

Education

Université Paris Dauphine - PSL (Paris Sciences & Lettres)

M.S. IN MATHEMATICS AND APPLICATIONS, MODO TRACK

Paris, France

Sep. 2025 – Jun. 2026

- Specialization: Modeling, Optimization, Decision, and Organization.

École Polytechnique - IP Paris

M.S. IN APPLIED MATHEMATICS AND STATISTICS

Paris, France

Sep. 2024 – Jul. 2025

- GPA: Average Score: 16/20 (Ranked in the top 15%).
- Courses: Convex Optimization, Stochastic Processes, Functional Analysis, Mathematical Statistics, Python for Data Science, Introduction to Machine Learning, Markov Processes & Applications, Database Management Systems.

Sun Yat-sen University

DUAL B.A./B.S. IN PHILOSOPHY (LOGIC) AND APPLIED MATHEMATICS

Guangzhou, China

Sep. 2018 – Jul. 2023

- GPA: Average Score: 87/100 (Ranked in the top 10%).
- Core Courses: Game Theory, Cognitive Psychology, Real Analysis, Probability Theory, Algebra, Database Systems.

GRADUATION THESIS

- **Looking inside the black-box: Logic-based explanations for machine learning**
Institute of Logic and Cognition
- **Predicting Gene Expression from Promoter Sequences Based on Macaron Transformer Architecture**
Department of Applied Mathematics

Experiences

Institute of Biology, Genetics and Bioinformatics, Université Paris-Saclay

RESEARCH ASSISTANT

Paris, France

May 2025 - Sept 2025

- Engineered Hyperbolic VAEs to learn data-efficient representations of complex clinical data in hyperbolic space.
- Validated the model on the large-scale MIMIC-III dataset, achieving SOTA performance in multi-task sepsis analysis (onset, mortality).
- Designed a novel fine-tuning strategy that significantly improved downstream task performance, boosting cell type classification accuracy compared to standard methods.
- **Publication:** Authored a first-author paper detailing the HVAE framework and its applications, in preparation for submission to conferences.

2025 Spark Cup: iFLYTEK Large Model Application Innovation Competition

FINALIST & SOLE DEVELOPER

China

May 2025 - Nov 2025

- Engineered "Industry-Academic Bridge," an intelligent system leveraging LLMs to analyze media content for misinformation and bias by benchmarking against academic literature.
- Designed and built a robust, multi-provider LLM framework (Spark AI, OpenAI) from scratch, incorporating advanced content filtering, caching, and automatic fallback mechanisms.
- **Competition Achievement:** Ranked **Top 10 (0.5%) globally** in the preliminary round among 2054 teams, advancing to the finals as an independent developer.
- Built a complete full-stack web application with responsive UI and sophisticated content extraction algorithms, currently optimizing the system for expanding functionality for the upcoming final competition.

Haolan Information Technology Co., Ltd.

Guangzhou, China

ALGORITHM ENGINEER

Jul. 2022 - Sep. 2022

- Spearheaded the core algorithm development for an AI-powered medical imaging solution to enhance low-dose lung nodule CT scans to high-fidelity resolution.
- Architected a comprehensive evaluation pipeline using quantitative metrics (PSNR, SSIM) and a qualitative blind re-view protocol with radiologists to ensure clinical relevance.
- Key Achievement:** The developed model achieved superior image enhancement, leading to its successful integration into the company's prototype Computer-Aided Diagnosis (CAD) system.

Department of Mathematics, Sun Yat-sen University

Guangzhou, China

RESEARCH ASSISTANT (UNDERGRADUATE THESIS)

Sep. 2023 - Jun. 2024

- Led an independent research project to predict gene expression value from DNA promoter sequences, managing the entire lifecycle from model design to final validation.
- Innovated a novel deep learning model combining a Macaron-style CNN architecture with a Transformer, effectively capturing both local motifs and long-range dependencies in DNA.
- Thesis Publication:** The research culminated in a comprehensive undergraduate thesis, which received an **A grade** for its novel methodology and significant findings.

Publications

- [1] **Fu, W.**, Hamidi, M. (2025). *Geometric Priors in Hyperbolic VAEs for Data-Efficient Sepsis Subphenotype Identification*. (Working Paper, First Author)

Skills

Languages	Chinese (Native), English (Fluent), French (Elementary)
Programming	Python, SQL
Technologies	Docker, Git, Pandas, PyTorch

Research Interests

Operation Research: Mathematical modeling and optimization for healthcare operations, logistics, and data-driven decision-making.

Machine Learning for Healthcare: Predictive modeling for clinical outcomes, sepsis analysis, and gene expression inference.

Optimization and Statistical Learning: Convex and stochastic optimization methods for reliable model training in high-dimensional settings.