

Danny Luo

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Data scientist with strong mathematical background and experience in big data, machine learning, statistics and academic research. Educator of mathematics and data science.

Skills & Experience

Technical Skills *ML* Neural networks, gradient boosted models (XGBoost)
Programming Python (scikit-learn, numpy, pandas, tensorflow), Linux, Scala, R, SQL, Git
Big Data Apache Spark (Python, Scala), Hadoop, AWS (EC2, S3), Azure, Databricks

Projects
Residential Real Estate Valuation — ProvidensAI

- ◆ Achieved 15% prediction error on housing prices using XGBoost in Python on EC2
- ◆ Extracted, cleaned and pre-processed over 13 million records from remote SQL database in Python and SQL

Optimal Digital Map Placement in Toronto — 3rd place project at HackOn(Data) 2016

- ◆ Pinpointed and ranked 200+ hotspots in Toronto for optimal map placement by employing unsupervised learning in Python on transit, cultural centre and social media data
- ◆ Mined 8000 check-ins to improve model using Foursquare API, Spark on Databricks

Guide: Spark with Jupyter on AWS — 200+ Github stars

- ◆ Created guide on launching Spark clusters on EC2 with Jupyter and S3 integration
- ◆ Presented to 100+ people under invitation at Toronto Apache Spark Meetup

Groups
University of Toronto Data Science Team

- ➔ Parallelized CPU processing of kaggle CT images in Python on custom ML infrastructure (EC2, S3), resulting in 10x speed improvement, 8x disk size reduction
- ➔ Organized and mentored hands-on data science workshops for 30+ UofT students

HackOn(Data) 2017 Mentor & Judge

- ➔ Mentored 1st and 2nd place teams, judged data science projects of 15+ teams

Other **Neural Networks:** Built low-level CNN, RNN, GAN in Python (numpy) from Stanford cs231n

Education

2014 - present **University of Toronto, Candidate for Bachelor of Science** — Graduating in May 2018
Mathematics and Physics - CGPA: 3.97, Dean's List 2015/16/17

Employment

5/2017 - 8/2017 **Scientist, Co-op** — *ZeroGravityLabs, LoyaltyOne*

- Formulated decentralized loyalty programs on Blockchain, presented to CTO & other senior executives, leading to creation of strategic taskforce based on this work
- Automated Ethereum blockchain deployment on EC2 using bash, go-ethereum, AWS CLI
- Processed 2 TB of transactional data for economic simulation in Spark (Scala) on Azure

2015 - present **Teaching Assistant** — *UToronto Dept. of Mathematics* — 200+ students over 6 courses

- Developed content and curriculum for MAT245: Mathematical Methods in Data Science

5/2016 - 8/2016 **Particle Physics Undergraduate Researcher** — *UToronto Dept. of Physics, NSERC USRA*

- Analyzed CERN LHC data and Monte Carlo simulations for Higgs Boson in Python, C++

5/2015 - 8/2015 **Astrophysics Undergraduate Researcher** — *UWaterloo Dept. of Astronomy, NSERC USRA*

- Mapped evolution of galaxies through analysis of 10+ datasets in Python

Awards

2016/15 **NSERC Undergraduate Student Research Awards:** National award for scientific research
2015 **University of Toronto Scholar:** Top 150 students per year of study (10000+ students)

Interests

Leisure Salsa, Bachata, Volleyball, Fitness, Piano, Guitar, Jazz, Poetry, Literature, Creative Writing
Academic Cosmology, Differential Geometry, Probability, Topological Data Analysis, Manifold Learning