Julien Gaubil

Mathematics, Machine Learning & Computer Vision Student – École Normale Supérieure Paris-Saclay

@ julien.gaubil@ens-paris-saclay.fr +33 6 71 28 79 18 Webpage Github LinkedIn

Research Experience

Computer Vision Research intern – École des Ponts ParisTech (ENPC) Apr. – Sep. 2022

5-month internship in the Imagine team on **weakly-supervised Deep Learning** methods for **text-line analysis**.

- Adding weak supervision in existing unsupervised method from Dr. N. Gonthier & Y. Siglidis,
- Improving modelling of rare characters which improves quantitative evaluation on various datasets,
- **Submission of our work at CVPR23**.

Advisor: **Prof. M. Aubry**, *Associate Professor at ENPC, Department of Computer Science*. (Website)

Computer Vision Research intern – French National Center of Scientific Research (CNRS) May - Aug. 2021

3-month internship on the Robotics project Chiron, in the LIRIS team in charge of the **Visual Scene understanding**.

- 40-page literature report over ML algorithms for Object detection/Pose Estimation,
- Reproducing the results of the most appropriate method (FS-Net) for real-time applications.

Advisor: **Prof. E. Dellandrea**, *Associate Professor at École Centrale de Lyon, Department of Computer Science*.

Education

MSc, Mathematics, Vision, Learning (MVA) – École Normale Supérieure Paris-Saclay 2022 – 2023

École Normale Supérieure is the most prestigious French academic institution for future researchers. The MSc MVA is highly selective and is the French leading research master in **Machine Learning and Computer Vision**. Relevant courses:

- First term: Object recognition & Computer Vision (I. Laptev, C. Schmid, J. Ponce, J. Sivic), Deep Learning (V. Lepetit), 3D Computer Vision (P. Monasse, M. Aubry), Advanced Learning for Text and Graphs, Convex Optimization.
- Second term: Information & Complexity (S. Mallat), Kernel methods for ML (J. Mairal), Point clouds & 3D modelling.

MSc in Engineering – École Centrale de Lyon 2019 – 2022

École Centrale de Lyon is one of the top French 'Grande Écoles'. 1.5 year of core-curriculum then 1.5 years of elective courses, major in Applied Mathematics. Rank in elective courses: **top 10%**, grade: **15/20**, merit: **Excellent**.

- Relevant courses: Machine Learning, Advanced Learning: convexity & sparsity, C++, Inverse problems & Imaging, Probabilities & Stochastic Processes, Intensive scientific computation, Statistics in High Dimension, Mathematics for Images.
- **Double curriculums** in **Applied Mathematics** with Lyon 1 University:
  MSc Research Master MeA in Applied Mathematics, track Vision, Image & Learning. Grade: 15.4/20. 2021 – 2022
  BSc General Mathematics, grade: 14.3/20, rank 13/54 among students in double-curriculum. 2020 – 2021

Preparatory classes in Mathematics and Physics – Lycée Marcelin Berthelot 2017 — 2019

Intensive undergraduate course preparing for the nation-wide entrance examinations of the top French 'Grandes Écoles'.

Academic Projects

Research project on Incremental Deep Learning Sep. 2020 – Apr. 2021

Research project on Incremental Deep Learning advised by Pr. E. Dellandrea (CNRS LIRIS).

- Literature review over Incremental Deep Learning: 50 pages report,
- Reproduction and proposition of an improvement of a fundamental method in Incremental Learning (GEM).

Other Academic projects

Sparse variable selection in Lasso with Knockoffs. Advisor: Pr. Y. de Castro (Institut Camille Jordan). Jan. 2022 - Apr. 2022

Analysis of football games data. Advisor: Pr. R. Vuillemot (CNRS LIRIS). Sep. 2020 - Jun. 2021

Courses projects on Variational Networks, Scattering Convolution Networks.

Miscellaneous

Computer Science: Python (proficient, experience with PyTorch, NumPy, Pandas...), C++, R, Matlab, SQL, GIT.

Languages: English (proficient, C2) TOEFL 105/120, French (Native), Spanish (intermediate).

Interests: Reading (Novel, Sci-Fi), Mathematics, Sports (Football, Handball).