Juliette Marrie

PhD student at Inria Thoth and NAVER LABS Europe

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Education

2021- **PhD**, *Inria Thoth and NAVER LABS Europe*,
Topic: Visual Representation Learning from Limited and Heterogeneous Sources
Advisors: Julien Mairal, Diane Larlus, Michael Arbel

2020-2021 **M2 MVA: Mathematics, Vision, Learning**, *ENS Paris-Saclay*, Double Degree
Main courses: Optimization, Image analysis, Statistical learning.

2017-2021 **Master's degree**, *Mines ParisTech*
Main courses: Applied Mathematics, Control Theory, Machine Learning, Statistics.

2018 **Visiting student**, *National University of Singapore*
Main courses: Constrained optimization, Deep Learning, Uncertainty Modeling in AI.

2015-2017 **Preparatory classes**, *Lycée Blaise Pascal - Orsay*, MPSI–MP*

Professional experience

2022- **Inria Thoth and NAVER LABS Europe**, *PhD*, Advisors: Julien Mairal, Diane Larlus, Michael Arbel
- Automatically learning optimal data augmentation in supervised tasks beyond natural images (CVPR 2023)
- Leveraging large pretrained models for training smaller models on specific tasks (TMLR 2024)
- Transferring 2D visual representations into 3D Gaussian Splatting scenes (under review)

2021-2022 **Inria THOTH**, *Research engineer*

2021 (6 months) **Philips Research France**, *Self-supervised learning on 3D medical images*, Advisor: Antoine Olivier
- Exploring state-of-the-art pre-training approaches for segmentation and classification.
- Adapting methods mostly developed for 2D natural images to 3D ultrasound data.

2020 – 2021 (6 months) **Weill Cornell Medicine / New York Genome Center - Landau Lab**, *Cancer Genomics and Evolutionary Dynamics*, Advisor: Dan Landau
- Exploring Bayesian methods for phylogenetic tree reconstruction from single-cell data.
- Handling high levels of noise and missing values, and evaluating reconstruction without access to ground truth

2019 – 2020 (6 months) **Neural Concept, EPFL start-up**, *Bayesian optimization with neural network surrogates*, Advisor: Pierre Baqué
- Leveraging Geometric Deep Learning for predicting the outcomes of Computational Fluid Dynamics simulations
- Development of new optimization methods over input 3D shapes with direct application to real use cases.

Publications

CVPR 2023 SLACK: Stable Learning of Augmentations with Cold-start and KL regularization
Juliette Marrie, Michael Arbel, Diane Larlus, Julien Mairal

TMLR 2024 On Good Practices for Task-Specific Distillation of Large Pretrained Visual Models
Juliette Marrie, Michael Arbel, Julien Mairal, Diane Larlus

arXiv 2024 LUDVIG: Learning-free Uplifting of 2D Visual features to 3D Gaussian Splatting scenes
Juliette Marrie, Romain Ménégaux, Michael Arbel, Diane Larlus, Julien Mairal

Patents Two patent applications

Services for the community

Teaching 'Kernel Methods' course at AMMI (African Masters of Machine Intelligence), 2023 and 2024.

Seminars Organizing the weekly THOTH seminars

Reviewing Reviewer at CVPR 2024, ICLR 2025

Language proficiency

French (native), English (fluent), Russian (upper-intermediate), Spanish (upper-intermediate)

Hobbies

Music Cello (since childhood)

Sports Judo, Ballet and partner dance (rock, salsa).