Alessandro Trenta

Curriculum Vitae

Personal Details

Name	Alessandro Trenta
Birth date	15/01/1998
Address	Via Renato Fucini, 57 - 56127 Pisa (PI), Italy
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Nationality	Italian

Experience

2022–2023   **Data scientist**, *Electra Vehicles*, Turin - Pisa (remote)

Research and Development on AI and Machine learning algorithms coupled with Physics models for the study and prediction of EV batteries behavior and aging. Lead of the fault detection and prediction project. Developed an algorithm to predict cell degradation knee-points and catastrophic faults. Created a system able to learn and predict the driver's usage and consumption patterns of the EV.

2019–2022   **Part time collaboration**, *Scuola Normale Superiore*, Pisa

Administration and maintenance of the computer rooms of Fermi college of Scuola Normale Supreriore (Debian GNU/Linux)

2021–2022   **Part time collaboration**, *Università di Pisa*, Pisa

Students tutoring for the "Analisi Dati" course by prof. Romito. Machine learning both under theoretical and practical approach (R, Python, Tensorflow, Pytorch). Seminar on "Overfitting and Double Descent Curve in Neural Networks".

Education

2025–2026   **Visiting PhD**, *Universiteit van Amsterdam (UvA)*, Amsterdam

Visiting Phd student at the Informatics Institute of UvA working on Causality and Dynamical Systems.

2023–Present   **PhD**, *University of Pisa - PhD AI Society*, Pisa

National PhD in Artificial intelligence with full grant by University of Pisa. Mathematics and Machiine Learning.

2020–2023	**Master degree in Mathematics**, *Università di Pisa*, Pisa, 110/110 cum Laude Advanced probability, statistics, data science and machine learning, mathematics of finance, intelligent systems for pattern recognition.
2017–Present	**Master degree in Mathematics**, *Scuola Normale Superiore*, Pisa Information theory and dynamical systems, quantitative finance, quantum information theory, statistical and machine learning models for time series analysis, explainable artificial intelligence.
2017–2020	**Bachelor degree in Mathematics**, *Scuola Normale Superiore*, Pisa, 110/110 cum Laude
2012–2017	**Secondary School**, *Liceo Scientifico delle Scienze Applicate G. Galilei*, Crema (CR), 100/100 cum Laude
2017	**Stage "Ad un passo dalle IPhO"**, *AIF*, ICPT, Trieste
2015-2016-2017	**Stage on the Mathematics Olympiad**, *UMI* 6 Stages held in Pisa (PI) organized by the Olympic Group of UMI (Italian Mathematicians Union) in preparation for the International Mathematical Olympiad (IMO)
2016	**Stage on the Physics Olympiad**, *AIF* Stage held in Sigillo (PG) organized by the Olympic Group of AIF (Italian association for the teaching of Physics)

Publications

2026	**A. Trenta**, A. Cossu, D. Bacciu, "Learning and Transferring Physical Models through Derivatives", TMLR
2025	**A. Trenta***, A. Gravina*, D. Bacciu, "SONAR: Long-Range Graph Propagation Through Information Waves", Advances in Neural Information Processing Systems (NeurIPS) 2025
2025	S. Heilig*, A. Gravina*, **A. Trenta**, C. Gallicchio, D. Bacciu "Port-Hamiltonian Architectural Bias for Long-Range Propagation in Deep Graph Networks", International Conference on Learning Representations (ICLR) 2025
2025	**A. Trenta**, A. Cossu, D. Bacciu, P. Ferrero, "MultiSTOP: Solving Functional Equations with Reinforcement Learning", ICLR 2024 Workshop on AI4Differential Equations In Science
2022	**A. Trenta**, "BootSTOP: Reinforcement Learning for Conformal Field Theories", Master thesis, supervised by D. Bacciu, A. Cossu, and P. Ferrero, University of Pisa

Master thesis

title	Reinforcement Learning for Conformal field theories
Supervisor	Prof. Davide Bacciu (CS @ University of Pisa), Dr. Andrea Cossu (CS @ University of Pisa), Dr. Pietro Ferrero (Ph @ Stonybrook University)
description	Application of Reinforcement Learning to the conformal boostrap equation of Conformal Field Theories. The algorithm, BootSTOP, is an extention of Soft Actor-Critic and it is applied on the 2D Ising model and the 1D defect CFT defined on the half-BPS Wilson line in the 4D supersymmetric Yang-Mills theory.

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 alexthirty.github.io • *AlexThirty* • *AlexThirty* 2/5

Bachelor thesis

title	Teoria dell'informazione, predizione e portafogli universali
title (EN)	Information theory, prediction and universal portfolios
Supervisor	Prof. Stefano Marmi (Scuola Normale Superiore)
description	Applications of information theory concepts and tools (Shannon entropy, universal prediction algorithms, universal codes) to the financial market following the work by Cover, Thomas, Algoet

Awards

Physics Olimpiad

2016/2017	Gold medalist at the National Physics Olympiad. Part of the Italian national team and Bronze medalist at the 48th International Physics Olympiad (IPhO) in Yogyakarta, Indonesia.
2015/2016	Bronze medalist at the National Physics Olympiad.

Individual Mathematics Olympiad

2016/2017	Gold medalist at the National Mathematics Olympiad. Partecipation at the final phase of the Math games of Università Bocconi
2015/2016	Silver medalist at the National Mathematics Olympiad. Partecipation at the final phase of the Math games of Università Bocconi. Partecipation at the final phase of Kangourou of Mathematics
2014/2015	Bronze medalist at the National Mathematics Olympiad. Partecipation at the final phase of the Math games of Università Bocconi. Partecipation at the final phase of Kangourou of Mathematics

Team Mathematics Olympiad

2016/2017	Partecipation at the national phase of the Italian Team National Olympiad
2015/2016	Partecipation at the national phase of the Italian Team National Olympiad
2014/2015	Partecipation at the national phase of the Italian Team National Olympiad

Informatics Olympiad

2020	Partecipation at the regional phase of ICPC 2020 held in Paris
2016	Partecipation at the national finals of the National Informatics Olympiad

Events and Partecipations

2022	**First Ascent Business**, Barcellona
	Partecipation at the First Ascent Business 2020 event in Barcellona from March 24, 2022 to March 27, 2022. First Ascent Business is an all-expences paid experience for top 20 selected italian students in business and tech to learn, network and impress. website: business.firstascent.io

Computer skills

Basic	Bash, Docker

Intermediate	HTML, LaTeX, OpenOffice, Office, Linux, Debian, JavaScript ES6, CSS, MatLab, Django framework, R, OpenAI Gym	
Advanced	C/C++, python, Tensorflow, Ray library, Ray RLLib	

Languages

Italian	Mothertongue	
English	C1, CAE certificate passed at grade B in 2016	*Grade 195/210*
French	B1, French class at Scuola Normale Superiore - No certification	

Interests

- Programming, Informatics, Mathematics, Machine learning
- Basketball, football, motorsports
- Videogames, tech

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According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV and application for recruiting purposes.

January 25, 2026

Alessandro Trenta