

ABOUT

wessel.p.bruinsma 
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 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

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|---------------|-----------------------------------------------------------------------------------------|---------------------------------|
| 20/07 – 20/09 | Internship (Machine Learning) | Invenia Labs Limited, Cambridge |
| 19/07 – 19/09 | Internship (Quantitative Research) | G-Research, London |
| 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

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|-------------|-------------------------------------------------------------------------------------|
| 2018 – 2021 | International Doctoral Scholarship (IDS) Grant Covering PhD Fees and Stipend |
| 16/03 | UfD – Damen Bachelor Award (EUR 2000) |

SELECTED PUBLICATIONS

- [\[link\]](#) Bruinsma, W. P., Perim E., Tebbutt W., Hosking J. S., Solin A., Turner R. E. (2020). “Scalable Exact Inference in Multi-Output Gaussian Processes,” *International Conference on Machine Learning (ICML)*, 37th.
- [\[link\]](#) Gordon, J., Bruinsma W. P., Foong, A. Y. K., Requeima, J., Dubois Y., Turner, R. E. (2020) “Convolutional Conditional Neural Processes,” *International Conference on Learning Representations (ICLR)*, 8th. (Awarded oral presentation.)

SELECTED PROJECTS

- [\[link\]](#) *Stheno*: Probabilistic programming with Gaussian processes in Python
- [\[link\]](#) *Plum*: Implementation of multiple dispatch in Python

PUBLICATIONS

- [\[link\]](#) Bruinsma, W. P., Perim E., Tebbutt W., Hosking J. S., Solin A., Turner R. E. (2020). “Scalable Exact Inference in Multi-Output Gaussian Processes,” *International Conference on Machine Learning (ICML)*, 37th.
- [\[link\]](#) Gordon, J., Bruinsma W. P., Foong, A. Y. K., Requeima, J., Dubois Y., Turner, R. E. (2020) “Convolutional Conditional Neural Processes,” *International Conference on Learning Representations (ICLR)*, 8th. (Awarded oral presentation.)
- [\[link\]](#) Berkovich, P., Perim E., Bruinsma W. P. (2019) “GP-ALPS: Automatic Latent Process Selection for Multi-Output Gaussian Process Models,” *Advanced in Approximate Bayesian Inference (AABI)*, 2nd Symposium on.
- [\[link\]](#) Requeima, 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.

ARXIV SUBMISSIONS

- [\[link\]](#) Foong, A. Y. K., Bruinsma W. P., Gordon, J., Dubois, Y., Requeima J., Turner R. E. (2020). “Meta-Learning Stationary Stochastic Process Prediction with Convolutional Neural Processes,” arXiv:2007.01332.
- [\[link\]](#) Bruinsma, W. P., Turner, R. E. (2018). “Learning Causally-Generated Time Series,” arXiv:1802.08167.

POSTERS

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

MACHINE LEARNING PROJECTS

- [\[link\]](#) *Stheno*: Probabilistic programming with Gaussian processes in Python
- [\[link\]](#) *GPAR*: Implementation of GPAR in Python
- [\[link\]](#) *NeuralProcesses.jl*: A framework for composing Neural Processes in Julia
- [\[link\]](#) *ConvCNP*: Implementation of the ConvCNP in Python
- [\[link\]](#) *GPCM*: Implementation of several variants of the Gaussian Process Convolution Model in Python
- [\[link\]](#) *OILMM*: Implementation of the OILMM in Python
- [\[link\]](#) *GPAR-OILMM*: Implementation of GPAR-OILMM in Python

PROJECTS

- [\[link\]](#) *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
- [\[link\]](#) *Matrix*: Structured matrices in Python
- [\[link\]](#) *Algebra*: Algebraic structures in Python
- [\[link\]](#) *WBML*: A collection of machine learning algorithms
- [\[link\]](#) *Note*: Simple and quick note taking system
- [\[link\]](#) *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 2020	Inference (Supervisor)	Part IIA, Engineering Tripos, University of Cambridge
Michaelmas '20	Demonstrator	AI for the study of Environmental Risks (CDT), University of Cambridge
Michaelmas '20	Demonstrator	MPhil in Machine Learning and Machine Intelligence, University of Cambridge
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.

