Austin Tripp

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3B Nanotechnology Engineering

Technical Skills

Machine learning	• SVM, Penalized Linear Regression, Principal Component Analysis, Neural Nets
Programming	• Python (scikit-learn, numpy, scipy, nltk, tensorflow, pandas, matplotlib), Java, • MATLAB, Data Structures, Standard Algorithms
Physics Modelling	• COMSOL, numerical methods, MAPLE, Reactive/convective systems
Research	• Literature review, critical thinking, academic writing, wet/dry lab experience

Work Experience

Deep Learning Engineer
NVIDIA
Jan 2018 - Pres

- Working to apply deep learning to video games
- Reading scientific literature about recent updates in the deep learning community

Research Assistant
Harvard University, Joanna Aizenberg Lab
Sep 2016 - Apr 2017

- Used machine learning to analyze chemical sensor data (python/scikit-learn)
- Built SVM/ridge regression models to predict complex mixture composition
- Solved problems independently and with a team
- Independently read scientific literature to improve data collection
- Used first-principles physics models to improve sensor performance
- Journal publication in preparation

Junior Researcher
University of Waterloo, Frank Gu Lab
Jan 2016 - Aug 2016

- Designed and implemented pilot-scale production of water-treatment catalyst
- Increased catalyst production by a factor of 1000 and decreased cost by 40 %
- Used regression analysis to determine catalyst efficiency from FTIR data
- Performed extensive literature review of photocatalyst synthesis techniques
- Journal publication in preparation

Product Engineer
Neverfrost Inc.
May 2015 - Dec 2015

- Designed and scaled-up synthesis of proprietary nanoparticles
- Performed experiments and made mechanistic model from scientific literature
- Improved product from below industry standards to industry-leading

Education

University of Waterloo
Sep 2014 - Present

- Candidate for Bachelor of Applied Science:
- Nanotechnology Engineering, 3B term
- Achieved Dean`s honour list every term

Awards

Correlation-One Datathon: 2nd place
- For analysis and machine learning on Uber Ride Dataset (May 2017)
- Invited to NYC to compete in finals in November

First in Class Scholarship
- For highest standing in class: 1A, 1B, 2A

USACO: gold standing
- Highest class in recurring algorithmic programming contest

Governor General Academic Medal
- For top academic achievement in my high school graduating class of over 400

Research Projects

Symmetries in Quantum Simulations
Prof. Pierre Roy, UW
Sep 2017 - Present
- Analyzing symmetry constraints in quantum mechanical modelling
- Using group theory to validate model simplification strategies
- Improving simulation efficiency by reducing size of parameter space

Simulations of Microfluidic Reactor
Prof. Derek Rayside, UW
May 2017 - Present
- Used COMSOL to model multi-phase flow in a soft-wall microfluidic reactor
- Analyzing effects of reactor deformation on the reaction kinetics
- Performing analysis to determine feasibility of novel reactor geometries

Activities and Interests

Natural Language Learning
- I learn languages to understand different cultural/cognitive perspectives
- B2: French, Mandarin, Esperanto
- B1: German, Toki pona
- A2: Turkish, Japanese
- Executive of UW Culture and language exchange club (UWCLEC)
- Organized free language tutoring sessions for UW students

Hackathons
- EngHack, Waterloo Hacks, Hack Harvard, Correlation-One