

# Michael Y. Yu

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[Skills] very proficient: *Python*. Knows well: *C, C++, NumPy*. Experience with: *Javascript, Java, Objective-C, HTML, SQL*. Used tools and packages: *Jupyter, XGBoost, scikit-learn, Pandas, Theano, Visual Studio, Django, Flask, Heroku, EC2*.

## EXPERIENCE

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### University of Toronto

Toronto, ON

*M.Sc. Machine Learning Researcher*

*Jan – Sep 2017*

- Successfully predicted the direction of the volatility index (VIX) price movement over a week (62% accuracy)
- Created Python framework for machine learning workflow: process and clean time series data (Pandas, NumPy), experimenting with feature sets and prediction targets, and hyperparameter search saves file system
- Researched how to tune XGBoost hyperparameters, tested generating different feature sets for XGBoost leverage
- Used 4-fold cross validation to ensure statistically valid model for test data of unseen latest 2 years

### University of Toronto

Toronto, ON

*Teaching Assistant for Calculus Classes*

*Sep – Apr 2014, 2015, Sep – Dec 2016*

- Led tutorials: explained problem solutions, created and marked quizzes; tutored in one-on-one help center

### University of Toronto

Toronto, ON

*NSERC Undergraduate Pure Math Researcher*

*Apr – Aug 2014, May – Sep 2015*

- Accounted for all ordinary representations of symmetric groups combinatorially via Young diagrams
- Learned ring structures prerequisite to representation of symmetric groups over a positive characteristic field
- Independently found increments of appropriate books to aid in understanding of difficult abstract theory

### A Thinking Ape Inc. (mobile games company with millions of installs on 4 stars games)

Vancouver, BC

*Software Developer Engineer, Intern*

*Apr – Aug 2013*

- Given responsibility to work on on the #1 revenue generating product of the company
- Designed and implemented account management UI on iOS (Objective-C) and Android (Java) for new user ID system that allowed tracking the same player on multiple devices via one or more social media accounts
- Devised new algorithm (solving a challenging graph matching problem) for matching ~500 player teams in battle on Django (Python) backend, increasing player satisfaction over 200% according to product manager

### BTI Systems Inc. (cloud and metro networking company)

Ottawa, ON

*Web Developer, Intern*

*Feb – Jun 2012*

- Created web app for manager to visualize bug statistics using jQuery and server side PHP and SQL queries


## NOTABLE PROJECTS

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*Programming contest participation / coding interview practice*

*2011 – 2013, 2017 – ongoing*

- Optimal Python or C++ solutions to LeetCode Hard problems, Bloomberg CodeCon, Google Code Jam, etc.

*Raytracer 3D scene renderer*  (graduate graphics course project)

*Apr 2016*

- Profiled with Visual Studio to identify and fix inefficiency in starter utility code to run 10× faster
- Used C++ to render realistic lighting in a beautiful anti-aliased full HD image, coded in just 5 days

## EDUCATION

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- \$40,358 University of Toronto academic performance scholarships, \$36,500 NSERC research grant awards

### University of Toronto

Toronto, ON

*M.Sc. Mathematics (GRE Math Subject Test score: 900 — 97 percentile)*

*Sep 2016 – Nov 2017*

### University of Toronto

Toronto, ON

*H.B.Sc. Mathematics Specialist and Computer Science Major (CGPA: 3.87/4)*

*Sep 2012 – Jun 2016*

- Finished 5 math graduate core courses (Ph.D. requires 7) with 91.4 average in undergrad; scored 30 on Putnam
- Took university level algo class in grade 12; took enriched level algorithms at UofT, 95 average across 3 courses