

Sébastien Gradit

COMPUTATIONAL BIOLOGIST · DATA SCIENTIST

Paris, France

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Highly accomplished PhD Computational Biologist with over five years of experience, specializing in **bridging AI/ML solutions** and **Bioinformatics** to transform complex **multi-omics data** into actionable insights for **R&D**. My expertise includes advanced computational methods and data-driven approaches to accelerate **tool deployment and integration**, with a strong focus on **reproducibility** and **multidisciplinary collaboration**.

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	<ul style="list-style-type: none">• Analytical Thinking & Complex Problem-Solving• Adaptability, Agility & Continuous Learning• Creative Thinking & Innovation• Effective Communication & Multidisciplinary Collaboration
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Honors & Awards

2025	1st Place , Read Write Grow - Biocatalyst Foundation <i>Classification of protein sequence safety through LLM and AI for Synthetic Biology designs</i>	<i>Europe, Remote</i>
2024	INCEPTION Program Grant , Fellowship <i>Awarded a highly competitive grant covering the final three months of the PhD program, demonstrating recognition of research merit and strategic value to the field.</i>	<i>Paris, France</i>
2022	1st Place , Digital 4 Genomics Hackathon	<i>Genopole, Evry</i>

Certificates

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

Publications

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

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

Extracurricular Activity

Jeunes Bioinformaticiens de France (JeBiF)

PRESIDENT

France

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.