Frieda Rong

adeirff@gmail.com | +1 647 686 3766
https://friedeggs.github.io

INTERESTS Computer vision & deep learning, theoretical machine learning

EDUCATION **University of Waterloo**

B. Math.   Sep. 2015 – Dec. 2019

- Triple major in Computer Science, Pure Mathematics, and Combinatorics & Optimization
- GPA: 92/100. Selected coursework: Randomized Algorithms (graduate, ✥), Spectral Graph Theory and High Dimensional Expanders (graduate, ✥), Semidefinite Optimization, Measure & Integration, Functional Analysis
- Selected course reports:
  Spectral Graph Sparsification Using Short Cycle Decompositions   CS 761
  Combinatorial Expansion in Simplicial Complexes   CS 860

RESEARCH
EXPERIENCE **Uber Advanced Technologies Group**   Toronto, Canada

Research Intern   Sep. 2018 – present

Advisor: Associate Prof. Raquel Urtasun ✥. Direct supervisor: Shenlong Wang ✥

Image synthesis for self-driving car research; details of work under NDA. Continued part-time and returned as a full-time research scientist for early 2020.

University of Waterloo Combinatorics & Optimization Dept.   Waterloo, Canada

Undergraduate Research Assistant   May 2019 – Aug. 2019

Advisor: Assistant Prof. Peter Nelson ✥

Research in extremal graph theory. Proved a sparse arithmetic extension of the Szemerédi Regularity Lemma to $\mathbb{F}_2^n$ towards a conjecture on the critical number of triangle-free binary matroids.

University of Waterloo AI Lab   Waterloo, Canada

Undergraduate Research Assistant, Part-time   Jan. 2017 – Apr. 2017

Advisor: Prof. Pascal Poupart ✥

Extended existing sum product network (a deep architecture) codebase to implement recurrent sum product networks in TensorFlow for sequence modelling.

INDUSTRY
EXPERIENCE **Petuum**   Pittsburgh, PA

Software Engineering Intern   Jan. 2018 – Apr. 2018

Petuum is an enterprise machine learning startup founded by Dr. Eric Xing (CMU) in 2016. Team Manager: Hao Zhang ✥. Direct Manager: Adam Schwab.

- Modified TensorFlow core source code to reduce training time for distributed models with sparse tensors through more efficient gradient updates and reduced data transfers under parameter server model (*Medium blog post* written post-internship by Adam Schwab)
- Researched and wrote distributed support vector machine and kernel support vector machine solvers using a proprietary distributed machine learning framework in C++

Siri Machine Learning Platform   Cupertino, CA

Natural Language Intern   May 2017 – Aug. 2017

Direct manager: William P. Li ✥

- Deployed internal visualization web app for model introspection and data exploration
- Investigated root cause analysis of model errors
- Presented poster at company-wide internal data science conference and to VP of Siri

LANGUAGES
& SKILLS Python, C++, TensorFlow, PyTorch

Last updated January 22, 2020

AWARDS	NSERC Undergraduate Student Research Award	2019
	Faculty of Mathematics Rene Descartes National Scholarship	2015 – 2019

· Highest valued of ~15 National scholarships awarded by the Faculty

	Google Code Jam Top 1000 (t-shirt prize)	2017

· Global competitive programming challenge

	William Lowell Putnam Mathematical Competition Top 250	2016
	William Lowell Putnam Mathematical Competition Top 350	2015
	University of Waterloo President's Scholarship of Distinction Entrance Award	2015

CAMPUS ACTIVITIES	Waterloo Data Science Club, *Co-President*	Fall 2019

· Managed a dozen executives to organize weekly talks, workshops, and events for a student society with a social following in the thousands.

	Math Faculty Teaching Assistant	Various

· Marking TA: Math 147 (Calculus 1, Advanced), Math 148 (Calculus 2, Advanced)
· Residence TA: Math 135 (Algebra)

	Orientation Leader	Fall 2016

TALKS
(In order of recency:) Intro to Statistics for Data Science/Machine Learning (Data Science Club, *slides*), Variational Autoencoders (Data Science Club, *slides*), Arrow's Impossibility Theorem (Computer Science Club), *Obfuscated Gradients Give a False Sense of Security* paper review (Borealis AI NLP Reading Group, *slides*), *The Multiplicative Weights Update Method* (Pure Math Club), *An application of expander graphs in coding theory* (UW Seminars), *The Johnson-Lindenstrauss Lemma* (UW Seminars), t-Stochastic Neighbour Embedding (Siri NL Reading Group), PixelCNN paper review (UW AI Lab Reading Group)