

# Lorenzo Masoero

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Born July 20, 1992—Turin, Italy  
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## Education

2019-2021	PhD, Electrical Engineering and Computer Science, Massachusetts Institute of Technology
2017 - 2019	MSc in Electrical Engineering and Computer Science, Massachusetts Institute of Technology <sup>1</sup>
2015 - 2016	MA in Statistics and Applied Mathematics, with distinction, Collegio Carlo Alberto
2015 - 2016	MA in Quantitative Finance, 110/110 magna cum laude, Università degli Studi di Torino
2012 - 2014	BA in Economics, 110/110 cum laude, Università degli Studi di Torino

## Scholarships and Awards

2020	SBSS Best Student Paper Award (ASA)
2020	Bayes Comp Travel Award
2018	BNP@NeurIPS Award
2017	Andrew (1956) and Erma Viterbi Fellowship
2016	Best Graduate Student of the Year (ATLEC)
2015 - 2016	Graduate Allievi Honors Program Scholarship, Collegio Carlo Alberto, Moncalieri
2012 - 2014	Undergraduate Allievi Honors Program Scholarship, Collegio Carlo Alberto, Moncalieri

## Other Relevant Experience

2020	Applied Research Intern, Amazon CoreAI under the supervision of Professor Guido Imbens, Professor Thomas Richardson and Dr. James McQueen
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## Research

- “**The Chicago Police Department dataset**”; In submission. [Dataset repository](#), [current release \(v0.1\)](#) and [documentation](#) (Horel, M., Agrawal, Roithmayr, Campbell).
- “**Scaled process priors: Improved predictions and uncertainties for new-feature counts via random scaling in Bayesian nonparametrics**”; In submission. Manuscript available on arXiv [[poster](#); <https://arxiv.org/pdf/2106.15480.pdf>]. Featured in ISBA 2021; (Camerlenghi, Favaro, M. and T. Broderick)
- “**More for Less: Predicting and maximizing genetic variant discovery via Bayesian nonparametrics**”; to appear in Biometrika. **Best Student Paper Award**, awarded by the American Statistical Association, Section in Bayesian Statistical Science. Featured in SMEEB

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<sup>1</sup>**Completed coursework:** Dynamic Programming and Stochastic Control (6.231) [final project], Fundamentals of Probability (6.436), Inference and Information (6.437), Algorithms for Inference (6.438), Algorithmic aspects of Machine Learning (18.408) [final project], Bayesian modeling and inference (6.882), Advanced stochastic processes (6.265), Mathematical Statistics: A Non-Asymptotic Approach (9.S914), Learning-Augmented Algorithms (6.890)

2021, ASHG 2020, AABI 2019 [[poster](#); [presentation \(YouTube\)](#)]; <https://arxiv.org/pdf/1912.05516.pdf>; (M., Camerlenghi, Favaro and Broderick)

- “**Independent finite approximations for Bayesian nonparametric inference: construction, error bounds, and practical implications**”, in submission. Manuscript available at <https://arxiv.org/pdf/2009.10780.pdf>; (Nguyen, Huggins, M., Mackey and Broderick)
- “**Posterior representations of hierarchical completely random measures in trait allocation models**” (M., Camerlenghi, Favaro and Broderick), **Spotlight**, *BNP@NeurIPS2018* [[poster](#)]
- “**Sensitivity of Bayesian inference to data perturbations**” (M., Stephenson and Broderick), *AABI 2018* [[poster](#)]
- “**Generic finite approximations for practical Bayesian nonparametrics**” (Huggins, M., Mackey and Broderick), **Spotlight**, *NIPS 2017 Workshop on Advances in Approximate Bayesian Inference* [[poster](#)]

## Theses

- “**Improved prediction and optimal sequencing strategies for genomic variant discovery via Bayesian nonparametrics**” – PhD thesis. Supervisor: Professor Tamara Broderick
- “**An asymptotic analysis of Gibbs-type priors**” – Master’s thesis. Supervisors: Professors Pierpaolo de Blasi and Igor Prünster
- “**Econometrics of the Big Data**” – Undergraduate thesis. Supervisor: Professor Alessandro Sembenelli

## Skills

- Proficient in Python (numpy, scipy, pandas, matplotlib, scikit-learn),  $\LaTeX$
- Past experience in C++, Matlab, R, RStudio

## Talks, Poster sessions and Conference Presentations

2021

- CMS Statistics 2021, “Scaled process priors for Bayesian nonparametric estimation of the unseen genetic variation” [Invited session]
- ISBA: 2021 World Meeting of the International Society for Bayesian Analysis, “Scaled process priors for Bayesian nonparametric estimation of the unseen genetic variation” [Contributed session]
- SMEEB: Stochastic Models and Experiments in Ecology and Biology, “More for less: predicting and maximizing genomic diversity via Bayesian nonparametrics” [Contributed session]

2020

- American Society of Human Genetics meeting, “More for less: predicting and maximizing genomic diversity via Bayesian nonparametrics” [Poster session]
- Learning under complex structure, MIFODS workshop, *Cambridge (MA)*, “More for less: predicting and maximizing genomic diversity via Bayesian nonparametrics” [Poster session]
- Learning under complex structure, MIFODS workshop, *Cambridge (MA)*, “More for less: predicting and maximizing genomic diversity via Bayesian nonparametrics” [Poster session]
- Bayes Comp 2020, *Gainesville (FL)*, “More for less: predicting and maximizing genomic diversity via Bayesian nonparametrics” [Poster session]

2019

- Advances in Bayesian Nonparametric Methods and Its Applications, *Denver (CO)*, *JSM 2019*, “Genomic variety prediction via Bayesian nonparametrics” [Topic-contributed session]
- Advances in Approximate Bayesian Inference, *Vancouver, Canada*, “More for less: Predicting and maximizing genetic variant discovery via Bayesian nonparametrics”
- Statistics and Data Science Conference 2019, *Cambridge (MA)*. “Genomic variety prediction via Bayesian nonparametrics”
- MLxMIT, *Cambridge (MA)*, “Genomic variety prediction via Bayesian nonparametrics”
- LIDS & Stats seminar, *Cambridge (MA)*, “Genomic variety prediction via Bayesian nonparametrics”
- CSAIL-MSR Trustworthy and Robust AI (TRAC) Workshop, *Cambridge (MA)*, “Getting the most bang for your buck: Predicting and maximizing the number of new genetic variants in a future experiment”

2018

- BNP@NeurIPS 2018, Montreal (Canada) “Posterior representations of hierarchical completely random measures in trait allocation models” [**Spotlight**]

## Professional Service

2021 Reviewer for Statistical Science, AISTATS, ICBINB  
2020 Reviewer for AAAI 2020, AISTATS 2020  
2019 Reviewer for AISTATS 2019, NeurIPS 2019, AABI 2019  
2018 Reviewer for BNP@NeurIPS2018