

Pierfrancesco Beneventano

PhD candidate at Princeton University

Researching on theory of deep learning.
Broadly interested in Machine Learning, its theory, and the math tools to develop it.

Personal Data

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Education

PhD in Operation Research and Financial Engineering, Princeton University, NJ, USA

2020 – curr.

Mathematics of machine learning, Statistics, Computational Mathematics

o Summer research assistant (2021) of [Prof. Boris Hanin](#).



MSc in Mathematics, ETH Zurich, Switzerland

2018 – 2020

Statistics, Probability, Computational Mathematics, and Deep Learning

Theses:

o Deep neural network approximations for high-dimensional functions.

o [Deep neural network approximations for high-dimensional first order Kolmogorov PDEs](#).

Supervisors: Prof. Arnulf Jentzen, Prof. Patrick Cheridito.



BSc in Mathematics, Università di Pisa, Italy

2015 – 2018

Computational Mathematics Curriculum

o Thesis on numerical methods for Markov chains (Italian). **Supervisor:** Prof. Dario A. Bini.

o INdAM Merit Scholarship, best 40 freshmen in math all-over Italy (2015–2018).

o INdAM Summer School in Mathematics (2016, 2017).



Industry Experiences

Machine Learning Research Intern

2020

[Daedalean AI](#), Zurich, Switzerland

o *Explainability of AI.*

o *Theoretical Guarantees for Neural Networks (Generalizability).*

My work was part of the project [Concepts of Design Assurance for Neural Networks \(CoDANN\)](#) in partnership with EASA, European Union Aviation Safety Agency, which will lead to the first guidelines for *AI certification in safety critical system*.



Teaching Experiences

Princeton University:

o [Energy and Commodities Markets](#).

Courses for Finance MSc, ECON and ORFE BSc.

Taught the precepts, corrected exercises, held office hours.

ETH Zurich:

o [Numerical Methods for Partial Differential Equations](#).

o [Computational Methods in Engineering and Applications](#).

o Translator and Proofreader of a book on Calculus.

Courses for: Physics MSc, Data Science MSc, CSE BSc, Mech. Eng. BSc.

Coding skills

Proficient: C, Matlab, \LaTeX .

Experiences: C++, Python, R.

Languages

Native: Italian.

Fluent: English.

Other

Moderator&Organizer: XAI session, conference at [OECD](#) on *“Forecasting the future for sustainable development”* (and much more as [CEST member](#)).