

Marco Molinari

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EDUCATION

London School of Economics

London, UK

BSc in Data Science

September 2023 - June 2026

- Classification: **First Class, Outstanding Academic Achievement Prize (ranked top 2%, monetary prize awarded by LSE100).**
- Activities: Effective Altruism (selected for EAG 2024), top-10 in men's boxing, department representative of 420+ students.

EXPERIENCE

LSE.AI

London, UK

Founder / Lead

January 2024 - Present

- Established the AI lab of the London School of Economics (GPUs and mentorship by the Statistics Department and Prof. Szabó).
- Achieved a **84.6% speedup** in sparse autoencoder (SAE) training, and published the research paper with **ACL**, presenting at **BlackboxNLP (EMNLP 2024)** in **Miami** achieving a **4.33/5** peer review score (top 4%), including a 'best paper' review.
- Negotiated **industry collaborations** with **Mila** for a **NeurIPS** paper.

Google Deepmind

Milan, Italy

M²L Artificial Intelligence and Machine Learning Summer School (Deepmind organising sponsor)

September 2024

- Selected as one of only 9 undergrads (519 applications in total) for PhD-level lectures and workshops by leading researchers.

Qi4M Asset Management

San Francisco, US - Rome, Italy

Data Scientist Intern

June 2024 - September 2024

- Improved pairs trading PnL by **40%** using company descriptions' latent LLM features. Paper under review at **NAACL 2025**.
- Selected to attend the INNOVIT program in San Francisco as an innovator in the Fintech and Insurtech track.

Research Fellow

June 2022 - October 2022

- **Enhanced asset pricing performance** to a **9.59% R²** (surpassing the traditional PCA approach's 3.9%) and drafted a paper.
- Presented the technical paper at the **2024 British Conference of Undergraduate Research** after peer review.

LSEU Entrepreneurs

London, UK

Executive Director / CTO (#1 student society award by the student union)

July 2024 - Present

The Good Scientists

Wageningen, Netherlands

Machine Learning Specialist

December 2022 - December 2023

- Delivered an AI matching platform that achieved 609ms response times with ReactJS, Typescript, Python, Flask, and NoSQL.
- Secured a €50k investment from the EU HPC Joint Undertaking, and presented in the ACUD23 supercomputing conference.
- Presented the algorithm in **Meta's HQ in San Francisco** (Global Llama Community Summit), for innovating with Meta's LLMs.

FlipCX

New York, US

Software Engineering Contractor

January 2023 - February 2023

- Built a Selenium web scraper API (latency <1s) by parallelizing with Python Multithreading, thus reducing customer wait times.

PUBLICATIONS

- **Marco Molinari**, et. at. 2024. Interpretable Company Similarity with Sparse Autoencoders. Under review as an industry track paper at **NAACL 2025**. arxiv.org/abs/2412.02605.
- Davide Ghilardi*, Federico Belotti*, **Marco Molinari***, Tao Ma, Matteo Palmonari. Efficient Training of Sparse Autoencoders for Large Language Models via Layer Groups. Under review at **ACL 2025**. Preprint: arxiv.org/abs/2410.21508.
- Davide Ghilardi*, Federico Belotti*, **Marco Molinari***, Jaehyuk Lim. 2024. Accelerating Sparse Autoencoder Training via Layer-Wise Transfer Learning in Large Language Models. Proceedings of the 7th BlackboxNLP Workshop at EMNLP. **Association for Computational Linguistics (ACL)**. aclanthology.org/2024.blackboxnlp-1.32/.
- **Marco Molinari**. 2024. Applications of Autoencoder Asset Pricing Models to a Highly Dimensional Cross-Section. British Conference of Undergraduate Research. ssrn.com/abstract=4246289.

HONOURS AND SKILLS

- Reviewer for the **International Conference on Learning Representations (ICLR)**. 2024
- Royal Society of Arts Fellow. 2023
- **Medal** at the finals of the Italian **National Olympiad in Computer Science (top 0.22% nationally)**. 2022
- Skills and Languages: PyTorch, Python, C++, NextJS, SQL, Linux. English (Native), Italian (Native), Spanish (Intermediate).

* Denotes **equal contributions**.