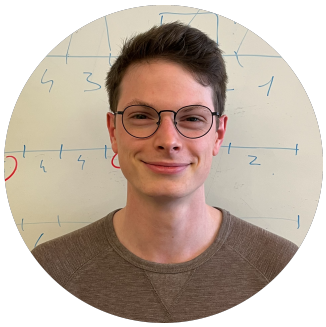

Josselin Lefèvre

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Website: lefevrej.github.io

EDUCATION

Thermo Fisher Scientific and Gaspard Monge Computer Science Laboratory *Bordeaux, France*
PhD in Computer Science *2021 - 2025*
Advisors: Prof. J. Cousy, Prof. B. Perret and Dr. H. Phelippeau.

ESIEE Paris *Noisy-Le-Grand, France*
Engineering degree - Ranked first - Graduated with honors *2016 - 2021*

PROFESSIONAL EXPERIENCE - PROJECTS

PhD in Computer Science *October 2021 - April 2025*
Thermo Fisher Scientific, LIGM, France

- **Scalable algorithms for hierarchical image and data segmentation:** Design of an external memory framework for hierarchical analysis of giga and tera-bytes microscopy images. Research proposal.
- **Management:** Managed the implementation of my research into an internal library and supervised two internships.
- **Awards**: *Best student paper award* at DGMM 2022 and CIARP 2023

Image analysis research engineer trainee *February 2021 - July 2021*
Safran Aircraft Engine, Mines ParisTech, France

- Reconstruction of the topology of a 3D interlock woven from tomographic images. This reconstruction is based on the automatic detection of carbon fiber barycenters using a deep-learning algorithm.

Implementation and analysis of MALIS *October 2019 - July 2020*

- **Maximin Affinity Learning of Image Segmentation**: Implementation with Pytorch of an image segmentation technique optimising ultrametrics using a deep neural network.
- **Available here**: github.com/garridoq/malis-project
- **Award** : "Innovation Prize" awarded by Texas Instruments during the 2020 ESIEE Paris Projects Day

Towards Accessible Improved Generative Adversarial Networks *May 2019 - July 2019*

- **TAIGAN** : Implemention of **G**enerative **A**dversarial **N**etworks and their improvements. We created a guide with open-source implementations written with Tensorflow 2.
- **Available here**: github.com/garridoq/gan-guide

SKILLS

Image Analysis

- Image enhancement, transformation and segmentation
- Mathematical Morphology

High Performance Computing

- Parallelism, distributed algorithms and GPU programming
- Optimisation techniques with loop unrolling, cache and pipeline

Compilation

- Building an interpreter with the implementation of an AST, pretty-printer, evaluator and tests. Theoretical study of middle-end and back-end.

Programming languages: C, C++, Python, LaTeX, Java, Kotlin

Tools and frameworks: Pytorch, Tensorflow, Keras, OpenCV

Softskills: Autonomy, Initiative, Written and oral communication

Languages: **French**: Voltaire Certificate-717, Business spelling **English**: Professional competence, TOEIC-860

COLLECTIVE RESPONSIBILITY AND DISSEMINATION

LIGM PhD seminars 2023-2025

· Coordinated bi-weekly doctoral student seminars at the Gaspard Monge Computer Science Laboratory, facilitating knowledge exchange.

Young researchers for geometry 2024

· Organized a series of workshops to enhance understanding and proficiency in essential software tools for the geometry research community.

Young researchers for geometry 2023

· Organized a gathering fostering collaboration among doctoral and post-doctoral students in geometry through research talks and career discussions.

PUBLICATIONS

- **Lefèvre, J.**, Cousty, J., Perret, B., Phelippeau, H. Out-of-Core Attribute Algorithms for Binary Partition Hierarchies. In *Discrete Geometry and Mathematical Morphology* 2024.
- Lebon, Q., **Lefèvre, J**., Cousty, J., Perret, B. Incremental Watershed Cuts: Interactive Segmentation Algorithm with Parallel Strategy. In: *PPattern Recognition Letter* 2024.
- Lebon, Q., **Lefèvre, J**., Cousty, J., Perret, B. Interactive Segmentation with Incremental Watershed Cuts. In: *Progress in Pattern Recognition, Image Analysis, Computer Vision, and Applications* 2023.
- **Lefèvre, J.**, Cousty, J., Perret, B., Phelippeau, H. Join, Select, and Insert: Efficient Out-of-core Algorithms for Hierarchical Segmentation Trees. In *Discrete Geometry and Mathematical Morphology* 2022.