Corentin Sautier

PhD Student in Computer Vision

7 Boulevard de Belleville
75011 Paris, France
+33 (0)6 15 60 64 12
corentin.sautier@gmail.com
https://csautier.github.io/

Education

2022–Today **PhD student**, *valeo.ai & ENPC, Imagine*, Paris.
Self-Supervised learning for sparse 3D point clouds using multimodal signals

2020–2021 **M2 in Applied Mathematics, Vision and Learning (Master MVA)**, *ENS Paris-Saclay*, Saclay.
Courses in Convex Optimization, Computational Statistics, 3D Computer Vision, Optimal Transport, Random Matrix Theory, Point Cloud and 3D Modeling, Kernel Methods, Discrete Learning and Deep Learning.

2017-2021 **Master's Degree in Science and Executive engineering**, *Mines Paristech*, Paris.
Courses in Mathematics, Mechanics, Computer Science, Probability, Statistics, Physics, Automatics and Climate issues. Specialization in Robotics, Computer Vision and applied Mathematics. Projects in Deep Learning, Robotics, and 3D Reconstruction.

2018 **Research Exchange Semester**, *Massachusetts Institute of Technology*, Boston.
Research in Monocular SLAM, and robust SLAM in variable environments. Attended courses and conferences in Computer Vision and Robotics.

2015-2017 **Preparatory Class in Mathematics and Physics**, *Lycée Louis Pasteur*, Neuilly-sur-Seine.
Major courses in Mathematics and Physics, Minor courses in Computer Science and Engineering Sciences.

2015 **High School Diploma with high honors**, *Lycée Rocroy Saint Vincent de Paul*, Paris.

Experience

Professional Experience

2021-2022 **Research scientist**, *valeo.ai*, Paris, France.
Research position before the start of a PhD, with focus on self-supervised representation learning for point clouds.

2021 **6-months Internship**, *valeo.ai*, Paris, France.
Research focused on self-supervision for point clouds, using contrastive methods between camera and LiDAR representations of a scene.
Detailed achievements:
- Reimplemented and developped self-supervised methods on point clouds.
- Used sparse voxel convolutions networks to reach competitive results in autonomous driving datasets.

2020 **6-months Internship**, *IBM Research*, Tokyo, Japan.
Research among a team in IBM's Tokyo Research Lab. The aim was to study combination of automatic planners with Deep Learning to apply Logic Programming to difficult or noisy problem setups.
Detailed achievements:
- Learned state-of-the-art in automatic planning and model-based reinforcement learning.
- Contributed to IBM's intellectual property with multiple patent applications.

2019–2020 **6-months Internship**, *Scio*, London, United Kingdom.
Start-up specialized in automatic data extraction from unformatted documents. Built text and layout classifiers to improve parsing robustness. Carried out the transition from Keras to Pytorch for the main code.

Miscellaneous

2023–Today **Reviewer Duties**.
Reviewer for international conferences and journals including CVPR, ICCV, WACV and TPAMI

2020 **School Project**, *Mines Paristech*, Paris, France.
3D Mesh reconstruction from Point Clouds, using Marching Cubes and implicit surface reconstruction

2019 **School Project**, *Mines Paristech*, Paris, France.
LIDAR point cloud classification algorithm using convolutional Neural Networks (U-Net).

2015-Today **Other**.

- Child Care for an autistic boy
- Personal Teacher for High School Students
- Management of an Organization, bringing fresh fruits and vegetables to students (20,000 € turnover)
- Instrumental practice of the Cello in an orchestra
- Seasonal Employment & Blue-collar internship

Computer skills

Python Pytorch, Tensorflow, Numpy, Scipy, Regex, Cython and other standard libraries

C/C++ Standard libraries, OpenCV

Other LaTeX, Git, OpenOffice & Microsoft Office, Linux

Languages

French Native speaker

English Fluent

German Basic

Publications

2024 **BEVContrast: Self-Supervision in BEV Space for Automotive Lidar Point Clouds**, *3DV 2024*, Corentin Sautier, Gilles Puy, Alexandre Boulch, Renaud Marlet, Vincent Lepetit.

2023 **Revisiting the Distillation of Image Representations into Point Clouds for Autonomous Driving**, *Pre-print*, Gilles Puy, Spyros Gidaris, Alexandre Boulch, Oriane Siméoni, Corentin Sautier, Patrick Pérez, Andrei Bursuc, Renaud Marlet.

2023 **ALSO: Automotive Lidar Self-supervision by Occupancy estimation**, *CVPR 2023*, Alexandre Boulch, Corentin Sautier, Björn Michele, Gilles Puy, Renaud Marlet.

2022 **Image-to-Lidar Self-Supervised Distillation for Autonomous Driving Data**, *CVPR 2022*, Corentin Sautier, Gilles Puy, Spyros Gidaris, Alexandre Boulch, Andrei Bursuc, Renaud Marlet.

2020 **State Prediction in TextWorld with a Predicate-Logic Pointer Network Architecture**, *IBM Research Tokyo*, Corentin Sautier, Don Joven Agravante, Michiaki Tatsubori, KBRL at IJCAI-PRICAI 2020.

2020 **Towards Logical Model-based Reinforcement Learning: Lifted Operator Models**, *IBM Research Tokyo*, Corentin Sautier, Don Joven Agravante, Michiaki Tatsubori, KBRL at IJCAI-PRICAI 2020.