Carlo Alfano

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Work Experience

jul 2025 – present **Amazon**, *Applied Scientist*, Spain.
Focus: training LLM-based evaluators for LLMs with synthetic data and reinforcement learning.

sep 2024 – feb 2025 **Amazon**, *Applied Scientist Intern*, Luxembourg.
Focus: building LLM-based evaluators for LLM faithfulness.

Education

2020–2025 **University of Oxford**, *DPhil in Statistics*, United Kingdom.
- Research topic: reinforcement learning, LLM alignment.
- Supervisors: Patrick Rebeschini, George Deligiannidis.

2019–2020 **University of Oxford**, *MSc in Statistical Sciences*, *Distinction*, United Kingdom.
- Relevant courses: algorithmic foundation of learning, advanced topics in statistical machine learning, advanced simulation methods.
- Project: as a team, we were tasked to compete in a supervised learning Kaggle challenge, based on a dataset of about one million entries, among the MSc candidates. We used Python with scikitlearn and pythorch to select and train the model with best prediction and pandas to analyze the dataset.
- Dissertation: "Decaying Dependence in Multiagent Sequential Decision Making". Supervisor: Patrick Rebeschini.

2016–2019 **Università di Roma "La Sapienza"**, *BSc in Statistics, Economics and Finance*, *110/110 summa cum laude*, Italy.
- Relevant courses: descriptive and inferential statistics, statistical machine learning, econometrics, time series analysis, official statistics, probability, stochastic processes, calculus, stochastic calculus, linear algebra, linear programming and convex optimization, financial mathematics, micro/macroeconomics, monetary and international economics, game theory.
- "Report on the economic situation of Netherlands", used R for data analysis, OECD and International Monetary Fund as information sources. Supervisor: Stefano Fachin.
- Thesis: "Results on the drifted elastic Brownian motion". Supervisor: Enzo Orsingher.

Research

2025 Carlo Alfano*, Silvia Sapora*, Jakob Nicolaus Foerster, Patrick Rebeschini, Yee Whye Teh. "Meta-Learning Objectives for Preference Optimization". Advances in Neural Information Processing Systems (NeurIPS 2025). *equal contribution.

2025 Carlo Alfano, Aymen Al Marjani, Zeno Jonke, Amin Mantrach, Saab Mansour, Marcello Federico. "Multilingual Self-Taught Faithfulness Evaluators". arXiv preprint: 2507.20752.

2025 Carlo Alfano, Sebastian Rene Towers, Silvia Sapora, Chris Lu, and Patrick Rebeschini."Learning mirror maps in policy mirror descent". International Conference on Learning Representations (ICLR 2025).

2023 Carlo Alfano, Rui Yuan, and Patrick Rebeschini."A Novel Framework for Policy Mirror Descent with General Parameterization and Linear Convergence". Advances in Neural Information Processing Systems (NeurIPS 2023).

2022 Carlo Alfano and Patrick Rebeschini. "Linear Convergence for Natural Policy Gradient with Log-linear Policy Parametrization". arXiv preprint: 2209.15382.

2021 Carlo Alfano and Patrick Rebeschini. "Dimension-Free Rates for Natural Policy Gradient in Multi-Agent Reinforcement Learning". arXiv preprint: 2109.11692.

Programming skills

Python	Proficient, experience with jax, flax (deep reinforcement learning, evolutionary strategies), pytorch, vllm, trl (LLM inference and training), server computing (SLURM and AWS).
Julia	Good knowledge, experience with parallel and scientific computing.
R	Intermediate knowledge, experience with data analysis.
Misc	Basic knowledge of Matlab, Stata, SAS and MySQL.

Talks and Workshops

Oct 2024	*17th European Workshop on Reinforcement Learning*, poster.
Sep 2023	*16th European Workshop on Reinforcement Learning*, poster.
Sep 2022	*4th IMA Conference on The Mathematical Challenges of Big Data*, invited talk.

Awards

2023	G-Research Grant for PhD students and postdocs in quantitative fields.
2020-2024	EPSRC DTP full scholarship at the University of Oxford.
2016-2019	"Sapienza" University full scholarship holder.
2016	Honorable mention at the Italian Mathematical Olympiad.
2016	2nd place at math competition for "Roma Tre" University full scholarship.

Teaching and Tutoring

2022	Supervised a student from the *UNIQ+ DeepMind internship*.
2020-present	Teaching assistant at the University of Oxford. ○ Algorithmic Foundation of Learning. ○ Advanced Simulation Methods.

Languages

Italian	Native.
English	Fluent, IELTS 8.0.

Miscellaneous

2021-2023	Common Room Treasurer for Linacre College.
2016	3rd place at National Karate Championship.