



VALENTIN LACOMBE

MATHEMATICAL ENGINEER

CONTACT



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Lille, France

EDUCATION

Politecnico di Milano
2020-2023

Milano, Italia

Master of Science: Statistical Learning



POLITECNICO
MILANO 1863

**Ecole nationale supérieur
des Mines de Nancy**
2018-2023

Nancy, France

French graduate school of engineering:
Major in Applied Mathematics



LANGUAGES



Native



Advanced



Intermediate



Beginner

HOBBIES



SUMMARY

AI Research Engineer specializing in Large Language Models (LLMs), reinforcement learning, and causal reasoning. Building on a background in applied mathematics, I am co-developing open-source procedural data generation tools and supervise undergraduate research projects. Highly motivated to leverage this technical expertise for an assistant PhD position focused on Agentic AI and Kantian evolutionary game theory.

WORKING EXPERIENCE

Lycée Louis PASTEUR, Le Blanc (France)

High school teacher / 2023-2024

- Full time replacement teacher in my former high school, Teaching mathematics and physics

Seasonal student job

- 2022: Server at Pizza Bella, Le blanc
- 2021: Bank reception manager at Crédit Agricole, Le Blanc
- 2019: Operator in a cheese factory at Eurial, Tournon st Martin
- 2018: Orchard worker at les vergers de Muant, Le Blanc

RESEARCH EXPERIENCE

INRIA laboratory, Lille (France)

Research Engineer / Jan 2025-Present

- Open-Source Development: Co-author and primary developer of reasoning_core, an open-source library that generates synthetic procedural data for LLM training purposes (SFT + RLVR) with project available on github and preprint available.
- Causal Reasoning: Implemented structural causal models within reasoning_core, observational, interventional, and counterfactual queries based on Judea Pearl's "Ladder of Causation."
- Academic Supervision: Supervised third-year (L3) Informatics students for their projets de stage, managing project launches, defining technical scopes, and providing ongoing methodological guidance.

Politecnico di Milano, Milano (Italie)

Master Thesis / 2022-2023

- Thesis titled "Kantian Evolutionary Game Theory", in collaboration with my Game Theory professor, which led to a published paper

Research projects with hospitals in the Lombardy region / 2022-2023

- Computer Vision applied to pulmonary disease detection
- Categorization and evaluation of different therapies for heart failure
- Development of a report on the evolution of tobacco consumption in OECD countries using non-parametric statistical methods

LORIA laboratory, Nancy (France)

Yearly research project / 2019-2020

- Internship with two computer science researchers, involving the optimization of a cryptographic protocol verification algorithm

Institut Elie Cartan de Lorraine, Nancy (France)

Summer internship research / 2020

- Research on stochastic processes with a specialist in the field

SKILLS

Python
AI
Linux
LateX
R
Matlab
C++

stochastic calculus
game theory
ai
analysis
probability
climat
biomedical
teaching
physics
energy
python
data
mathematics
deep learning
machine learning
sustainability
economy
quantum mechanics
science
finance