

FLORIAN ROBERT

Agrégé of mathematics & PhD student in data science and computer vision

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I am completing my PhD in September 2025, specializing in data and image analysis in biology and medicine. I am seeking an R&D or engineering position to apply my expertise in data science, image processing, and machine learning to innovative projects.

RESEARCH EXPERIENCE

PhD student in applied mathematics

INRIA

October 2022 – Ongoing

Bordeaux, France

- 3D scanning electron microscopy image treatment and analysis
- Development of **new deep learning methods** for the **segmentation** of various biological elements
- 4 **submitted articles** and international **scientific talks**

Master 2 internship

INRIA

June 2022 – September 2022

Bordeaux, France

- Study of the evolution of viral charge of SARS-CoV-2 using **mechanistic models** and parameter estimations via **mixed effect models**
- Comparison of two **data assimilation approaches**: variational (Monolix, R) and sequential (Kalman filters, Matlab)

TEACHING EXPERIENCE

Lecturer

ENSEIRB-MATMECA and Bordeaux University

September 2023 – Ongoing

Bordeaux, France

- Teaching in engineering school and university
- Solving high-dimensional linear systems, probabilities, image treatment

Mathematics teacher in high school

National Education

September 2020 – August 2022

France

- Innovative teaching methods (flipped classroom) and group management

PUBLICATIONS

- **F. Robert**, A. Calovoulos, L. Facq, *et al.*, “3d semantic cell segmentation via propagation of 2d results and integration of inter-cellular priors,” in *Proceedings of the IEEE CBMS*, (review), 2025.
- **F. Robert**, A. Calovoulos, L. Facq, *et al.*, “A comprehensive framework for unsupervised deep analysis of tissue bioarchitecture,” in *Proceedings of the IEEE CBMS*, (review), 2025.
- **F. Robert**, A. Calovoulos, L. Facq, *et al.*, “Enhancing cell instance segmentation in scanning electron microscopy images via a deep contour closing operator,” *Computers in Biology and Medicine*, vol. 190, p. 109 972, 2025.
- **F. Robert**, A. Calovoulos, L. Facq, *et al.*, “Improving cell instance segmentation in scanning electron microscopy via semantic image synthesis,” in *Proceedings of the IEEE ISBI*, 2025.

EDUCATION

M.S. Probability and Random Models

Sorbonne University

2021 – 2022

Paris, France

High Honors

- **Machine learning** on medical data
- Markov processes, stochastic computation

M.S. Teaching, education and training professions

Bordeaux University

2020 – 2021

Bordeaux, France

Mathematic Agrégation and CAPES

2020

Agrégation: 256th/323 ; CAPES: 55th/1045

B.S. / M.S. Fundamental mathematics

Bordeaux University

2015 – 2020

Bordeaux, France

Bachelor with High Honors (2nd/86), Master with Honors (2nd/16)

- Expertise in **advanced mathematics & statistics**
- Precision, **rigor** and mathematical communication

COMPUTER SKILLS

Proficiency in Python (ScikitLean, PyTorch, Tensorflow, SimpleITK, Pandas, Scipy), **R**, **Matlab**, **Docker**, **Git**, **Bash**, **Monolix**

STRENGTHS

Hard-working

Autonomous

Proactive

Innovative Thinking

Communication

Collaboration

Strong AI expertise

Image treatment

Computer vision

Machine learning

LANGUAGES

French

English

Spanish

