Marco Mussi | Ph.D. Student

Via Ponchielli 5, Capralba, Italy
16 September 1995 • +39 345 6955160
marcomussi95@gmail.com • marcomussi.github.io
marcomussi95 • marcomussi • 0000-0001-8356-6744

Short Bio

Marco Mussi is a PhD student in Information Technology at the Department of Electronics, Information and Bioengineering of Politecnico di Milano. He received his Master's degree in Computer Science and Engineering at Politecnico di Milano in 2019. After a period as a research fellow in the AIRLab research team, he started the PhD in collaboration with ML cube. His main research topics revolve around artificial intelligence and machine learning, focusing on reinforcement learning applied to advertising. He contributed to several industrial research projects funded by both private and public Italian companies.

Education

Politecnico di Milano **Milano**
Ph.D. in Information Technology *Nov 2020 – now*
Ph.D. in Machine Learning. Focus on Pricing and Advertising Reinforcement Learning solutions
Supervisor: Prof. Marcello Restelli
Relevant coursework: Reinforcement Learning, Online Learning and Monitoring

Politecnico di Milano **Milano**
M.Sc. in Computer Science and Engineering *Sep 2017 – Dec 2019*
Main focus: Artificial Intelligence and Machine Learning
Scholarship: Tuition waiver for high academic performance
Relevant coursework: Machine Learning, Artificial Intelligence, Game Theory, Autonomous Agents and Multi-agent Systems, Foundations of Operational Research, Software Engineering, Principles of Programming Languages, Data Bases II

Politecnico di Milano **Milano**
B.Sc. in Computer Science and Engineering *Sep 2014 – Jul 2017*
Relevant coursework: Software Engineering, Theoretical Computer Science, Communication Networks and Internet, Information Systems, Data Bases I, Computer Architecture and Operating Systems, Automatic Control, Calculus I, Calculus II, Linear Algebra and Geometry, Logics and Algebra, Statistics and Probability, Physics, Applied Physics

IIS Galileo Galilei **Crema**
High School Diploma in Computer Science *Sep 2008 – Jul 2014*
Main Focus on: C, Java, HTML, CSS, Javascript.

Experience

Professional

ML cube **Milano**
AI Researcher *Nov 2020 – now*
Goal: develop algorithms for dynamic pricing and advertising optimization

Academic

Politecnico di Milano **Milano**
Research Assistant *Jan 2020 – Oct 2020*
Supervisor: Prof. Marcello Restelli

Languages

Italian: Mother Tongue

English: Excellent

Master thesis

Title: *Improving aerodynamic load estimation algorithms for F1 racing cars*

Supervisor: Prof. Marcello Restelli

Industrial Partner: Scuderia Ferrari F1

Short Abstract: The thesis studies the aerodynamic behavior of Formula One car, aiming to develop effective methodologies for the estimation of aerodynamic forces on the vehicle. Using data-driven techniques coming from the Machine Learning field that exploits the data gathered during the wind tunnel tests, and the measurements from a small set of pressure sensors, this work allows to reconstruct the pressure profile of the entire car. Moreover, this work proposes a methods to aggregate the data coming from a set of wind tunnel test, to better generalize the aerodynamic load estimation over newly seen aerodynamic configurations.

Talks and Seminars

- *"An introduction to Reinforcement Learning in Real World"*, DEIB Seminar, Politecnico di Milano (3 September 2021)
- *"Un metodo data-driven per la stima dello stato di carica di batterie a ioni di litio"*, RSE Academy Seminar, Ricerca Sistema Energetico (23 October 2020)

Industrial Projects

Reinforcement Learning in Smart-grids **Milano**
Ricerca Sistema Energetico *Feb 2020 – Feb 2022*
Focus: Exploit Reinforcement Learning solutions to preserve the battery State of Health in smart-grids, optimizing economic variables

Last-mile delivery optimization **Milano**
PaxMile *May 2020 – Oct 2020*
Focus: Delivery allocation using Reinforcement Learning and bikers load estimation using Supervised Learning techniques

AD cube product release **Milano**
ML cube *Nov 2020 – now*
Focus: Release of AD cube, a product for advertising optimization in online campaigns

Dynamic pricing for e-commerce **Milano**
Euroffice *Feb 2021 – now*
Focus: Implementation of a dynamic pricing model for an e-commerce with over 20000 products

Master's Students Supervision

- Gianmarco Genalti, *"A Multi-Armed Bandit Approach to Dynamic Pricing"*. Co-supervision. Supervisor: Prof. Nicola Gatti (M.Sc. in Mathematical Engineering, December 2021).
- Amedeo Cavallo, *"A Combinatorial Multi-Armed Bandit Approach to Online Advertising Budget Optimisation"*. Co-supervision. Supervisor: Prof. Marcello Restelli (M.Sc. in Computer Science and Engineering, December 2021).
- Oscar Francesco Pindaro. *"Controlling Lithium-Ion Batteries Through Reinforcement Learning"*. Co-supervision. Supervisor: Prof. Marcello Restelli (M.Sc. in Computer Science and Engineering, April 2022).
- Davide Lombarda. *"Towards Automated Reinforcement Learning"*. Co-supervision with Alberto

Maria Metelli. Supervisor: Prof. Marcello Restelli (M.Sc. in Mathematical Engineering, April 2022).
- Thomas Petrone. Co-supervision. Supervisor: Prof. Marcello Restelli (M.Sc. in Mathematical Engineering, in progress).
- Alessandro Montenegro. Co-supervision with Alberto Maria Metelli. Supervisor: Prof. Marcello Restelli (M.Sc. in Computer Science and Engineering, in progress).
- Andrea d'Silva. Co-supervision with Alberto Maria Metelli. Supervisor: Prof. Marcello Restelli (M.Sc. in Computer Science and Engineering, in progress).

Publications

[1] Marco Mussi, Gianmarco Genalti, Francesco Trovò, Alessandro Nuara, Nicola Gatti, and Marcello Restelli. Pricing the long tail by explainable product aggregation and monotonic bandits. In *Proceedings of the 28th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*. Association for Computing Machinery, 2022.

[2] Marco Mussi, Luigi Pellegrino, Marcello Restelli, and Francesco Trovò. A voltage dynamic-based state of charge estimation method for batteries storage systems. *Journal of Energy Storage*, 44, 2021.