. Larsson, M. Oswald, M. Pollefeys, *DeepLSD: Line Segment Detection and Refinement with Deep Image Gradients*, CVPR 2023
- **R. Pautrat\***, J. Lin\*, V. Larsson, M. Oswald, M. Pollefeys, *SOLD<sup>2</sup>: Self-supervised Occlusion-aware Line Description and Detection*, CVPR 2021
- **R. Pautrat**, V. Larsson, M. Oswald, M. Pollefeys, *Online invariance selection for Local Feature Descriptors*, ECCV 2020
- **R. Pautrat\***, T. Novkovic\*, F. Furrer, M. Breyer, R. Siegwart, J. Nieto, *Object Finding in Cluttered Scenes Using Interactive Perception*, ICRA 2020