

SVEN WANG — CURRICULUM VITAE

Email: svenwang@mit.edu
Website: sven-wang@weebly.com
Postal address: 356a Harvard Street, Cambridge, 02138 MA
Date and place of birth: Oct 27, 1995, Frankfurt am Main

ACADEMIC BACKGROUND

Postdoc in Statistics, Massachusetts Institute of Technology 2021–present
Postdoc mentor: Youssef Marzouk
Research topics: high-dimensional and nonparametric statistics, high-dimensional optimisation and sampling, Markov Chain Monte Carlo, measure transport, social choice theory

PhD in Mathematical Statistics, University of Cambridge 2016–2020
PhD advisor: Richard Nickl
PhD examiners: Gabriel Paternain and Aad van der Vaart
Thesis title: Statistical inference and computation in elliptic PDE models

MASt in Mathematics, University of Cambridge 2015–2016
Final grade: 84/100 (with distinction)

Bachelor of Science in Mathematics, LMU Munich 2012–2015
Final grade: 1.06 (best: 1.0), minor in Philosophy

SELECTED AWARDS & SCHOLARSHIPS

Research scholarship from Trinity College, Cambridge 2016–2020
Typically awarded to top 10% of each Master’s degree cohort.

Scholarship from the German National Academic Foundation 2012–2017
Including a full scholarship to study at Cambridge University 2016–2017.

Full scholarship from the Maximilianeum Foundation 2012–2015
Full scholarship for undergraduate studies at LMU Munich. Awarded annually to the top 5–8 (out of ~30000) high school graduates in Bavaria.

PUBLICATIONS / PREPRINTS / WORKING PAPERS

- [11] Statistical convergence theory for distribution learning via neural differential equations (with R. Ren, Y. Marzouk and J. Zech). Working paper, draft available upon request (2023).
- [10] Infinite-dimensional diffusion models for function spaces (with J. Pidstrigach, Y. Marzouk and S. Reich). Preprint (2023).
- [9] Accounting for stakes in democratic decisions (with B. Flanigan and A. Procaccia). Submitted to *NeurIPS* (2023).
- [8] On free energy barriers in Gaussian priors and failure of MCMC for high-dimensional unimodal distributions (with A.S. Bandeira, A. Maillard and R. Nickl). *Philosophical Transactions of the Royal Society A* (2022). [arxiv:2209.02001](https://arxiv.org/abs/2209.02001)
- [7] Distortion under public-spirited voting (with B. Flanigan and A. Procaccia). *Economics and Computation* (2023).
- [6] On minimax density estimation via measure transport (with Y. Marzouk). Preprint, submitted

to *Annals of Statistics* (2022). [arxiv:2207.10231](#)

[5] Wasserstein Distributionally Robust Gaussian Process Regression and Linear Inverse Problems (with X. Zhang, J. Blanchet, Y. Marzouk and V.A. Nguyen). Preprint, submitted to *Annals of Statistics* (2022). [arxiv:2205.13111](#)

[4] Laplace priors and spatial inhomogeneity in Bayesian inverse problems (with S. Agapiou). *Bernoulli*, to appear (2021). [arxiv:2112.05679](#)

[3] On polynomial-time computation of high-dimensional posterior measures by Langevin-type algorithms (with R. Nickl). *Journal of the European Mathematical Society*, to appear (2020). [arxiv:2009.05298](#)

[2] Convergence rates for Penalised Least Squares estimators in PDE-constrained regression problems (with R. Nickl and S. van de Geer). *SIAM/ASA Journal on Uncertainty Quantification*, 8(1): 374-413 (2020). [Journal PDF](#)

[1] The nonparametric LAN expansion for discretely observed diffusions (2019). *Electronic Journal of Statistics* 13(1): 1329-1358 (2019). [Journal PDF](#)

[A] PhD thesis. Statistical inference and computation in PDE models. University of Cambridge (2021). [PDF link](#)

WORK & LEADERSHIP EXPERIENCE

Data scientist, QuantCo 2020

Spearheaded the implementation of graph Tikhonov regularisation for spatial statistical modeling (in Python) during a three-month internship. My proposed method and software package continues to be now used across the company.

President, Trinity Responsible Investment Society 2019–2020

Led a movement within the college community advocating for the responsible investment of Trinity College's £1.5bn endowment. Contributed to Trinity's 2021 decision to fully divest from fossil fuels and adopt net zero emission targets by 2050.

Staff collaborative pianist, M.I.T. music department 2021–2022

Collaborated with and coached students holding an *Emerson/Harris Program scholarship* in music performance.

Cycling for Syria 2015

Six-month charity bike tour across Europe (12,000km). Collected €20k+ of funding for medical care in refugee camps in Lebanon and Jordan.

SELECTED INVITED CONFERENCE TALKS

10. SIAM Conference on Computational Science and Engineering (2023)

9. Erwin Schrödinger Institute workshop “Statistical estimation and deep learning in UQ for PDEs” (2022)

8. AMS Sectional meeting (2022)

7. Conference on Bayesian Nonparametrics, Cyprus (2022)

6. SIAM Conference on Uncertainty Quantification (2022)

5. MFO workshop “Data Assimilation: Mathematical Foundation and Applications” (2022)

4. BANFF workshop “Statistical Aspects of Non-Linear Inverse Problems” (2021)

3. MFO workshop “Foundations of Bayesian Inference for Complex Statistical Models” (2021)

2. Conference on Bayesian Nonparametrics, Oxford (2019)

1. Young Researchers' Meeting in Mathematical Statistics at LPSM, Paris (2018)

TEACHING & MENTORSHIP

- Mentoring of PhD students** 2021–present
Helped mentor PhD students Robert Ren (MIT) and Xuhui Zhang (Stanford).
- Supervisor (Teaching Assistant), University of Cambridge** 2016–2020
Led small group supervisions for various undergraduate mathematics courses:
Statistics (2nd year)
Statistical Modelling (3rd year)
Principles of Statistics (3rd year)
Applied Probability (3rd year)
- Lecturer, Fraunhofer European Talent Academy** 2017
Designed and taught a summer school course titled ‘Physics and Music’, for high school students aged 15–18.

EXTRACURRICULAR

Languages German, Mandarin Chinese (native); English (fluent); French, Italian (basic).

Music performance

1. Solo and chamber music recitals in UK, Germany and USA (2016–present)
2. Piano studies with Ran Blake (2022–present), Wolfgang Schamschula (2010–2012), Matthew Schellhorn (2017–2019), Joseph Middleton (2017–2018).
2. Voice (tenor) studies with Michael Schopper (2014–2017).
4. Winner of Edith Leigh Piano Prize, Cambridge UK (2018).
3. Multiple 1st prizes at German youth music competition ‘Jugend Musiziert’ (2003–2012).
5. Tenor in the Munich Bach Choir (2013–2015), Cambridge University Chamber Choir (2015–2018), Trinity College Choir Cambridge (2016).

Mathematics & science competitions

1. All-time top eight participant of Bavarian Mathematics Competition (2008–2010).
2. Third prize, German National Mathematics Competition (2011).
3. Third prize, German Youth Science Competition. Project title: ‘Optimization Of The Efficiency of Thermal Solar Systems’ (2008).