Maxime Rochkoulets

mrochkoulets@gmail.com • website • github • linkedin • scholar

Research Interests

Reinforcement Learning World Models Self-Supervised Learning NeuroAI

Education

KU Leuven • Leuven, Belgium — September 2024 – June 2026
Master of Science • *Computer Science* — Grade: *Cum Laude*
Thesis: *Improving Tensor Decoupling with Scaling and Smoothing* [link]
Supervisors: Prof. *Mariya Ishteva*, Prof. *Hendrik Blockeel*

University of Bordeaux • Bordeaux, France — September 2021 – June 2024
Bachelor of Science • *Computer Science* — Grade: *Honors*
Completed a two-semester Erasmus exchange in Dublin during my final year.

High School • France — September 2018 – July 2021
French General Baccalaureate • *Mathematics, English, History & Political Sciences* — Grade: *Honors*

Publications

Warm Starting Neural Dynamics Models From Few Jacobian Samples — October 2026
Maxime Rochkoulets Joppe De Jonghe Mariya Ishteva | *Preprint* [link]

Making Tensor Decoupling More Robust and Less Parametric — September 2026
Maxime Rochkoulets Joppe De Jonghe Mariya Ishteva | *Submitted to ICASSP 2027* [link]

Entropy, Disagreement, and the Limits of Foundation Models in Genomics — March 2026
Maxime Rochkoulets Lovro Vrček Mile Šikić | *LMRL Workshop at ICLR 2026* [link]

Experience

Genome Institute of Singapore – Research Engineer — *Singapore* | October 2026 – Current
- Working on self-supervised learning applied to genomics (DNA and RNA).
  First part-time during my second master's year, now on-site as a full-time AI researcher.

Genome Institute of Singapore – Research Intern — *Singapore* | July 2025 – September 2025
- Developed lightweight deep learning models for real-time nanopore segmentation. Reduced training time by multiprocessing the data pipeline. Outperformed existing approaches in both accuracy and inference speed. [link]

Bordeaux Computer Science Laboratory (LaBRI) – Research Intern — *Bordeaux, France* | May 2024 – July 2024
- Explored ways to train large language models more effectively for coding tasks using custom source code tokenizers. Showed that transformers could learn software engineering classification tasks using 5 times fewer tokens than GPT-3.

Projects

decoupling (See `github.com/mrochk` for more.)
- JAX library for tensor decoupling, developed as part of my master thesis. [link]
  The first stable and efficient implementation of tensor decoupling algorithms in Python.

fastlob
- Minimalist limit-order-book (LOB) package in pure Python for working with microstructure data. [link]
  This package has been used by student quant clubs to simulate orderbooks and develop trading algorithms.

Technical Skills

- **Programming Languages** Python, C, C++, Go, Java, OCaml.
- **Libraries** PyTorch, JAX, Lightning, TensorFlow, Numpy, Pandas, Polars, Scikit-Learn, Spark.
- **Others** Linux, Git, Bash, gRPC, REST, Google Cloud, AWS, Docker.

Languages

English [IELTS Academic: 7.5] **French** [Native] **Russian** [Native]

Extra Curricular Activities

- **Quant Student Club:** Member of the board (Head of QR) for the Beta Sigma Club (`betasigmaclub.com`) in 2025-2026. Led a team of ∼12 students in participating in ML competitions (ranked 5/213 teams) and building our own trading engine.
- **Football:** Played regularly for more than 10 years, competed in France, Ireland, Belgium and Singapore.
- **Volunteer Work:** Used to help primary school children with their homework after school.
- **Other Interests:** French & Russian Literature, Philosophy, History, Artificial Life, Hiking, Blockchain, Chess.