

Rémi PAUTRAT

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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, *SOLD²: 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