

# 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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**Address:** 119 Sherrerd Hall, Princeton, 08540 NJ.  
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[Linkedin profile](#)  
[Google Scholar](#)  
[Website](#)

## Education

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**PhD in Operation Research and Financial Engineering, Princeton University, NJ, USA**  
*Mathematics of machine learning, Statistics, Computational Mathematics*

2020 – curr.

- 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).



UNIVERSITÀ DI PISA

## Industry Experiences

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**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

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**Princeton University:**

- o [Energy and Commodities Markets](#).
- Course mainly for Finance MSc 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

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**Proficient:** C, Matlab.

**Experiences:** Python, R.

## Other

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

**Organizer, Moderator, & Panelist:** CEST-UCL Seminar series on responsible modelling.