

Attwood Maxime

attwoodmaxime@gmail.com | +33 6 23 73 01 19 | Grenoble, France | github.com/AtwMaxime | Personal Website

EDUCATION

Master of Science in Industrial and Applied Mathematics <i>Grenoble Alpes University (UGA)</i>	Grenoble, France Sept. 2023 – Jun. 2025
• Courses: Mathematical Foundations of Machine Learning, Advanced ML (Visual, Audio, Text), Quantum Information and Dynamics, Mathematical Optimization	
Bachelor of Science in Mathematics <i>Grenoble Alpes University (UGA)</i>	Grenoble, France Sept. 2022 – Jun. 2023
Champollion High School (CPGE MPSI) <i>Preparatory Class for Engineering Schools</i>	Grenoble, France Sept. 2020 – Jun. 2022

EXPERIENCE

Research Intern – RobotLearn Team <i>INRIA Grenoble</i>	Feb. 2025 – Present Grenoble, France
• Implemented a novel generative model architecture combining Flow Matching and wavelet transforms for high-quality image generation.	
• Designed multi-resolution models utilizing conditional Flow Matching with Haar wavelets, improving computational efficiency and image fidelity.	
• Conducted extensive experiments on standard benchmarks (e.g., Cifar10, CelebA), performing evaluation using metrics such as FID scores and visual quality assessments for this architecture and regular Flow Matching/Conditional Flow Matching.	
Research Intern – Deep Learning for Education <i>G-Scop Laboratory</i>	Jan. 2024 – Jun. 2024 Grenoble, France
• Designed interactive educational content for the CNRS FIDLE MOOC, emphasizing hands-on activities (VPLs, Moodle quizzes, Python notebooks).	
• Collaborated with multidisciplinary teams to integrate deep learning theory with practical coding exercises.	

PROJECTS

Geometric Deep Learning for Molecular Analysis <i>PyTorch Geometric, GNNs</i>	Oct. 2024 – Jan. 2025
• Analyzed various geometric deep learning architectures, including Graph Neural Networks (GNNs) and E(n)-equivariant networks, applied to molecular data.	
• Collaborated in a team of four international students, under the supervision of researchers from the GruLab team.	
• Developed predictors for residue-level conformational changes during pocket transitions (apo-to-holo) in protein structures.	
• Conducted performance benchmarks on datasets such as QM9 and protein structure data, compiling comprehensive analysis reports.	
Reinforcement Learning for Turn-based game <i>Python, RL, Transformers</i>	Jun. 2024 – Sept. 2024
• Developed an AI agent capable of competitive gameplay in Pokémon battles using self-play reinforcement learning.	
• Implemented item embeddings and transformer-based models to predict opponent strategies and enhance decision-making.	
• Demonstrated strategic improvements through extensive simulated battles and analysis.	

TECHNICAL SKILLS

Programming Languages: Python, R, C++, LaTeX
Machine Learning Frameworks: PyTorch, TensorFlow, Keras, PyTorch Geometric, Torchvision, Torchaudio
ML Tools: Weights & Biases, MLflow, OpenCV
ML Methods: Graph Neural Networks (GNN), Flow Matching (FM), Diffusion Models, LLMs Fine-Tuning
Data Analysis & Visualization: Pandas, NumPy, Scikit-Learn, Matplotlib, Seaborn
Mathematical Skills: Probability, Statistics, Optimization, Real and Complex Analysis, Abstract and Linear Algebra, Topology
Developer Tools: Git, Docker, Apptainer, VS Code, PyCharm, Jupyter Notebook
Languages: French (Native), English (Professional)