Matteo Tusoni

WORK EXPERIENCE

BANCA D'ITALIA – ROMA, ITALY
RESEARCH INTERN – 02/2025 – CURRENT

ERNST AND YOUNG – ROME, ITALY
SENIOR DATA SCIENTIST – 06/2024 – 11/2024

LEONARDO – ROME, ITALY
DATA SCIENTIST – 06/2023 – 05/2024

EDUCATION AND TRAINING

10/2024 – CURRENT Rome, Italy
DOCTOR OF PHILOSOPHY Sapienza

I am exploring advanced AI methodologies designed to uncover causality in time series data, with a specific focus on financial markets. This research aims to go beyond traditional correlation analysis to identify causal relationships within complex, dynamic market environments.

Rome, Italy
MASTER DEGREE IN PHYSICS Sapienza

Final grade 110 cum laude

Thesis Measuring the beauty and the charm of the Higgs boson: Investigating the Higgs boson decays into a pair of b- and c-quarks with the ATLAS detector at the LHC and development of machine learning methods for particle flow reconstruction.

LANGUAGE SKILLS

Mother tongue(s):   **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	C1	C1	C1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user

PUBLICATIONS

2023
Reconstructing particles in jets using set transformer and hypergraph prediction networks

Development of three separate set-to-set neural network architectures to reconstruct particles in events containing a single jet in a fully-simulated calorimeter.

Publisher: European Physical Journal

2023
Configurable calorimeter simulation for AI applications

A configurable calorimeter simulation aimed to support the development of machine learning algorithms in high energy physics that rely on realistic particle shower descriptions, such as reconstruction, fast simulation, and low-level analysis.

Journal Name: Machine Learning: Science and Technology

2025
Robust Causal Discovery in Real-World Time Series with Power-Laws

Journal Name: Under submission in A++ Conference in AI/ML

CONFERENCES & SEMINARS

2022 Workshop: Machine Learning and the Physical Sciences - NeurIPS
HGPflow: Particle reconstruction as hyperedge prediction

Modeling of particle reconstruction as a set-to-set mapping over hypergraph incidence structures, facilitating accurate and interpretable momentum estimation with built-in energy conservation. (Work presented by other authors)

Link https://neurips.cc/media/PosterPDFs/NeurIPS 2022/57008.png?t=1668944693.7622426