Andrew Ross

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Experience

Data Scientist — Performance Phenomics
Jan 2018 — Present

Improved existing neuroimaging batch processing pipelines using Kubernetes, reducing execution time from days to under an hour. Developed techniques to synthesize MRI imaging modalities, resulting in various publications. Modelled neurological function using Machine learning techniques to provide estimates of the expected cognitive impairment and improve injury assessment following a neurological event/trauma. Designed/produced automated reports for clients outlining their estimated brain health. Was the driving force behind the adoption and continued use of cloud computing (GCP), git, GitHub, CI, Slack and Trello internally, resulting in (among other things) the centralization of data storage, usage of distributed compute, improved code integrity, and increased productivity and communication.

Founder — BlueCamel
Sept 2018 — Sept 2019

Ran and managed Google and Facebook/Instagram ad campaigns for various small businesses, resulting in 7.5x returns in marquee product sales month-over-month for our flagship client. On-boarded and regularly interfaced with clients to scope upcoming projects, report on campaign status, and iterate on proposed marketing strategies. Collaborated with designers and 3rd party developers to revamp existing/dated websites and develop online product offerings.

Teaching Assistant — University of Toronto
Sept 2015 — Dec 2017

Designed and instructed the lab and tutorial components of various undergraduate mathematics courses. Walked students through new statistical and mathematical concepts, and introduced students to ways in which these topics are applied in real world settings.

Computational Fluid Dynamics Researcher — University of Toronto
Sept 2016 — Aug 2017

Held a graduate fellowship at the Institute for Aerospace Studies. My tasks were: Investigating generalized high-order flux-reconstruction methods for solving hyperbolic PDEs with implementations in C++, devising novel high-order flux-reconstruction schemes; comparing high-order discontinuous Galerkin and high-order flux-reconstruction schemes to proprietary high-order finite volume methods. Using C++ implementations to run computational trials to determine the merits/shortcomings of the three numerical methods with visualizations using Python/Mathematica.

System Administrator — University of Toronto CFD Lab
Jan 2017 — Aug 2017

Responsible for the upkeep, configuration, and reliable operation of (approx.) 30 workstations running Linux x86. Administered user accounts. Maintained switches, routers, printers and servers. Installed, upgraded and maintained software licenses. Purchased hardware, software and supplies to ensure smooth operation of the lab.

Research Assistant — University of Toronto
May 2014 — Sept 2014

Participated in an NSERC funded research project. Researched conservation laws and geodesics motion in the Kerr space-times. Investigated and tried to provide a complete characterization of the possible ergo-regions in the Kerr space-times corresponding to all possible linear combinations of the two Killing fields.

Education

University of Toronto — M.Sc. Mathematics   Sept 2015 — Aug 2016

University of Toronto — B.Sc. Mathematics   Sept 2011 — Aug 2015

Projects

Standardbred Canada Betting — GCP, Docker, Python, Flask, NumPy, BeautifulSoup   Oct 2019 — Present

Working with a small team writing software to scrape standardbred horse racing results from various sources for the purposes of developing a profitable algorithmic betting strategy based on Bayesian modelling. Leveraging Google Cloud Platform to: schedule nightly web scraping jobs, store raw and transformed data, analyze race results.

Mark Prediction — Node.js, Python, Bokeh, Scikit-Learn, PyTorch   Oct 2017 — Feb 2018

Worked with a small team of people to design and implement a web application. Employed machine learning techniques to forecast university students' final marks given information about their performance in the initial portion of those courses. Data-driven model selection. Standard front-end web development using HTML5, CSS and Node.

Deep Learning Foundations NanoDegree — Python, NumPy, Pandas, Tensorflow   Mar 2017 — Sept 2017

Implemented various deep learning architectures:
- Multi-Layer Perceptron (MLP) from scratch in NumPy.
- Convolutional Neural Networks (CNNs) for digit (MNIST) and object (CIFAR-10) classification.
- Recurrent Neural Networks (RNNs) for NLP: text generation and language translation.
- Deep Convolutional Generative Adversarial Networks (DC-GAN) to generate images of faces from white noise.

Programming Languages, Frameworks & Awards

Advanced	Python, Mathematica, LaTeX
Intermediate	bash, C++, MATLAB, Maple
Basic	Go, JavaScript, HTML/CSS, R, Fortran, C, XML
Frameworks, etc.	Google Cloud Platform (GCS, GKE, BigQuery, FireStore, Cloud Run, etc.), Kubernetes, numpy, scipy, pandas, Dask, Flask, Dash, Scikit-Learn, GIT, AirFlow, TensorFlow, PyTorch, XGBoost, LightGBM, matplotlib, bokeh, Pillow, node.js, D3.js, Jupyter, FloydHub, AWS, EMACS, UNIX/Linux (various distros)
Awards	OGS, Graduate Fellowship x 2, C. L. Burton Scholarship x 2 NSERC-USRA, St. Michael's College Silver Medal Dean's List Scholar (all semesters)