Carlo Alfano

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Education

2020–present **University of Oxford**, *DPhil in Statistics*, United Kingdom.
- ○ Research topic: theory of reinforcement learning.
- ○ 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

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

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 Experience with pandas, scikitlearn, numba and pytorch.

Julia Experience with parallel and scientific computing.

R Experience with data analysis.

Misc Basic knowledge of Matlab, Stata, SAS and MySQL.

Awards

2020-2024 EPSRC DTP full scholarship at the University of Oxford.

2016-2019 "Sapienza" University full scholarship holder.

2016 Honorable mention at Italian Math Olympic games.

2016 2nd place at competition for "Roma Tre" University full scholarship.

Talks

Sep 2022 *4th IMA Conference on The Mathematical Challenges of Big Data*, Invited talk.

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-present   Common Room Treasurer for Linacre College.

2021   Reviewer for AISTATS.

2016   3rd place at National Karate Championship.