Austin Tripp — Resume

austintripp.ca • austin-tripp • austinjtripp

Machine learning researcher with a background in materials science.
I want to help artificial intelligence accelerate scientific research.

Education

University of Cambridge — **Cambridge, UK**
PhD in Engineering — *Oct 2019 – Present*
- 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*
- Graduated with Distinction, Dean's Honours List

Experience

Microsoft Research — **Cambridge, UK**
Research Intern — *Feb 2022 – June 2023*
- Developing new machine learning algorithms for multi-step chemical synthesis planning
- Supervised by Marwin Segler
- Techniques used: Monte-Carlo Tree Search, AO* search, value/policy iteration

ContextLogic (Wish) — **San Francisco, CA**
AI Research Intern — *May 2018 – Aug 2018*
- Created embeddings of Wish's products using multi-objective *word2vec* techniques
- Engineered novel RNN-based recommender model for cold-start recommendations
- Collaborated with designers and businesspeople to apply AI to diverse company problems

NVIDIA — **Toronto, ON**
Deep Learning Engineer — *Jan 2018 – Apr 2018*
- Applied phase-function neural networks to generate realistic video game character animation
- Coordinated a multi-disciplinary team including artists, animators, and engineers
- Contributed to a talk and demonstration at 2018 Game Developers Conference

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
- Used first-principles physics models to improve sensor performance using COMSOL

Skills

Programming: Python, Java, MATLAB, SQL, C++, Bash

Libraries: tensorflow, pytorch, scikit-learn, nltk, pandas, numpy, jupyter, matplotlib

Software: git, Linux, vim, LaTeX, Adobe Illustrator, COMSOL, MAPLE, Anki

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

Selected Publications

[1] **Austin Tripp**, Sergio Bacallado, Sukriti Singh, and José Miguel Hernández-Lobato. "Tanimoto Random Features for Scalable Molecular Machine Learning". In: *arXiv preprint arXiv:2306.14809* (2023).

[2] 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. URL: https://openreview.net/forum?id=KXRSh0sdVTP.

[3] 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.

[4] **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. URL: https://proceedings.neurips.cc/paper/2020/file/81e3225c6ad49623167a4309eb4b2e75-Paper.pdf.

Languages

Native: English

Intermediate: French, Mandarin, Esperanto *B1-B2 level*

Beginner: German, Japanese, Turkish, Korean, Spanish *A1-A2 level*