

# Attwood Maxime

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

## EDUCATION

<b>Master of Science in Industrial and Applied Mathematics</b> <i>Grenoble Alpes University (UGA)</i>	Grenoble, France <i>Sept. 2023 – Jun. 2025</i>
<ul style="list-style-type: none"><li>Courses: Mathematical Foundations of Machine Learning, Advanced ML (Visual, Audio, Text), Quantum Information and Dynamics, Mathematical Optimization</li></ul>	
<b>Bachelor of Science in Mathematics</b> <i>Grenoble Alpes University (UGA)</i>	Grenoble, France <i>Sept. 2022 – Jun. 2023</i>
<b>Champollion High School (CPGE MPSI)</b> <i>Preparatory Class for Engineering Schools</i>	Grenoble, France <i>Sept. 2020 – Jun. 2022</i>

## EXPERIENCE

<b>Research Intern – RobotLearn Team</b> <i>INRIA Grenoble</i>	Feb. 2025 – Present <i>Grenoble, France</i>
<ul style="list-style-type: none"><li>Implemented a novel generative model architecture combining Flow Matching and wavelet transforms for high-quality image generation.</li><li>Designed multi-resolution models utilizing conditional Flow Matching with Haar wavelets, improving computational efficiency and image fidelity.</li><li>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.</li></ul>	
<b>Research Intern – Deep Learning for Education</b> <i>G-Scop Laboratory</i>	Jan. 2024 – Jun. 2024 <i>Grenoble, France</i>
<ul style="list-style-type: none"><li>Designed interactive educational content for the CNRS FIDLE MOOC, emphasizing hands-on activities (VPLs, Moodle quizzes, Python notebooks).</li><li>Collaborated with multidisciplinary teams to integrate deep learning theory with practical coding exercises.</li></ul>	

## PROJECTS

<b>Geometric Deep Learning for Molecular Analysis</b>   <i>PyTorch Geometric, GNNs</i>	Oct. 2024 – Jan. 2025
<ul style="list-style-type: none"><li>Analyzed various geometric deep learning architectures, including Graph Neural Networks (GNNs) and E(n)-equivariant networks, applied to molecular data.</li><li>Collaborated in a team of four international students, under the supervision of researchers from the GruLab team.</li><li>Developed predictors for residue-level conformational changes during pocket transitions (apo-to-holo) in protein structures.</li><li>Conducted performance benchmarks on datasets such as QM9 and protein structure data, compiling comprehensive analysis reports.</li></ul>	
<b>Reinforcement Learning for Turn-based game</b>   <i>Python, RL, Transformers</i>	Jun. 2024 – Sept. 2024
<ul style="list-style-type: none"><li>Developed an AI agent capable of competitive gameplay in Pokémon battles using self-play reinforcement learning.</li><li>Implemented item embeddings and transformer-based models to predict opponent strategies and enhance decision-making.</li><li>Demonstrated strategic improvements through extensive simulated battles and analysis.</li></ul>	

## 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)