Maxime Rochkoulets

(+33) 6 42 83 09 69 • mrochkoulets@gmail.com • mrochk.github.io • linkedin.com/in/mrochk

Education

KU Leuven (Katholieke Universiteit Leuven) • Leuven, Belgium   September 2024 ≈ June 2026
Master of Engineering • *Computer Science (Artificial Intelligence)*
Currently enrolled in the first year of my master's curriculum, specializing in AI and Machine Learning.

University of Bordeaux • Bordeaux, France   September 2021 – May 2024
Bachelor of Science • *Computer Science*   Rank: **7/166** | Grade: **15.25/20**
Bachelor obtained with honors, completed a two semesters exchange in Dublin during my final year.

High School • France   September 2018 – July 2021
French General Baccalaureate • *Mathematics, English, History and Political Sciences*   Obtained with honors.

Relevant Coursework

Data Structures & Algorithms, Compilers, Computability & Complexity, Networks, Cryptography & Number Theory, Object-Oriented Programming, Computer Architecture, Operating Systems, Probabilities & Statistics, Software Design, Machine Learning, Distributed Systems, Linear Algebra, Cloud Computing, Parallel & Concurrent Programming

Internships

LaBRI (Bordeaux Computer Science Laboratory) – **Research Intern**   May 2024 – July 2024
- Research internship during which my focus was on a subject at the crossroads of Deep Learning and Software Engineering. I was part of the Progress research team, and my work consisted in finding ways to train and use LLMs more effectively for Software Engineering tasks. I learned how to train Transformers from scratch, as well as how to fine-tune or internally modify pre-trained models using PyTorch and conduct experiment on them. Finally, I presented my work and findings during weekly meetings, and, at the end, gave a talk in front of the other team researchers.

Projects

Neural Network – C   (See mrochk.github.io/projects.html for more.)
- Feedforward neural network & other machine learning models implemented from scratch in pure C, without the use of any external library, starting from basic tensor operations to a fully functioning and trainable network.

Market Exchange – Go
- Market order book simulation. The matching engine implements the FIFO algorithm and works with different type of orders. This project made me learn about how exchanges work internally as well as market micro-structure.

Llama Aurelius – Python, PyTorch, Transformers
- Fine-tuning the Llama-3.2-3B model on Marcus Aurelius' writings using QLoRA. It taught me a lot about techniques such a quantization, low-rank adaptation and fine-tuning. The model is available for use on my HuggingFace profile.

3AC Compiler – Java
- Project made in the frame of university, where I had to build a compiler using Java and ANTLR4. It takes an hypothetical programming language, then parses and compiles it to three-address code for a given interpreter.

MMA Predictions – Python, PyTorch
- Machine Learning project for which the goal was to train and assess the performance of models predicting the outcomes of MMA fights. It required a lot of data preprocessing and taught me how to train and evaluate models.

Technical Skills

- Programming Languages Experience: **Python**, **C**, **C++**, **Go**, **Java**, **Bash**, OCaml, Haskell, Julia, JavaScript, Prolog.
- Other Computer Experience: PyTorch, Tensorflow, Linux, Git, Numpy, Pandas, gRPC, REST, HTML/CSS, LaTeX.

General Skills

- Spoken Languages: **English** [IELTS Academic: Band Score 7.5, 2024], **French** [Native] and **Russian**.

Extra Curricular Activities

- **Quantitative Finance:** Member of the *Beta Sigma Club*, a club where we explore topics related to Mathematics, Finance and Quantitative Research. We also organize and participate to various events / competitions.
- **Football:** Played soccer with various teams for more than 10 years, competed in many competitions and tournaments in France and Ireland. Now playing for KU Leuven's Falcons football team.
- **Student Jobs:** Worked during every holidays since my first year of high-school, first in the fields then in different restaurants and bars as a bartender and waiter.
- **Volunteer Work:** After school in France I used to help primary school kids with their homework.
- **Interests:** Artificial Intelligence, French & Russian Literature, Philosophy, Finance, Blockchain, Chess, Hiking.