Julien Gaubil

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

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Research Experience

Computer Vision Research intern – **Princeton University** May – Sep. 2023

Subject: 3D Vision, Scene representation. Advisor: **Pr. J. Deng**, Princeton Vision & Learning Lab.

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

Subject: **Weakly-supervised Deep Learning** methods for text-line images analysis. Advisor: **Pr. M. Aubry**, Imagine Team.

- Improving modelling of rare characters by using weak supervision: CER improved from 11.5% to 0.9% on Google1000,
- **Submission of our work at ICCV 23'**.

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

Subject: Real-time **Visual Scene Understanding** for Robotics. Advisor: **Pr. E. Dellandrea** (CNRS LIRIS).

- 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.

Education

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

MSc MVA 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), Geometric Data Analysis (J. Feydy)
- Second term: Point clouds & 3D modelling, Generative Models for Image, Kernel methods for ML, DeepL in practice.

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: **BSc** (2020 – 2021), **MSc** (2021 – 2022).

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

Intensive and competitive two-year course to prepare undergraduate students for admission to the French "Grandes Ecoles", the most prestigious institutions of higher education in France. **GPA: 120/120, with highest honours**.

Publication

[1] Yannis Siglidis, Nicolas Gonthier, **Julien Gaubil**, Tom Monnier, Mathieu Aubry, "*The Learnable Typewriter: A Generative Approach to Text Line Analysis*", submitted to CVPR 2023, soon available on ArXiv.

Projects

More details on my Webpage!

Sparse variable selection in Lasso using Knockoffs

Jan. 2022 – Mar. 2021

Research project advised by Pr. Y. de Castro (Institut Camille Jordan) during last year at École Centrale de Lyon.

Research project on Incremental Deep Learning

Sep. 2020 – Apr. 2021

Research project advised by Pr. E. Dellandrea (CNRS LIRIS) during second year at École Centrale de Lyon.

Course projects

Sep. 2022 – Apr. 2023

Relevant projects completed as part of course evaluations during MSc MVA.

- Neural Point-based rendering and View Synthesis (Point Cloud and 3D Modelling course)
- Self-Supervised Learning of Visual Representations (Computer Vision course)
- Weakly-supervised analysis of text-line images (Deep Learning course)
- Denoising Diffusion Implicit Models (Generative Models for images)

Miscellaneous

Distinctions / Awards:

- IDEX scholarship for international mobility awarded by University Paris-Saclay based on excellence in academic results (2023).
- Engineering diploma from École Centrale de Lyon with "Félicitations du jury", highest distinction based on academic results (2022).

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).