Olivier Forster

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Education

Imperial College London, *MSc Applied Computational Science and Engineering* *Sep 2024 – Sep 2025*

- Relevant Modules: Advanced Programming, Patterns for Parallel Programming, Computational Mathematics, Deep Learning, Modelling and Numerical Methods *Distinction*

McGill University, Montreal, Canada, *BEng Mechanical Engineering with Minor in Applied AI* *2019 – 2024*

- Relevant Modules: Linear Algebra, Partial Differential Equations, Numerical Methods, Probability, Reinforcement Learning, Machine Learning *CGPA: 3.81/4.00*

Technical Skills and Interests

Programming Languages: Python (Pytorch, Pandas, Numpy, etc.), C++ (OpenMP, MPI), MATLAB, SQL

Other Engineering Tools: GitHub, Linux, Pytest, CMake, CTest, Simcenter 3D, Simulink

Languages: English, French (Fluent), Spanish (Proficient)

Areas of Interest: Scientific Computing & Modelling, Deep Learning, Machine Learning, Current Affairs

Experience

Moody's *March 2026 - June 2026*

Analytics and Modelling Intern London, UK

- Developing and benchmarking ML surrogate models to approximate computationally intensive simulations of coastal storm surge for insurance risk modelling, balancing predictive accuracy in extreme regimes with computational efficiency. Working in Linux-based HPC environments using Python (PyTorch, Pandas) and Git.

Maya Heat Transfer Technologies *Summer 2023*

Structural Engineer Intern Montreal, QC, Canada

- Performed structural finite element analyses, including customer-facing composite FEA demonstrations and a technical blog post on a structural failure case study.
- Developed a multi-physics simulation framework for satellite trajectory optimisation, integrating thermal finite element analysis with system-level modelling, demonstrating how simulation-driven design can accelerate the engineering workflow to 15 engineering consultants.

Mara Technologies Inc. *Summer 2021*

Production Intern Markham, ON, Canada

- Analysed processes on a PCB assembly production floor to help identify inefficiencies.
- Streamlined production readiness checks by developing an automated system in Microsoft Excel and Power Automate, which emailed stakeholders when tasks were completed. Reduced back-and-forth communication and unified information, significantly cutting down preparation time.

Projects and other Experience

Overland Wave Height Prediction using Graph Neural Networks, *Moody's/Imperial College* *2025*

- Built a GNN model to predict maximum wave heights in flooded coastal areas during tropical cyclones, aiming to improve insurance pricing for high-risk zones. Processed synthetic cyclone data to build a surrogate model retaining predictive accuracy and significantly reducing computational cost.
- Tools & technologies used: Python, Pytorch, Pytorch-geometric, Pandas, Github

Mathematical Methods for Quantitative Finance, *MIT/edX* *In Progress*

- Online course studying mathematical foundations essential for financial engineering and quantitative finance: probability, stochastic processes, Itô calculus, linear algebra, optimization, statistics.

McGill Baja Racing Suspension Design *2022-2023*

- Engineered and optimised the front suspension geometry for a single-seater off-road race car, improving handling and ground clearance for competition. Incorporated a one-way clutch and bent lower control arms, boosting ground clearance by 8% and improving camber/toe performance in simulations.
- Tools & technologies used: Siemens NX, Optimum K, Python, Scipy optimize

Comparison of Reinforcement Learning Policy Gradient Approaches to Continuous Control *Fall 2022*

- Evaluated SAC, TD3, and DDPG algorithms across three continuous-action environments, providing practical guidance on algorithm selection for stochastic continuous-control tasks.
- Tools & technologies used: Python, Pytorch, OpenAI Gym

Achievements

Richard Laurence Weldon Award/H. Laurie Seybold Memorial Fund Academic performance award *2020*

MSc Scholarship for Home Students Imperial merit-based scholarship for home students *2024*