Marco Eterno
Machine Learning Researcher

Theoretical physicist from Scuola Normale Superiore, Pisa. Approached strategy consulting to become a better project executor. Long time AI enthusiast, with a focus on LLMs. Passionate about finding novel ways to reach AGI.

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PROFESSIONAL EXPERIENCE

Machine Learning Researcher
Octopus AI

10/2023 - Present   *Remote*
Started a collaboration of professors, researchers, and companies to experiment new roadmaps to reach AGI.

- Trained a GPT2-like architecture from scratch and experimented with variations.
- Built a self-improving LLM agent that leverages the scientific method and experiments to build a model of the world.
- Invented a recurrent architecture for LLMs with power law information storage behaviour and tunable exponent.
- Used Alpha-Zero like **Monte Carlo tree search** to improve the decoding performance of Language Models (ongoing).

Strategy Consultant
Oliver Wyman

06/2022 - 09/2023   *Milan, Italy*

- Freed **50+M€** from the reserves of **70 Italian banks** by inventing and implementing a **data pipeline**.
- **Automatized 100+ hours of work** by writing **Python** scripts.
- **Responsible** for the work of 3 experienced consultants and the weekly **reports to client's management.**
- Contributed to the definition of the strategy for 10+ companies in transportations, energy and banking.

EDUCATION

Scuola Normale Superiore (SNS)
Second level Master in Physics

2016 - 2022   *Pisa, Italy, Final grade: 110/110 with honors*

- Best Italian university for Physics. Full scholarship is granted for the about 10 physicists selected every year

University of Pisa
Master of science in Physics

2019 - 2022   *Pisa, Italy, Final grade: 110/110*

University of Pisa
Bachelor's Degree in Physics

2016 - 2019   *Pisa, Italy, Final grade: 110/110 with honors*

PROJECTS

Master's Thesis in Econophysics (07/2021 - 05/2022)
- Wrote an economy simulator in **C**. Used **Python** to analyze data.
- My work gives **original contributions** in Monetary and Fiscal policy**.**

Olivia Startup (10/2020 - 01/2021)
- **Co-founder** of a startup based on machine learning, accelerated by Bocconi for Innovation and LVenture.
- **Developer** of predictive algorithm for restaurants in **PyTorch.**
- **Project Leader**: coordinated the work of 4 people in the creation of the web interface and in the development of algorithms.

COVID-19 Testing Improvement (03/2020 - 06/2020)
- **Invented a** procedure to speed up covid testing by **5x**.
- **Assembled a team** of professors and researchers from **3 different universities**.
- **Successfully tested the procedure** in the virology lab of Pisa.
- Variations on our method are used as **standard testing procedure** all over the world.

ACHIEVEMENTS

1st National place at PLANCKS (2020)
Theoretical Physics competition for teams of 4 people.

1st place in physics at the admission test for SNS (2016)
Out of 200+ participants. Won the full scholarhip for 5 years.

Bronze medal in National Physics Olimpiad (2016)

National Finals Chemistry Olimpiad (Both 2015 & 2016)
Participated to the selection for the international phase.

National Finals Math Olimpiad (2016)
Both in the individual competition, and with my team.

1st world place in "Zero Robotics" (2015)
International team programming competition sponsored by NASA, MIT and ESA. 80+ teams participating.

Chess National Finals Under 14 (2008)

COMPLEMENTARY EDUCATION

Machine Learning Education (2018-Present)
courses:
- **ML/Deep learning** by MIT, University of Pisa, Oliver Wyman, Stanford University.
- **Large Language Models** by Stanford University.
- **Reinforcement Learning** by Deepmind.