Andre Fu

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Skills

Languages:	Python · Typescript · C# · Bash · MATLAB · Javascript
Tools & Technologies:	Git · Unix · Docker · PostgreSQL · MongoDB · Angular · Android SDK
Machine Learning:	PyTorch · Keras · Tensorflow · scikit-learn · scikit-image · NumPy· Pandas

Experience

University of Toronto, Multimedia Lab — *Remote* Toronto, ON
Undergraduate Machine Learning Researcher — August 2020 - Present

- Designed new probing metrics for Convolutional Neural Networks to inspect how well individual layers are learning
- Improved State-of-the-art Neural Architecture Search (DARTS) by up to **7.14% top-1 increase** and mantain a **3.88x reduction** in Parameter cost on ResNet
- Designed and optimized a Channel size selection algorithm, broadly applicable to any hand-crafted network demonstrating performance increase at comparable parameter cost

Microsoft Corp. — *Remote* Bellevue, WA
Program Management & Software Engineering Intern — May 2020 - August 2020

- Identified, proposed & designed a novel sport-city association feature to link >5k entities in Bing's knowledge graph
- Designed backend pipeline to rank entities from a graph to a custom front end in $<$ **150ms** bridging a gap in Bing's knowledge graph affecting >**1M monthly users**
- Research and designed a novel user abandonment metric using SCOPE (SQL & C# stream operator) on petabytes of user log data which targeted **80% of unsatisfied users**
- Drove insights from abandonment metric to generate a novel mainline answer addressing user abandonment

Interac Corp. — Toronto, ON
Software Engineering Intern — May 2019 - August 2019

- Designed and implemented a novel REST Notification Server to deliver **real-time** push notifications to a mobile app using a webhook through NestJS and PostgreSQL
- Designed deployment flow and deployed Servers & live websites using Docker & Jenkins to AWS EC2 using Nginx & uWSGI
- Architected the overall system & software structure and of the merchant front-end to Server-side management systems **reducing consumer payment 10 fold**

International Genetic Engineering Machine — Toronto, ON
Machine Learning Researcher & Project Lead — March 2019 - November 2019

- Led a group of 6 students to develop novel unique solutions to computational protein optimization
- Designed a Machine Learning solution to protein optimization using **CNNs and a Naive Bayes** Classifier combined with a **Genetic Algorithm** and **Simulated Annealing**

Publications

Mahdi Hosseini, Mathieu Tuli, Jia Shu Zhang, **Andre Fu**, Jingxuan Su, Sepehr Hosseini, Arsh Kadakia, Haoran Wang, Konstantinos Plataniotis, *"DySNet: Dynamic Scaling of Convolutional Neural Networks"*, Preprint submitted CVPR 2021

Projects

ACESO

- Designed and implemented an end-to-end a Machine Learning powered Medical Diagnostic App
- Trained **CNNs on Kaggle Datasets** for Parkinson's and Malaria where they were tested using a **Flask API** that the Flutter App could hook into then deployed by **Dockerized Server** and launched on Microsoft **Azure**

Education

University of Toronto — Toronto, ON
BASc in Engineering Science (Machine Intelligence) — Expected May 2022