ANDREW Y. K. FOONG

Personal website: https://andrewfoongyk.github.io/
Google Scholar: https://scholar.google.com/citations?user=2UOjgIUAAAAJ&hl=en

EDUCATION

Ph.D. in Machine Learning, University of Cambridge October 2018 - Present
Ph.D. student at the Computational and Biological Learning Lab under Professor Richard E. Turner. Research areas: Bayesian deep learning, approximate inference, meta-learning, equivariances, PAC-Bayes, deep learning for molecular simulation.

MEng and BA in Engineering, University of Cambridge October 2014 - June 2018
First Class Honors with Distinction
Specialised in information and computer engineering, with Master's project on approximate inference and information theory. Scored in the top first or second percentile in year group of ∼300 students for first three years, awarded Institution of Engineering and Technology Prize in 4th year.

RESEARCH PAPERS

- **Andrew Y. K. Foong***, Wessel P. Bruinsma*, David R. Burt, Richard E. Turner. How Tight Can PAC-Bayes be in the Small Data Regime? In *Neural Information Processing Systems*, 2021.
- Marcin B. Tomczak, Siddharth Swaroop, **Andrew Y. K. Foong**, Richard E. Turner. Collapsed Variational Bounds for Bayesian Neural Networks. In *Neural Information Processing Systems*, 2021.
- Wessel P. Bruinsma, James Requeima, **Andrew Y. K. Foong**, Jonathan Gordon, Richard E. Turner. The Gaussian Neural Process. In *Symposium on Advances in Approximate Bayesian Inference*, 2021.
- **Andrew Y. K. Foong***, Wessel P. Bruinsma*, Jonathan Gordon*, Yann Dubois, James Requeima, Richard E. Turner. Meta-Learning Stationary Stochastic Process Prediction with Convolutional Neural Processes. In *Neural Information Processing Systems*, 2020. Accompanying blog: https://yanndubs.github.io/Neural-Process-Family
- **Andrew Y. K. Foong***, David R. Burt*, Yingzhen Li, Richard E. Turner. On the Expressiveness of Approximate Inference in Bayesian Neural Networks. In *Neural Information Processing Systems*, 2020.
- Tim Pearce, **Andrew Y. K. Foong**, Alexandra Brintrup. Structured Weight Priors for Convolutional Neural Networks. In *Uncertainty in Deep Learning Workshop, ICML,* 2020.
- **Andrew Y. K. Foong***, David R. Burt*, Yingzhen Li, Richard E. Turner. Pathologies of Factorised Gaussian and MC Dropout Posteriors in Bayesian Neural Networks. In *Bayesian Deep Learning Workshop, NeurIPS*, 2019.
- Jonathan Gordon*, Wessel P. Bruinsma*, **Andrew Y. K. Foong**, James Requeima, Yann Dubois, Richard E. Turner. Convolutional Conditional Neural Processes. In *International Conference on Learning Representations*, 2020. (Oral presentation)
- **Andrew Y. K. Foong**, Yingzhen Li, José Miguel Hernández-Lobato, Richard E. Turner. 'In-Between' Uncertainty in Bayesian Neural Networks. In *Uncertainty in Deep Learning Workshop, ICML,* 2019. (Oral presentation)

EXPERIENCE

DeepMind London *Upcoming*, February - May 2022
Research Scientist Intern

· To work under Dr. Michalis Titsias on data-efficient and Bayesian machine learning.

Microsoft Research Cambridge July - October 2021
Research Intern

· Research on deep learning for molecular simulation under Dr. Sebastian Nowozin. Conceptualised, developed, trained and evaluated novel deep learning models. Produced a maintainable, documented research codebase in collaboration with other researchers. Ran large-scale computational experiments with Azure Machine Learning.

Cambridge University Engineering Department 2018 - 2021
Undergraduate Supervisor (analogous to US teaching assistant)

· Supervised third-year undergraduates in small group teaching sessions for the modules 3F7 Information Theory and 3F8 Inference.

Cambridge University Engineering Department Summer 2016
Undergraduate Research Opportunities Program

· Research under Prof. Robin Langley on the theoretical foundations of statistical mechanics. Wrote hard-sphere molecular dynamics simulation programs in MATLAB.

ORGANISATION AND REVIEWING

· Organiser for the NeurIPS 2021 Approximate Inference in Bayesian Deep Learning Competition.
· Reviewer for AISTATS 2021, ICML 2020 Uncertainty in Deep Learning Workshop, NeurIPS 2019 Bayesian Deep Learning Workshop.

AWARDS AND SCHOLARSHIPS

Trinity Hall Research Studentship 2018-2021
Ph.D. Funding.

George and Lilian Schiff Foundation Studentship 2018-2021
Ph.D. Funding.

Institution of Engineering and Technology Prize 2018
For outstanding students who have completed an IET accredited course.

Institution of Civil Engineers Baker Prize 2017
Awarded to the two highest scoring students in the third year Engineering course.

BP First Year Prize 2015
Awarded to the four highest scoring students in the first year Engineering course.

SOFTWARE PROFICIENCIES

· Python, git, GitHub, PyTorch, NumPy, MATLAB, LaTeX