MATTEO SORDELLO

PHD CANDIDATE IN STATISTICS at THE WHARTON SCHOOL, UNIVERSITY OF PENNSYLVANIA

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EDUCATION

The Wharton School, University of Pennsylvania, PhD Candidate in Statistics   Aug 2016 – present
GPA: 4.0/4, Advisor: Weijie Su (Personal Page)

University of Torino, M.Sc. in Mathematics with emphasis in Probability   Sep 2013 – Jul 2015
GPA: 29.69/30, Final Grade: 110/110 *cum laude and honors*

Collegio Carlo Alberto, M.A. in Statistics and Applied Mathematics, *Allievi Honors Program*   Sep 2013 – Jul 2015
GPA: 29.56/30, Final Grade: Distinction

University of Torino, B.Sc. in Mathematics   Sep 2010 – Jul 2013
GPA: 29.14/30, Final Grade: 110/110 *cum laude*

RELEVANT EXPERIENCE

Nokia Bell Labs, Data Science Intern   Jun 2020 – Aug 2020

- Conducted original research in Active Learning and Optimization aimed at accelerating the training of Deep Neural Networks, which resulted in a manuscript currently in progress.
- Used state-of-the-art Machine Learning techniques to implement a novel training method for Deep Neural Networks (Programming Language: Python).
- Designed and delivered a presentation to a technical and non-technical audience of over 100 people.

Wharton Moneyball Academy, Graduate Instructor   Jul 2019

- Coding instructor in a summer program for talented rising high school juniors and seniors, with the focus on fundamentals of statistical thinking in sports analytics
- Performed Data Visualization and Data Analysis (Programming Language: R)
- Taught classes to a large non-technical audience, and helped several groups of students with their final projects.

The Wharton School, University of Pennsylvania, Doctoral Researcher   Aug 2016 – present

- Created an optimization strategy that leverages the local geometry of the loss landscape to adaptively decay the learning rate of Stochastic Gradient Descent. All the simulations in Deep Learning were performed using PyTorch. This project was presented at an international conference and the first-author publication is currently under review.
- Designed an algorithm to perform MCMC Sampling adaptively selecting the optimal stepsize for the Unadjusted Langevin Algorithm. The procedure is based on the use of coupling to detect stationarity. The first-author manuscript is in progress and has been already presented at an international conference.
- Developed a method to test for the presence of Differential Ascertainment in data that are collected in case-control studies. The method was applied to a dataset created by the National Violent Death Reporting System and lead to a first-author publication that has also been presented at an international conference.
- Proved two concentration bounds for random variables defined as selections from a three dimensional array.

SKILLS

Coding:

- proficient with Python (`numpy`, `sklearn`, `pyTorch`), R (`tidyverse`, `ggplot`)
- familiar with SQL
- Everyday Use: LaTeX, JMP, Office

Technical: Data Analysis, Online Learning, Active Learning, Optimization, MCMC Sampling, Hypothesis Testing.

Languages: Italian (native speaker), English (fluent), Spanish (basic), French (basic)

PUBLICATIONS

- **Sordello Matteo** and Small Dylan (2020) A Capture-Recapture Approach to Detect the Presence of Differential Ascertainment and an Application to Child Maltreatment. In: *Statistics in Medicine*

- Banerjee Debapratim and **Sordello Matteo**, (2019) A Bernstein type inequality for sums of selections from three dimensional arrays. In: *Statistics and Probability Letters*

- **Sordello Matteo** and Su Weijie, (2019) Robust Learning Rate Selection for Stochastic Optimization Using Splitting Diagnostic. *arXiv preprint:1910.08597*

- Ruggiero Matteo and **Sordello Matteo** (2018) Clustering dynamics in a class of normalised generalised gamma dependent priors. In: *Ann Inst Stat Math*

- **Sordello Matteo**, Su Weijie and Johndrow James (2020+) Stepsize selection in Langevin Monte Carlo via coupling. *In preparation*

- **Sordello Matteo**, Venturi Luca and Kushnir Dan (2020+) Being Focused and Active Gets You Higher. *In preparation*

TALKS

Joint Statistical Meetings 2020, Section: Statistical Learning and Data Science   Aug 2020
Title: Stepsize selection in Langevin Monte Carlo via coupling

Welcome Home 2019, Organized by Math Department "G. Peano", University of Torino   Dec 2019
Title: Robust Learning Rate Selection for Stochastic Optimization Using Splitting Diagnostic

Joint Statistical Meetings 2019, Section: Uncertainty Quantification for Stochastic Optimization Methods in Machine Learning   Jul 2019
Title: Robust Learning Rate Selection for Stochastic Optimization Using Splitting Diagnostic

Welcome Home 2018, Organized by Math Department "G. Peano", University of Torino   Dec 2018
Title: A Capture-Recapture Approach to Detect the Presence of Differential Ascertainment and an Application to Child Maltreatment

Joint Statistical Meetings 2018, Section: Model-Based Statistics and Applications   Aug 2018
Title: A Capture-Recapture Approach to Detect the Presence of Differential Ascertainment and an Application to Child Maltreatment

ADDITIONAL EXPERIENCE

Teaching Assistant:

- University of Pennsylvania

  - *STAT 102* (Intro Business Stat)
  - *STAT 111* (Intro Stat, with recitations)
  - *STAT 112* (Intro Stat)
  - *STAT 432* (Mathematical Statistics)
  - *STAT 471* (Modern Data Mining)

- University of Torino

  - *Probability*
  - *Stochastic Processes*

Leadership: Semi-professional volleyball player and captain of the team for 8 years

HOBBIES

Volleyball, Beach Volleyball, Ping Pong, Soccer