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Francesco Gili

PROFILE

I am a quantitative researcher, with a specialization in statistical and probabilistic analysis. I have a background in mathematics with a focus on stochastics. My expertise lies in the application of statistical models to analyze random processes and probabilistic phenomena. I am currently pursuing a PhD in mathematical statistics under the supervision of Prof. dr. Aad van der Vaart and Prof. dr. Geurt Jongbloed at the TU Delft.

RELEVANT WORK EXPERIENCE

EDUCATION



Ph.D. in Mathematical Statistics,
TU Delft.
Sep 2022 - current



M.Sc. Stochastics & Financial Mathematics (Mathematics),
Universiteit van Amsterdam.
grade: Cum Laude.
Sep 2020 - Aug 2022



B.Sc. Mathematics for Finance & Insurance (Mathematics),
Università degli studi di Torino.
grade: Cum Laude.
Sep 2017 - Aug 2020

LANGUAGES

Italian (native), English (C1 level certified),
Spanish (C1 level certified), Dutch (B1 level).

Coding:



Python: numpy, scipy, pandas, seaborn, matplotlib, sklearn, PyMC3, PyBN, tkinter, jax, pytorch, tensorflow.



R: BNPmix, BNPdensity, DPpackage, isocir, limSolve.

PUBLICATIONS

Gili, F., Jongbloed, G. and van der Vaart, A. (2023).
Adaptive and Efficient Isotonic Estimation in Wicksell's Problem.
preprint: <https://arxiv.org/abs/2310.05463>.



PhD Candidate, Sep 2022 - present, Delft.

I have been working on a classical inverse problem which has relevant applications in Astronomy and Stereology, called Wicksell problem. I tackled both the frequentist nonparametric approach, which lead to the publication of one article and I am currently investigating the Bayesian nonparametric approach. I also published a Python package for the frequentist approach.



Research internship CWI, Jan 2022 - Aug 2022, Amsterdam.

The research project was embedded in the Machine Learning group and the focus was on the investigation of martingale methods for sequential analysis and learning. I demonstrated the power of certain statistical testing methods, also adapt for optional stopping and online learning settings.



Energy analyst internship, Jul 2021 - Sep 2022, Amsterdam.

Energy companies may have a low number of measurements in the lower part of the grid; during this research internship, we evaluated models for the estimation of consumption profiles, with the final objective of forecasting. To do so, I employed supervised and unsupervised machine learning, as well as time series analysis. I also improved the uncertainty quantification of the existing methods, influencing the portfolio management.

OTHER WORK EXPERIENCE



Teaching assistant UvA - VU, Sep 2022 - Aug 2022, Amsterdam.

I have been teaching assistant for master courses such as Stochastic Processes for Finance and Stochastic Integration (Mastermath - national course). Moreover, I have been Tutor for first year students.



Tutor UniTo, Nov 2018 - Jun 2019, Turin.

I was lecturer in the Project Digital Math Training and I would teach students how to use the multi-paradigm programming language Maple in order to solve mathematical problems.