

Treudsky ANTOINE

PhD candidate - Computational biology

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DOCTORAL RESEARCH

“Development of a comparative analysis method for multi-omics data”

My thesis aims to develop new methods for integrating multiple omics data types into unified comparative analyses across biological conditions. This includes exploring statistical and optimization frameworks, with a focus on Bayesian variational inference and graph-based integration strategies.

WORK EXPERIENCE

IFP Energies nouvelles *Doctoral researcher*

CURRENT, FROM FEB 2024 (FT)

As part of my research, I process and analyze RNA-Seq and ChIP-Seq data, starting from raw FASTQ files and progressing to **differential expression and enrichment analysis**. Additionally, I work on the development of novel models for multi-omics comparative analysis using **Pytorch**.

2024-2026 (PT)

Université Evry- Paris Saclay *Teaching assistant*

I led tutorial sessions for second-year students in the dual-degree program in Biology and Computer Science. My teaching focused on two primary subjects: **Markov chains** and **Boolean regulatory networks**.

FEV. 2023–AOUT. 2023 (FT)

BioSTM - URP 7537 - Université Paris-Cité *Research intern*

The main objective was to develop a causal inference model utilizing deep learning, with a focus on genetic variants as instrumental variables. I created an autoencoder to identify the pleiotropy of genetic variants at the transcriptome level using **TensorFlow Keras**. Additionally, I designed a **Graph Convolutional Network (GCN)** to predict interactions between variants and genes, and I conducted simulations to compare various inference methods.

MAY. 2018–SEPT. 2022 (FT)

Caris Foundation International *Monitoring and evaluation analyst*

My primary responsibilities focused on data management, reporting and system development to support health programs. Designed and deployed OCR-based data pipelines on **AWS** to extract structured data from PDFs, automating manual processes and improving data quality. My role included both the technical development and the integration of these tools into the organization's broader data management strategies.

EDUCATION

CURRENT	Doctor of Philosophy Computational biology <i>Université Paris-Saclay</i>
2023	Master of Science Statistics, modeling and data science in health <i>Sorbonne University</i>

CERTIFICATES

2023	Deep Learning specialization
2019	SQL for Data Science

COMPUTER SKILLS

DATA ANALYSIS	R, Python, SQL
API DEVELOPMENT	Python Flask, Fast API
DEEPLARNING	PyTorch
CLOUD DEVELOPMENT	AWS cloudformation, AWS S3 AWS Sagemaker, lambda
SCIENTIFIC COMPUTING	Slurm, Apptainer (Singularity) Workflow Management (Nextflow)

LANGUAGES

FRENCH	Bilingual
ENGLISH	C1

INTERESTS

- Hiking
- Life drawing
- Volunteering

SIDE PROJECTS

Moncash Serverless Payment Service

A proof-of-concept of using an AWS serverless architecture to enable seamless and scalable online payments. Link: <https://github.com/treuds/serverless-moncash>