

Luca Masserano

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EDUCATION

Carnegie Mellon University, PhD in Statistics and Machine Learning Aug 2020 – May 2025 (Expected)

Joint PhD Program between the Machine Learning and Statistics Departments

Advisors: Ann B. Lee, Barnabás Póczos

Bocconi University, M.Sc. in Data Science Sep 2018 – Jul 2020

GPA: 29.3/30, Final Grade: 110/110 *cum laude*

Università Cattolica del Sacro Cuore, B.Sc. in Quantitative Methods for Economics Sep 2015 – Sep 2018

GPA: 29.2/30, Final Grade: 110/110 *cum laude*

EXPERIENCE

Carnegie Mellon University, Doctoral Researcher Aug 2020 – present

- **Robust uncertainty quantification in simulation-based inference:** I develop methods with sound statistical guarantees that leverage modern machine learning (e.g., deep generative models) and are used for scientific inference to quantify the uncertainty around parameters of interest. This is a key problem in science, where the goal is often to constrain parameters that govern complex and intractable physical processes. Partially supported by NSF.

Amazon (AWS AI Labs), Machine Learning Scientist Intern Jun 2023 – Aug 2023

- **Project:** End-to-end Learning of Mixed-Integer Programs via Stochastic Perturbations. Offered to return for another internship in 2024.

Amazon (AWS AI Labs), Machine Learning Scientist Intern Jun 2022 – Aug 2022

- **Project:** Adaptive Sampling for Probabilistic Forecasting Under Distribution Shifts. Offered to return for another internship in 2023.

BlackRock, Quantitative Analyst Intern Jul 2019 – Sep 2019

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

SmartFAB, Data Scientist Intern Mar 2019 – May 2019

- **Project:** Real-time detection of damaged integrated circuits produced in a semiconductor plant.

PUBLICATIONS AND PREPRINTS

Masserano, L., Rangapuram, S., Stella, L., Benidis, K., Rosolia, U., Bohlke-Schneider, M. (2023) *End-to-end Learning of Mixed-Integer Programs via Stochastic Perturbations*. In preparation.

Masserano, L.* , Shen, A.* , Dorigo, T., Doro M., Izbicki R., Lee, A. (2023) *Classification under Prior Probability Shift induced by Systematic Uncertainties*. *Equal contribution. In preparation.

Masserano, L., Dorigo, T., Izbicki, R., Kuusela, M., Lee, A. (2022) *Simulation-Based Inference with Waldo: Confidence Regions by Leveraging Prediction Algorithms or Posterior Estimators for Inverse Problems*. AISTATS.

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

Masserano, L., Dorigo, T., Izbicki, R., Kuusela, M., Lee, A. (2022) *Likelihood-Free Frequentist Inference for Calorimetric Muon Energy Measurement in High-Energy Physics*. NeurIPS Machine Learning for Physical Sciences Workshop.

Dalmasso, N.* , Masserano, L.* , Zhao, D., Izbicki, R., Lee, A. (2021) *Likelihood-Free Frequentist Inference: Bridging Classical Statistics and Machine Learning for Simulation-Based Inference*. *Equal contribution. Under Review (Journal).

COMPUTER SKILLS AND LANGUAGES

CODING: Python, R, Bash, \LaTeX , Git

LANGUAGES: Italian (native), English (fluent), Spanish (intermediate)

ADDITIONAL EXPERIENCE

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

AWARDS

Student paper award by the American Statistical Association, Section on Physical Sciences **Jan 2023**
SBI with WALDO: Confidence Regions by Leveraging Prediction Algorithms or Posterior Estimators

SELECTED TALKS

AISTATS **Valencia, Spain**
SBI with WALDO: Confidence Regions by Leveraging Prediction Algorithms or Posterior Estimators **April 2023**

NeurIPS - Machine Learning and the Physical Sciences Workshop **New Orleans, LA**
Likelihood-Free Frequentist Inference for Calorimetric Muon Energy Measurement in High-Energy Physics **Dec 2022**

NeurIPS - Distribution Shifts Workshop **New Orleans, LA**
Adaptive Sampling for Probabilistic Forecasting under Distribution Shift **Dec 2022**

ML4Jets **Rutgers University, Piscataway, NJ**
SBI with WALDO: Confidence Regions by Leveraging Prediction Algorithms or Posterior Estimators **Nov 2022**

Joint Statistical Meetings (JSM) **Washington, D.C.**
SBI with WALDO: Confidence Regions by Leveraging Prediction Algorithms or Posterior Estimators **Aug 2022**

5th Inter-experiment Machine Learning (IML) Workshop **CERN, Geneva, Switzerland**
SBI with WALDO: Confidence Regions by Leveraging Prediction Algorithms or Posterior Estimators **May 2022**

EXTRACURRICULAR ACTIVITIES

Professional Soccer Player

I played as goalkeeper from 2012 to 2015 in different professional leagues in Italy. I stopped due to an injury.