Sébastien **Gradit**

COMPUTATIONAL BIOLOGIST · DATA SCIENTIST

Issy-les-Moulineaux, France

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Education

Pasteur Institute - Sorbonne University
Paris, France

PHD IN BIOINFORMATICS — *Oct. 2021 - Dec. 2024*

Régulation Spatiale des Génomes lab | Genomes and Genetics department

Télécom Paris - Sorbonne University
Paris, France

M.SC. IN IMAGE PROCESSING AND ARITIFICIAL INTELLIGENCE — *Sept. 2019 - Sept. 2020*

Advanced Image Processing and Aritificial Intelligence applied to biomedical imaging | With honors.

Insitut Supérieur des BioSciences (ISBS) - ESIEE
Créteil - Noisy le Grand, France

M.SC. IN BIOMEDICAL ENGINEERING (DIPL.ING.) — *Sept. 2016 - Sept. 2019*

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

Experience

Pasteur Institute
Paris, France

PHD CANDIDATE — *Oct 2021. - Present*

- **PhD thesis: Use of sttistical profiling to decipher hidden chromatin contact resulting from repeated elements.**
- Development of *Hicberg* a tool to reconstruct missing chromatin contacts resulting from repeated elements through statistical profiling, with extension to pair-ended omics.
- Application of *Hicberg* to decipher the behavior of *Saccharomyces cerevisiae* rDNA in multiple stres conditions and kinetics (heat, replication).
- Application of deep-learning methods to predict 2 micron plasmid contacts with the yeast genome from nucleosome occupancy data.

Siemens HealthCare - LIPADE
Paris, France

BIOMEDICAL ENGINEER — *Feb. 2020 - Sept. 2020*

- **Project: Development of automatic segmentation tools using machine learning - Application to the study of the contribution of the xSPECT Bone technique by an objective analysis method in oncology.**
- Development of machine learning based tools for the automatic segmentation of bone lesions in (x)SPECT volumes for radiologist decision helping.
- Development of a pipeline for the automatic extraction of radiomic features from the xSPECT volumes for region of interest classification and segmentation.

Danone Nutricia Research
Saclay, France

BIOMEDICAL ENGINEER — *Feb. 2019 - Sept. 2019*

- **Project: Benchmarking of Area Under Curve (AUC) computation techniques for bioequivalence assays.**
- Implementation and benchmarking of area under the curve (AUC) computation techniques for bioequivalence assays.
- Development of an interactive user interface to compute, visualize and compare the results of bioequivalence assays.
- Implementation of machine learning models for clinical tial plan refactoring for data-driven decision making.

Centre de Recherche Informatique de Montréal
Montréal, Canada

CABOMA - UNIVERSITÉ DE MONTRÉAL — *May. 2018 - Aug 2018*

- **Project: Software development for the design of custom foot orthotics.**
- Design and optimization of biomechanical models for foot orthotics design tailoring based on patient morphology.

Skills

Basic computing	• Linux, Bash • Python, R, C++ • High Performance Computing (Slurm, AWS)
Bioinformatics	• Multi-omics integrative analysis • Automation of mapping and genomics analysis • Data visualization
Data analysis	• Data mining (Python, R) • Interactive dashboards (Shiny, Streamlite) • SQL databases
Workflow and Data management	• CI/CD automation: Git, GitHub, Makefile, Snakemake • Containerization: Docker, Singularity
Machine learning	• Supervised and unsupervised learning • Deep learning (Tensorflow, Keras, PyTorch)
Web	• HTML, CSS
Languages	• French (native) • English (fluent) - TOEIC 955/990

Honors & Awards

Domestic Awards

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

Extracurricular Activity

Jeunes BioInformaticiens de France (JeBiF) *France*

President *Nov. 2022 - PRESENT*

- Structure and energize the rising generation of bioinformaticians in France
- Encourage partnerships between its members to stimulate local and national synergies
- Promote the bioinformatics community to public institutions and private entities
- Promote and popularize bioinformatics
- Provide information on training courses in bioinformatics
- Organize events to bring together the bioinformatics community
- Open up French bioinformatics to the international arena

Certificates

2023 **TensorFlow Advanced Specialization,** DeepLearning.AI

2023 **Deep-learning Specialization,** DeepLearning.AI

2023 **Machine-leaning 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 genomic signals from repeated elements. **BiorXiv**, 2024.
Gradit S., *Ortion S.*, *Larrous P.*, *Koszul R.*, *Cournac A.*