

# Austin Tripp | Curriculum Vitae

📞 (289) 380-1517 • ✉ [austin.james.tripp@gmail.com](mailto:austin.james.tripp@gmail.com)  
🌐 [austint.github.io](https://austint.github.io) • in [austin-tripp](#)

*Nanomaterials researcher turned machine learning practitioner.  
I want to help artificial intelligence accelerate scientific research.*

## Experience

---

### 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 Intern

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
- Independently made deep learning models with Tensorflow and Keras
- Contributed to a talk and demonstration at 2018 Game Developers Conference

### Pierre-Nicholas Roy Group, University of Waterloo

Waterloo, ON

Statistical Mechanics Research Project

Sep 2017 – Present

- Investigating hamiltonian approximation with neural networks in weakly-coupled quantum systems
- Replaced numerical integration with analytic approximation for hydrogen dimer systems

### Joanna Aizenberg Lab, Harvard University

Cambridge, MA

Research Assistant

Sep 2016 – Apr 2017

- Developed stimuli-responsive photonic crystals for vapour sensing
- Created first-principles physics models to improve sensor performance using COMSOL
- Implemented kernel-based machine learning algorithms to predict liquid mixture compositions
- Journal publication in preparation

### 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
- Increased catalyst production by a factor of 1000 and decreased unit cost by 40%
- Co-author on [paper](#) examining the photocatalyzed degradation of organic compounds in water

### Neverfrost Inc. (presently Alchemy Nano)

Kitchener, ON

Product Engineer

May 2015 – Dec 2015

- Designed and scaled-up synthesis of proprietary nanoparticles
- Performed experiments and made mechanistic model from scientific literature
- Used statistical analysis of synthesis parameters to tune synthesis procedure

## Education

---

### University of Waterloo

Waterloo, ON, Canada

BASc in Nanotechnology Engineering, Option in Mathematics

Sep 2014 – Apr 2019

- Dean's Honours List (96% cumulative average)
- First in class 4 out of 6 terms

## Skills

---

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

**Simulations:** COMSOL, MAPLE, Finite Element Method, Monte Carlo

**Machine Learning:** Neural networks, Bayesian models, SVM, embeddings

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

**Software:** git, Linux, vim, L<sup>A</sup>T<sub>E</sub>X, Adobe Illustrator

## Awards and Honours

---

**2017:** Correlation-One Datathon: International Finalist

**2017:** University of Waterloo First in Class Engineering Scholarship

**2017:** Sanford Fleming Foundation Technical Speaker Competition Award

**2014:** University of Waterloo First in Class Engineering Scholarship

## Publications

---

- [1] Tim Leshuk, Kerry M. Peru, Diogo de Oliveira Livera, **Austin Tripp**, Patrick Bardo, John V. Headley, and Frank Gu. "Petroleomic analysis of the treatment of naphthenic organics in oil sands process-affected water with buoyant photocatalysts". In: *Water Research* 141 (2018), pp. 297–306. ISSN: 0043-1354. DOI: [10.1016/j.watres.2018.05.011](https://doi.org/10.1016/j.watres.2018.05.011). URL: <http://www.sciencedirect.com/science/article/pii/S0043135418303737>.
- [2] **Austin Tripp**, Ida Pavlichenko, Elijah Shirman, Timothy Wong, Jake Ferguson, Edric Lin, and Joanna Aizenberg. "High-Accuracy Diffusion-Mediated Photonic Vapor Sensors". Conference Poster. Boston Photonics Centennial Conference, Feb. 25, 2017.

## Languages

---

*I really enjoy learning languages. These are the languages I have studied:*

**Native:** English

**Intermediate:** French, Mandarin, Esperanto, German

*B1-B2 level*

**Beginner:** Japanese, Turkish, Korean

*A1-A2 level*

**Basic:** Toki Pona, Spanish, Greek

*Reached the end of my resume? Let's [get in touch](#).*