Austin Tripp — Resume

austintripp.ca • austin-tripp • AustinT
austinjtripp • Austin Tripp

Machine learning expert working in AI4Science.

Education

University of Cambridge **Cambridge, UK**
PhD in Engineering *Oct 2019 – Present (exp. Mar 2024)*
- Cambridge Machine Learning Group (website)
- Supervised by José Miguel Hernández-Lobato (website)

University of Waterloo **Waterloo, Ontario, Canada**
BASc in Nanotechnology Engineering, Option in Mathematics *Sep 2014 – Jun 2019*
- Honour's degree with cooperative (i.e. internship) program
- Graduated with Distinction, Dean's Honours List

Skills

Expertise: Bayesian optimization, Gaussian processes, graph kernels, ML for molecules

Machine learning: Probabilstic models, kernel methods, deep learning

Programming: `python`, `bash`, `git`, linux, LaTeX. Some `C++`, `SQL` and `Java`.

Selected Work Experience

Microsoft Research **Cambridge, UK**
Research Intern *Feb 2022 – June 2023*
- Developed new algorithms for multi-step synthesis planning and SYNTHESEUS python package
- Supervised by Marwin Segler

ContextLogic (Wish) **San Francisco, CA**
AI Research Intern *May 2018 – Aug 2018*
- Worked on recommender systems and embeddings of Wish's products using *word2vec* techniques

NVIDIA **Toronto, ON**
Deep Learning Engineer *Jan 2018 – Apr 2018*
- Applied phase-function neural networks to generate realistic video game character animation

Joanna Aizenberg Lab, Harvard University **Cambridge, MA**
Research Assistant *Sep 2016 – Apr 2017*
- Developed stimuli-responsive photonic crystals for vapour sensing
- Implemented kernel-based machine learning algorithms to predict liquid mixture compositions

Frank Gu Lab, University of Waterloo **Waterloo, ON**
Junior Researcher *Jan 2016 – Aug 2016*

- Designed and implemented pilot-scale production of titania photocatalyst for water treatment
- Co-author on paper examining the photocatalyzed degradation of organic compounds in water

Selected Publications

[1] **Austin Tripp**, Krzysztof Maziarz, Sarah Lewis, Marwin Segler, and José Miguel Hernández-Lobato. "Retro-fallback: retrosynthetic planning in an uncertain world". In: *The Twelfth International Conference on Learning Representations*. 2024.

[2] **Austin Tripp**, Sergio Bacallado, Sukriti Singh, and José Miguel Hernández-Lobato. "Tanimoto Random Features for Scalable Molecular Machine Learning". In: *advances in neural information processing systems*. Vol. 36. curran associates, inc., 2023.

[3] Wenlin Chen, **Austin Tripp**, and José Miguel Hernández-Lobato. "Meta-learning Adaptive Deep Kernel Gaussian Processes for Molecular Property Prediction". In: *The Eleventh International Conference on Learning Representations*. 2023.

[4] Miguel García-Ortegón, Gregor NC Simm, **Austin J Tripp**, José Miguel Hernández-Lobato, Andreas Bender, and Sergio Bacallado. "DOCKSTRING: easy molecular docking yields better benchmarks for ligand design". In: *Journal of chemical information and modeling* 62.15 (2022), pp. 3486–3502.

[5] **Austin Tripp**, Erik Daxberger, and José Miguel Hernández-Lobato. "sample-efficient optimization in the latent space of deep generative models via weighted retraining". In: *advances in neural information processing systems*. Ed. by h. larochelle, m. ranzato, r. hadsell, m. f. balcan, and h. lin. Vol. 33. curran associates, inc., 2020, pp. 11259–11272.

Refer to my Google Scholar page for a full list of publications.

Awards and Honours

2022: Canadian Centennial Scholarship Fund Award *total value £5000*
2019: C.T. Taylor Cambridge International Scholarship *total value ~£132 000*
2017: Correlation-One Datathon: International Finalist
2017: University of Waterloo First in Class Engineering Scholarship

Languages

Native: English
Intermediate: French, Mandarin, Esperanto *B1-B2 level*
Beginner: German, Japanese, Turkish, Korean, Spanish *A1-A2 level*