# CURRICULUM VITAE WESSELBRUINSMA


## ABOUT

wessel.p.bruinsma@gmail.com
Wessel Bruinsma

wesselb.github.io
Wessel Bruinsma
wesselb


## LANGUAGES

dutch, native
english

## INTERESTS

probabilistic modelling with a focus on time series, Bayesian nonparametrics with a focus on Gaussian processes, approximate inference, probabilistic programming, probability theory, and real analysis

## EDUCATION

18/01 – now **PhD** Machine Learning Group, University of Cambridge
- Supervised by Dr Richard Turner

15/10 – 16/09 **MPhil** Dept. of Engineering, University of Cambridge
- Distinction, class rank 1 / 20
- Machine learning and machine intelligence

12/09 – 15/07 **BSc (Hons)** EEMCS, Delft University of Technology
- Distinction, class rank 1 / 100
- Electrical engineering with a specialisation in mathematics

## PROFESSIONAL HISTORY

16/09 – 18/01 **Machine Learning Researcher** Invenia Labs Limited, Cambridge
- Research into modelling multi-output time series, with a focus on electricity markets

14/09 – 15/07 **Technical Specialist** EEMCS Recruitment Days, Delft
- Design and implementation of solutions to scheduling problems

13/09 – 14/07 **Electrical Engineer** TU Delft Solar Boat Team, Delft
- Design and analysis of a power distribution system
- Competed in DONG Solar Energy Challenge 2014 and Solar1 Monte Carlo Cup 2014

## AWARDS AND GRANTS

2018 – 2021 **International Doctoral Scholarship (IDS) Grant Covering PhD Fees and Stipend**

16/03 **UfD – Damen Bachelor Award (EUR 2000)**

## INVITED TALKS

19/01 **Online Winter School on Spectral Methods for Complex Systems**
- Spectral Methods in Gaussian Modelling

## SELECTED PAPERS

[link] Requiema J. R., Tebbutt W. C., Bruinsma W. P., Turner, R. E. (2019). "The Gaussian Process Autoregressive Regression Model (GPAR)." *Artificial Intelligence and Statistics (AISTATS), 22nd International Conference on*.

[link] Bruinsma, W. P., Turner, R. E. (2018). "Learning Causally-Generated Time Series," arXiv:1802.08167.

## SELECTED PROJECTS

[link] *Stheno*: Probabilistic programming with Gaussian processes in Python

[link] *Plum*: Implementation of multiple dispatch in Python

## ARXIV SUBMISSIONS

[link] Bruinsma, W. P., Turner, R. E. (2018). "Learning Causally-Generated Time Series," arXiv:1802.08167.

## PUBLICATIONS

[link] Requiema J. R., Tebbutt W. C., Bruinsma W. P., Turner, R. E. (2019). "The Gaussian Process Autoregressive Regression Model (GPAR)." *Artificial Intelligence and Statistics (AISTATS), 22nd International Conference on*.

[link] Bosma, S., Bruinsma, W. P., Hes, R. P., Bentum, M. J., and Lager, I. E. (2017). "Grating Lobe Prediction in 3D Array Antennas." *Antennas and Propagation (EuCAP), 11th European Conference on*.

[link] Bruinsma, W. P., Hes, R. P., Bosma, S., Lager, I. E., and Bentum, M. J. (2016). "Radiation Properties of Moving Constellations of (Nano) Satellites: A Complexity Study." *Antennas and Propagation (EuCAP), 10th European Conference on*.

[link] Bentum, M. J., Lager, I. E., Bosma, S., Bruinsma, W. P., and Hes, R. P. (2015). "Beamforming in Sparse, Random, 3D Array Antennas with Fluctuating Element Locations." *Antennas and Propagation (EuCAP), 9th European Conference on*.

## POSTERS

[link] Tebbutt, W. C., Bruinsma, W. P., and Turner R. E. (2019). "Gaussian Process Probabilistic Programming." *Probabilistic Programming (ProbProg), The International Conference on*.

## PROJECTS

[link] *Stheno*: Probabilistic programming with Gaussian processes in Python

[link] *Plum*: Implementation of multiple dispatch in Python

[link] *LAB*: A generic interface for linear algebra backends in Python

[link] *FDM*: Estimate derivatives with finite differences in Python

[link] *FDM.jl*: Estimate derivatives with finite differences in Julia

[link] *Varz*: Painless variables in PyTorch and TensorFlow

[link] *GPAR*: Implementation of GPAR in Python

[link] *CGPCM*: Implementation of CGPCM in Python

[link] *WBML*: A collection of machine learning algorithms

[link] *Catalogue*: Resource management with Alfred

[link] *wesselb.github.io*: My personal website

## THESES

[link] Bruinsma W. P. (2019). "The Generalised Gaussian Process Convolution Model." Department of Engineering, University of Cambridge. Thesis for the degree Master of Philosophy.

[link] Bruinsma, W. P., Hes, R. P., Kroep, H. J. C., Leliveld, T. C., Melching, W. M., and aan de Wiel, T. A. (2015). "An Extensible Toolkit for Real-Time High-Performance Wideband Spectrum Sensing." Faculty of Electrical Engineering, Mathematics and Computer Science, Delft University of Technology. Thesis

for the degree Bachelor of Science.

## TEACHING

Lent 2019 **Inference (Supervisor)** Part IIA, Engineering Tripos, University of Cambridge

## FULL PORTFOLIO

See wesselb.github.io/portfolio for a full overview of my projects, arXiv submission, publications, posters, theses, talks, and write-ups.