Allan H. Ma

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Summary of Skills

- Project experience in Machine Learning (Deep Neural Network for image classification and generation)
- Proficient with object oriented programming (C++, Python)
- Familiar with parallel computing across cluster nodes and MPI programming in Linux environment
- Familiar with CUDA C programming and GPU performance testing
- Familiar with relational database design and SQL language (PostgreSQL)
- Academic communication skills gained from TA experiences and group research presentations
- Self-motivated and able to work well both independently and as part of a team
- Project experience in application design (MCU and FPGA)
- Strong math and engineering background and bilingual in English and Mandarin

Working Experience

Sep. 2017— Now: Data Analyst Co-op at RBC Marketing Science, Toronto

- Participate in SQL transforming and building client feature universe on a newly launched Spark & Hadoop based platform to enable machine learning algorithms for improved client offer proposition and campaign strategy.
- Parse SAS code and word document for automated information-of-interest extraction
- Participate in improving the offer managing system by leveraging the Foundry platform

Feb. 2016—Aug. 2017: GPU Software Researcher at University of Guelph

- Assist in image classification and generation related research activities.
- Develop and maintain large scale framework for deep learning on GPU cluster *copper*.
- Test different parallelism for accelerated deep learning on hardware level.
- Evaluate system bandwidth and benchmark deep learning and reinforcement learning related GPU performance on Intel-based cluster and IBM Power Systems.
- Build, Install or update python stack manually or via Anaconda.
- Build, Install or update popular deep learning software including Theano, TensorFlow, Caffe, Torch and DIGITS on Ubuntu and CentOS with x86_64 and ppc64le architectures.

Jan. 2014—Dec. 2015: Graduate Teaching Assistant at University of Guelph

Courses include *Applied Differential Equation*, *Electric Circuit*, *System & Control Theory*, and *Electrical Devices*.

- hold office hours and respond to email queries,
- grade assignments,
- invigilate and grade exams,
- assist instructor with preparing lab materials and organizing lab sessions.

Research and Project Experience

Aug. 2017: Daniel Jiwoong Im, He Ma, Kristin Branson, Graham Taylor. Quantitatively Evaluating GANs With Divergences Proposed for Training. ICLR 2018 under review.
Experimented with evaluating generated sample qualities based on some divergence metrics across different hyper parameter dimensions.

Dec. 2016: Daniel Jiwoong Im, He Ma, Chris Dongjoo Kim, Graham Taylor. Generative Adversarial Parallelization. ICLR 2017 under review.
Experimented with parallelized training of multiple Generative Adversarial Networks for improved mode coverage and regularization.

May 2016: He Ma, Fei Mao, Graham W. Taylor. Theano-MPI: a Theano based Distributed Training framework. ECPP. Springer, Cham, 2016.
Implemented distributed deep learning on ImageNet classification aiming to scale up the training of deep learning models based on data parallelism. It utilizes multiple GPUs on a computing cluster to speed up the training performance.

Dec. 2012—Jun. 2013: Software design for oxygen monitoring application
This project aims to build a program for the oxygen monitoring system. The program running on the prototype board (FPGA and MCU) collects oxygen absorption signal and calculates real time oxygen concentration. The prototype includes a large LCD and other human interfaces for signal display, menu control and data recording purposes.

Education Background

Jan. 2014—Feb. 2016: School of Engineering, University of Guelph
Major: Engineering Systems and Computing
Degree: Master of Engineering (Average: 92.7%)
Advisor: Dr. Graham W. Taylor

Sep. 2009—Jun. 2013: School of Precision Instrument and Opto-Electronic Engineering, Tianjin University
Major: Measuring and Control Technology and Instrument
Degree: Bachelor of Engineering (Average: 85.2%)

Summer Schools

Aug. 2017: University of Montreal, Deep Learning, Reinforcement Learning Summer School

Jul. 2017: NextAI, Kyunghyun Cho, Deep Natural Language Processing course

Awards

Oct. 2014: Lana McLaren/Richard Reynolds Memorial Scholarship, University of Guelph

Jun. 2013: Outstanding graduation design (ranking 4 /120), Tianjin University

Aug. 2011: 3rd Prize of Innovation Contest (iCAN-China 2011, Tianjin Area)
Title: Wireless Music Shoes

May 2011: 3rd Prize of Flash Video Contest (SPIOEE, Tianjin University)
Title: Principle of Mathematical Convolution