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 on Bayesian deep learning, approximate inference, meta-learning, modelling equivariance and PAC-Bayes.

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 and second percentile in year group for first three years, awarded Institution of Engineering and Technology Prize in 4th year.

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

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 machine learning models.

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

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

Cambridge University Engineering Department   Summer 2016
Undergraduate Research Opportunities Program

· Research under Prof. Robin Langley at the dynamics and vibration group on the theoretical foundations of statistical mechanics. Wrote molecular dynamics simulation programs.

REVIEWING

· AISTATS 2021
· Uncertainty in Deep Learning Workshop, ICML 2020
· Bayesian Deep Learning Workshop, NeurIPS 2019

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