

AYMERIC COUPLET

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Master's student in Applied Mathematics

WHO AM I?

Applied-mathematics engineering student working at the intersection of **optimisation**, **machine learning** and **software**. I turn mathematical ideas into working systems : from a from-scratch deep-learning autodiff engine to a real-time home-energy optimiser.

EDUCATION

2025 – present	Master's degree in applied mathematics Specialising in optimisation and computational engineering	Ecole Polytechnique de Louvain
2022 – 2025	Bachelor's degree Major in applied mathematics and computer science.	Ecole Polytechnique de Louvain
2016 – 2022	High-school diploma	College du Christ-Roi

PROJECTS

2025	Transformer from Scratch GPT-style language model built entirely from scratch in Julia, including a hand-written vectorised reverse-mode automatic differentiation engine of about 1500 lines, with no deep-learning framework. Julia / Deep Learning / Autodiff	🔗 autodiff-transformer
2025	Home Energy Optimisation Real-time optimisation of home battery, solar panels and EV charging against a solar-production forecast, minimising grid imports and electricity cost. Designed and deployed end to end on Home Assistant. Optimisation / Energy / Python	🔗 Portfolio
2026	Unity RL Agent Trained a reinforcement-learning agent to race and drift a car around tracks with realistic physics. Reinforcement Learning / Unity ML-Agents / C#	🔗 Portfolio
2024	Chess Engine Chess engine in C# with alpha-beta pruning, bitboard move generation via magic numbers, and an opening book. C# / Search algorithms / Bitboards	🔗 Portfolio
2024 – 2025	Padelicious Robot padel ball-launcher taken from concept to a working prototype with market study. 1st place at UCLouvain and 3rd in the national Startech final. Prototyping / Entrepreneurship	🔗 Portfolio

EXPERIENCE

2022 – present	Engineering university tutor Teach discrete mathematics, probability, numerical methods and mechanics to second-year engineering students, and prepare candidates for the engineering entrance exam. A lesson prepared and delivered every week.	Ecole Polytechnique de Louvain
2022 – present	Cub Scout Leader Lead a cub-scout group that includes children with disabilities. 15+ years involved in scouting.	Furicano – Okavango – 50e

LANGUAGES

French - C2 native
English - B2 intermediate
Dutch - B1 intermediate

INTERESTS

- Cycling, running and tennis.
- Competitive programming.
- ML and RL.

SKILLS

Programming: Python / Julia / C / C++ / C# / Java / JavaScript / SQL
Tools: PyTorch / Git / Docker / Unity
Domains: Deep Learning, Reinforcement Learning, Optimisation, Probability & Statistics, Numerical methods