

# Michael Y. Yu

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## EDUCATION

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**University of Toronto** Toronto, ON  
**M.Sc. Mathematics** (GRE Math Subject Test score: 900 — 97 percentile) Sep 2016 – Sep 2017

- Predicted the sign of future 3 days VIX price change with 60% accuracy in thesis (see Projects section)
- Sample graduate courses from all taken up to date: real analysis, algebra, topology, probability, computability and logic, quantum mechanics, set theory, graph theory, topic courses: number theory, geometry, ergodic theory

**University of Toronto** Toronto, ON  
**H.B.Sc. Mathematics Specialist and Computer Science Major** (CGPA: 3.87/4) Sep 2012 – Apr 2016

- Received \$40,358 in academic awards and \$19,000 in NSERC research grants
- Finished 5/7 Math Ph.D. course requirements with 91.4 average; have scored 30 on Putnam
- Completed the extra Computer Science Major on top of 1 required Specialist

## EXPERIENCE

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**University of Toronto Mathematics Department** Toronto, ON  
**NSERC Undergraduate Researcher** May – Sep 2015, Apr – Aug 2014

- 2015 topic: the modular representation theory of the symmetric groups
- 2014 topic: basic algebraic number theory

**University of Toronto Mathematics Department** Toronto, ON  
**Teaching Assistant for Calculus Courses** Sep – Dec 2016, Sep – Apr 2014, 2015

- Taught tutorial classes: explaining concepts and taking up problems, creating and marking quizzes

**A Thinking Ape Inc.** (mobile games company with millions of installs on 4★ games) Vancouver, BC  
**Software Developer Engineer, Intern** Apr – Aug 2013

- Designed and implemented account management UI on iOS and Android for new user ID system
- Devised new algorithm for matching  $\sim 500$  player teams in battle on Django server backend
- Collaborated with product manager to determine match metrics and created over 200% more quality matches

**BTI Systems Inc.** (cloud and metro networking company) Ottawa, ON  
**Web Developer, Intern** Feb – Jun 2012

- Created web application for visualizing bug statistics using jQuery backed by PHP and SQL

## PROJECTS

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**Predicting short-term movement direction of the volatility index (VIX)** (M.Sc. thesis) Jan – Sep 2017

- Determined feasibility of different machine learning approaches and engineered various features
- Predicted the sign of 3 days return with 60% accuracy on test data of latest 2 years with XGBoost based model

**Grade summary web application for course I TAed** Nov 2016

- Flask web app that shows grade histograms across different tutorial sections from web scraped data

**An original image recognition experiment on MNIST** (no success) May – Aug 2016

- Purely unsupervised learning of image classes through “convolutional  $k$ -NN” architecture with Theano

**Raytracer 3D scene renderer** (graphics course project) Apr 2016

- C++ raytracing engine that uses distributed ray tracing to render realistic lighting