

# Luca Masserano

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Website: <https://lucamasserano.github.io/>

## EDUCATION

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**Joint PhD in Statistics and Machine Learning**, Carnegie Mellon University Aug 2020 – May 2025 (Expected)  
Advisor: Ann B. Lee. Co-mentor: Barnabás Póczos. CMU Presidential Fellow for the Statistics Department (2024).

**MSc in Data Science (Statistics)**, Bocconi University Sep 2018 – Jul 2020  
GPA: 29.3/30, Final Grade: 110/110 *Summa cum laude*.

**BSc in Quantitative Methods for Economics**, Università Cattolica del Sacro Cuore Sep 2015 – Sep 2018  
GPA: 29.2/30, Final Grade: 110/110 *Summa cum laude*.

## EXPERIENCE

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**Doctoral Researcher**, Carnegie Mellon University Aug 2020 – Present

- **Trustworthy Scientific Inference with Generative Models:** My PhD research focuses on equipping modern generative models with strong statistical guarantees, enabling their use to draw trustworthy and precise scientific conclusions. To do so, I combine classical statistical theory, modern machine learning methodology, and real-world scientific applications. To achieve a broad impact, we collaborate with domain scientists from several institutions (e.g., CERN and NASA).

**Machine Learning Scientist Intern**, Amazon (AWS AI Labs) Jun – Aug 2022/2023/2024

- **Project (2024):** Enhancing Foundation Models for Time Series Forecasting via Wavelet-based Tokenization. Offered to return full-time in 2025, conditional on available headcount.
- **Project (2023):** End-to-end Learning of Mixed-Integer Programs via Stochastic Perturbations. Offered to return for another internship in 2024.
- **Project (2022):** Adaptive Sampling for Probabilistic Forecasting Under Distribution Shifts. Offered to return for another internship in 2023.

**Quantitative Analyst Intern**, BlackRock Jul 2019 – Sep 2019

- **Project:** Developed and tested a research platform to analyze the effect of modifications in a suite of equity risk models. Offered to return full-time in 2020.

**Data Scientist Intern**, SmartFAB Mar 2019 – May 2019

- **Project:** Deployed ML algorithms to improve real-time detection of damaged semiconductors in a production plant.

## SELECTED PUBLICATIONS AND PREPRINTS

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### CONFERENCES

LM, A. Ansari, B. Han, X. Zhang, C. Faloutsos, M. Mahoney, A. Wilson, S. Rangapuram, D. Maddix, Y. Wang. “Enhancing Foundation Models for Time Series Forecasting via Wavelet-based Tokenization”. **Under Review, ICML (2025)**

LM, A. Shen, T. Dorigo, M. Doro, R. Izbicki, A. Lee. “Classification under Nuisance Parameters and Generalized Label Shift in Likelihood-Free Inference”. **ICML (2024), Best Poster Award at NeurIPS ML4PS Workshop (2023)**

LM, T. Dorigo, R. Izbicki, M. Kuusela, A. Lee. “Simulation-Based Inference with Waldo: Confidence Regions by Leveraging Prediction Algorithms and Posterior Estimators for Inverse Problems”. **AISTATS (2023), Best Paper Award from ASA**

LM, S. Rangapuram, S. Kapoor, R. Nirwan, Y. Park, M. Bohlke-Schneider. “Adaptive Sampling for Probabilistic Forecasting under Distribution Shifts”. **NeurIPS DistShift Workshop (2022)**

### JOURNALS

J. Carzon\*, LM\*, A. Ghosh, A. Lee, D. Whiteson. “Improving on Likelihood-ratio-based Parameter Constraints by Leveraging Prior Distributions with Frequentist-Bayes Procedures” (\*equal contribution). **In submission, Physical Review Letters (2025)**

LM\*, J. Carzon\*, A. Shen\*, A. Ribeiro, T. Dorigo, M. Doro, J. Speagle, R. Izbicki, A. Lee. “Valid Scientific Inference from Generative Models” (\*equal contribution). **Under review, Nature Communications (2025)**

N. Dalmaso\*, LM\*, D. Zhao, R. Izbicki, A. Lee. “Likelihood-Free Frequentist Inference: Bridging Classical Statistics and Machine Learning for Simulation-Based Inference” (\*equal contribution). **Electronic Journal of Statistics (2024)**

## SKILLS

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**Programming:** Python (preferred), R. Developer/maintainer of the `lf2i` package for likelihood-free inference.

**Libraries & Tools:** NumPy, SciPy, Pandas, Matplotlib, Scikit-learn, PyTorch, Bash, L<sup>A</sup>T<sub>E</sub>X, Git, Azure, AWS.

**Spoken Languages:** Italian (native), English (fluent), Spanish (intermediate).

## SERVICE

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### Teaching Assistant at Carnegie Mellon University

- Computing TA: helping PhD students and faculty with research-related computing needs.
- STAT 36401 - Modern Regression (Head TA in Fall 2021).
- STAT 36462 - Statistical Machine Learning.

**Reviewer:** NeurIPS 2024.

## AWARDS

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**Presidential Fellow for the Statistics Department**, Carnegie Mellon University Jan 2024  
Awarded only to one student every year in recognition of research, contributions to pedagogy, and department citizenship.

**Student Travel Award**, SIAM UQ Conference Jan 2024  
Awarded a travel grant through a competitive process to take part in the 2024 SIAM Uncertainty Quantification conference.

**Best Poster Award**, NeurIPS - Machine Learning for Physical Sciences Workshop Dec 2023  
“Classification under Nuisance Parameters and Generalized Label Shift in Likelihood-Free Inference”.

**Best Paper Award**, American Statistical Association (ASA), Section on Physical Sciences Jan 2023  
“Simulation-based Inference with WALDO: Confidence Regions from Prediction Algorithms and Posterior Estimators”.

**The Future Makers**, Boston Consulting Group May 2019  
Highly selective (100 students) four-days workshop about global trends, leadership, geopolitics and social issues.

**Bain Business Course**, Bain & Company March 2019  
Business cases and strategic analysis workshop for 20 selected students. I was offered an internship at the end of the event.

## EXTRACURRICULAR ACTIVITIES

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**Professional Soccer Player**, U.S. Ancona, Taranto F.C., Fidelis Andria (Italy)  
I was a goalkeeper from 2012 to 2015 in different professional leagues. I stopped for an injury and to pursue other career paths.

**Pianist**, Istituto Civico Musicale G. Rossini (Italy)  
I took part in several competitions at the national level from 2006 to 2012. Today, I still enjoy playing at an amateur level.