

# David Burt

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Nationality: USA

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- Education**
- Ph.D. in Engineering, University of Cambridge** **2018-Present**  
Machine Learning, Supervised by Professor Carl Edward Rasmussen.
- MPhil in Machine Learning, Speech and Language Technology, University of Cambridge** **2017-2018**  
*Distinction.*  
Dissertation topic: Spectral Methods in Gaussian Process Approximations.  
Co-supervised by Dr. Mark van der Wilk and Prof. Carl Edward Rasmussen.
- Bachelor of Arts, Williams College (Mathematics)** **2013-2017**  
*Summa cum laude* (GPA in top 2% of graduating class)
- Journal Papers**
- David R. Burt**, Carl Edward Rasmussen, and Mark van der Wilk. Convergence of sparse variational inference in Gaussian processes regression. *Journal of Machine Learning Research*, 2020. Extended version of *Rates of Convergence for Sparse Variational Gaussian Process Regression*
- Conference Papers**
- Artem Artemev\*, **David R. Burt\***, and Mark van der Wilk. Tighter bounds on the log marginal likelihood of Gaussian process regression using conjugate gradients. In *International Conference on Machine Learning (ICML)*, 2021
- Andrew Y. K. Foong\*, **David R. Burt\***, Yingzhen Li, and Richard E. Turner. On the expressiveness of approximate inference in Bayesian neural networks. In *Neural Information Processing Systems (NeurIPS)*, 2020
- David Janz, **David R. Burt**, and Javier González. Bandit optimisation of functions in the Matérn kernel RKHS. In *Artificial Intelligence and Statistics, AISTATS*, 2020
- David R. Burt**, Carl Edward Rasmussen, and Mark van der Wilk. Rates of convergence for sparse variational Gaussian process regression. In *International Conference on Machine Learning (ICML)*, 2019. **Best Paper Award**
- Workshop Papers**
- David R. Burt**, Sebastian W. Ober, Adrià Garriga-Alonso, and Mark van der Wilk. Understanding variational inference in function-space. In *Symposium on Advances in Approximate Bayesian Inference*, 2020
- Andrew Y. K. Foong\*, **David R. Burt\***, Yingzhen Li, and Richard E. Turner. Pathologies of factorised Gaussian and MC dropout posteriors in Bayesian neural networks. In *Workshop on Bayesian Deep Learning, NeurIPS*, 2019
- David R. Burt**, Carl Edward Rasmussen, and Mark van der Wilk. Explicit rates of convergence for sparse variational inference in Gaussian process regression. In *Advances in Approximate Bayesian Inference, NeurIPS*, 2018
- Preprints**
- David R. Burt**, Carl Edward Rasmussen, and Mark van der Wilk. Variational orthogonal features, 2020
- Reviewing**
- AISTATS 2021
- I Can't Believe It's not Better. Workshop, NeurIPS 2020

## Teaching

### Department of Engineering, University of Cambridge

*Undergraduate Supervisor 3F3 Statistical Signal Processing*

*Fall 2019*

*3F8: Inference*

*Winter 2020, Winter 2021*

Held small groups (2-3 students) review sessions.

### Department of Mathematics and Statistics, Williams College

*Teaching Assistant, Math 341: Probability*

*Spring 2015, Spring 2017*

Held supplementary problem solving sessions and graded homework.

## Scholarships and Awards

**Qualcomm Innovation Fellowship:** Fellowship in the amount of \$40000 awarded on the basis of a research proposal for the purpose of ‘recognizing, rewarding, and mentoring innovative PhD students...’ Selected in 2020.

**Dr. Herchel Smith Fellowship:** Fellowship awarded to graduating seniors at Williams college for graduate study at University of Cambridge. Selected in 2017.

**Barry M. Goldwater Scholarship:** Merit based, national (USA) scholarship in the amount of \$7,500 awarded to undergraduates for promise in research in natural sciences, mathematics or engineering. Selected in 2016.

**Rosenberg Prize for Excellence in Mathematics:** Awarded to one or several seniors at Williams College for excellence in mathematics. Selected in 2017.

## Computer Skills

Python, Tensorflow, Pytorch, L<sup>A</sup>T<sub>E</sub>X.