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 — **CGPA: na**
Mathematics of machine learning, Statistics, Computational Mathematics — *2020 – curr.*

MSc in Mathematics, ETH Zurich, Switzerland — **Final grade: 5.92/6 (summa cum laude)**
Statistics, Probability, Computational Mathematics, and Deep Learning — *2018 – 2020*

Theses:
- Deep neural network approximations for high-dimensional functions.
- 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 — **Final grade: 110/110 summa cum laude**
Computational Mathematics Curriculum — *2015 – 2018*

- Thesis on numerical methods for Markov chains (Italian). **Supervisor:** Prof. Dario A. Bini.
- INdAM Merit Scholarship, best 40 freshmen in math all-over Italy (2015–2018).
- INdAM Summer School in Mathematics (2016, 2017).

Experiences

Machine Learning Research Intern
Daedalean AI, Zurich, Switzerland — *2020*

- *Explainability of AI.*
- *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 Assistant
ETH Zurich, Switzerland — *2019 - 2020*

- Numerical Methods for Partial Differential Equations.
- Computational Methods in Engineering and Applications.
- Translator and Proofreader of a book on Calculus.

Courses for, among others: Physics MSc, Data Science MSc, CSE BSc, Mech. Eng. BSc.
Taught at the exercise lectures of the courses (both theory and C++ for problems.)

Coding skills

Proficient: *C, Matlab,* LaTeX.
Experiences: *C++, Python, R, Java.*

Languages

Native: Italian.
Fluent: English, 7.5/9 Academic IELTS