Sébastien **Gradit**

COMPUTATIONAL BIOLOGIST · DATA SCIENTIST

Issy-les-Moulineaux, France

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Highly accomplished **PhD Computational Biologist** with 5+ years of experience, specializing in **bridging AI and Bioinformatics** to transform complex multi-omics data into **actionable insights** for precision medicine. My work emphasizes computational rigor, robust reproducibility, collaborative innovation, **knowledge dissemination**, and **adherence to FAIR principles**.

Experience

Pasteur Institute
Paris, France

PhD CANDIDATE
Oct. 2021 – Dec. 2024

- Led comprehensive PhD research focused on deciphering hidden chromatin contacts from repeated genomic elements via advanced statistical profiling.
- Developed Hicberg, a novel computational tool for reconstructing missing chromatin contacts in repeated regions, extensible to pair-ended omics data, leading to new insights into the spatial organization of genomes.
- Applied Hicberg to investigate *Saccharomyces cerevisiae* rDNA behavior and chromatin dynamics under various stress conditions (e.g., heat, oxidative) and kinetics.
- Leveraged Deep Learning to predict 2-micron plasmid interactions with the yeast genome based on nucleosome occupancy data.

Siemens HealthCare - LIPADE
Paris, France

BIOMEDICAL ENGINEER
Feb. 2020 - Sept. 2020

- Spearheaded the development of Machine Learning-driven automatic segmentation tools for bone lesion identification in (x)SPECT volumes, significantly enhancing diagnostic workflow efficiency and providing radiologists with data-driven insights for more confident decision-making in oncology.
- Engineered an end-to-end pipeline for automated extraction of radiomic features from xSPECT volumes, accelerating objective region-of-interest classification and segmentation to deliver critical, actionable data for diagnostic support.

Danone Nutricia Research
Saclay, France

BIOMEDICAL ENGINEER
Feb. 2019 - Sept. 2019

- Pioneered the implementation and benchmarking of Area Under the Curve (AUC) computation techniques for bioequivalence assays, optimizing data reliability.
- Engineered an interactive user interface for bioequivalence assay analysis, enabling real-time computation, visualization, and comparative insights.
- Integrated Machine Learning models to refine clinical trial plans, directly supporting data-driven decision-making.

CABOMA - Université de Montréal
Montréal, Canada

BIOMEDICAL ENGINEER
May. 2018 - Aug. 2018

- Design and optimization of biomechanical models for foot orthotics design tailoring based on patient morphology.

Education

PhD in Bioinformatics
Paris, France

PASTEUR INSTITUTE - SORBONNE UNIVERSITY
Oct. 2021 - Dec. 2024

Spatial Regulation of Genomes lab | Genomes and Genetics department

M.Sc. in Image Processing and Artificial Intelligence | With honors
Paris, France

TÉLÉCOM PARIS - SORBONNE UNIVERSITY
Sept. 2019 - Sept. 2020

Advanced Image Processing and Artificial Intelligence applied to biomedical imaging

M.Sc. in Biomedical Engineering (Engineer Diploma.) | With highest honors
Créteil - Noisy le Grand, France

INSITUT SUPÉRIEUR DES BIOSCIENCES (ISBS) - ESIEE
Sept. 2016 - Sept. 2019

Bioinformatics, Drug Development, Medical Image Processing, Machine Learning, Signal Processing, Biostatistics, Biomechanics, Biomaterials, Regulatory Affairs, Quality Assurance, Project Management.

Skills

Core Programming
Python [*advanced*], **C++** [*Intermediate*], **R** [*Intermediate*], **High Performance Computing** [*Slurm*], **Cloud** [*AWS*], **Versioning** [*Git, GitHub*]

Data Science
Machine Learning [*Keras, TensorFlow, PyTorch, SciKit-Learn*], **SQL** [*Intermediate*], **Interactive Dashboards** [*Streamlit, Shiny*]

Data Management
Continuous Integration/Continuous Development [*GitHub Actions, Snakemake, Makefile*], **Containerization** [*Docker, Singularity*]

Bioinformatics
Package Development [*PyPI, Conda*], **Multi-Omics Integration**, **Automation of Mapping and Downstream Analyses (NGS)**, **High-Throughput Omics Data Analysis** [*RNA-Seq, ChIP-Seq, Hi-C, Single-cell Omics*]

Languages
French [*Native*], **English** [*Fluent: TOEIC 955/990*]

Soft Skills

Soft Skills
- **Analytical Thinking** & **Complex Problem-Solving**
- **Adaptability**, **Agility** & **Continuous Learning**
- **Creative Thinking** & **Innovation**
- **Effective Communication** & **Interdisciplinary Collaboration**

Honors & Awards

DOMESTIC AWARDS

2022	**1st Place**, Digital 4 Genomics Hackathon	*Genopole, Evry*

Extracurricular Activity

Jeunes BioInformaticiens de France (JeBiF) *France*
PRESIDENT *2022 - 2024*
- Led strategic initiatives to **structure and energize** France's emerging bioinformatics talent.
- Fostered **national and international collaborations** within the bioinformatics community.
- **Promoted and popularized** bioinformatics to public, private, and international stakeholders.
- Organized **community-building events** and disseminated information on bioinformatics training.

Certificates

2023	**TensorFlow Advanced Specialization**, DeepLearning.AI
2023	**Deep Learning Specialization**, DeepLearning.AI
2023	**Machine Learning Specialization**, Stanford - DeepLearning.AI

Selected scientific communications

2024	**JOBIM 2024, Toulouse**, Poster | Prediction of Omics Signal from Repeated Elements
2024	**JeBiF@JOBIM 2024, Toulouse**, Workshop | Good Practices in Bioinformatics
2023	**International Congress for Transposable Elements, St-Malo**, Poster | Prediction of Omics Signal from Repeated Elements
2023	**31st Intelligence Systems for Molecular Biology (ISMB), Lyon**, Poster and Talk | Statistical Inference of Repeated Elements Contacts in Hi-C maps

Publications

Hicberg: Reconstruction of Contact Signals from Repeated Elements **biorXiv**, 2025
Gradit S., Ortion S., Larrous P., Koszul R., Cournac A.