

Michael Truell

CV

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Education

2014–Present **High School**, *Horace Mann*, New York.

- **Expected Graduation** - June 2018
- **GPA Unscaled** - 3.96
- **Relevant coursework** - AP Chemistry (A), AP Biology (A), Precalculus BC Honors (A+), Honors Physics (A), Honors Algebra II and Trigonometry (A), Honors Geometry (A), Computer Science (A), Science Research (A), Chemistry (A), Biology (A)
- **Standardized Tests** - 750 out of 760 on PSAT Math (2016), 5 on Physics I AP (2016), 800 on Molecular Biology SAT II (2015), 800 on Chemistry SAT II (2015), 99 percentile on SSAT (2013)

Research and Work Experience

2016–2017 **Software Engineering Intern**, *Two Sigma*, New York.

Over the course of an 8 week summer internship and throughout this fall and winter, I was part of a two person team that developed an internal programming competition for Two Sigma, one of the largest hedge funds in the US. They liked it so much that they funded a public release (halite.io).

- Attracted 1,450+ users that have submitted 11,700+ bot updates and written 1400+ forum posts
- Project has seen 60+ individual contributors from the open source community
- Aided in design and implementation of game meant to break traditional AI
- Built and maintained the competition site - an HTML/JS/CSS frontend (with modded bootstrap and jquery) that interfaces with a LAMP backend hosted on RDS, EC2, and S3
- Built and maintained the competition backend infrastructure - a series of autoscaling EC2 servers that run games and auto-compile untrusted competitor source in a sandbox; managed by a REST API

2015–2016 **A Universal Robotic Control System using Reinforcement Learning with Limited Feedback**, *Reinforcement Learning Research*.

Research project that improved the data efficiency and speed of reinforcement learning as applied to robotics.

- Won major awards at NYCSEF and ISEF and was recognized by CERN and NASA
- Algorithm learns from humans with four times less data than the current industry standard
- Runs with no noticable latency on cheap (~\$5) off-the-shelf electronics
- Whole project implemented in vanilla C/C++ (no libraries) to allow quick running on embedded electronics

Honors and Awards

- Second Place in the Category of Robotics and Intelligent Machines at ISEF
- First Place CERN Award at ISEF (award included a week at the CERN campus)
- Second Place NASA Award at ISEF
- First Award in Computer Science at NYCSEF
- Intel Excellence in Computer Science Award at NYCSEF
- American Computer Science League 2016 All-Star Team
- First Robotics Competition 2016 Highest Ranked Regional Rookie Team

Extracurriculars

- Leader and Founder of American Computer Science League Team
- Head of Programming and Electronics for FRC Team 5806
- Leader and Founder of Programming Club
- Varsity Cross Country Runner (2.5 mi)
- Varsity Outdoor Track Runner (3200m, 800m)
- Pianist since age of 8
- CTO of Student Government
- CTO of the School's Weekly Newspaper

Projects

- Fido - An open-source C++ machine learning library for embedded electronics and robotics; 300+ stars on Github
- New York Computer Science League - Algorithmic programming competition league for NYC high school students
- Sea Urchin Cultivation - An investigative study into raising *Lytechinus Variegatus* in a cost-effective manner from fertilization to adulthood
- Homer 2.0 - Text generation in the style of Homer's Illiad and Odyssey using character-level recurrent neural network models

Computer skills

Programming Languages	C, C++, Java, Javascript, PHP, Python	Embedded Systems	Raspberry Pi, Arduino, NI RIO, ESP8266
Machine Learning	Evolutionary Algorithms, Deep Neural Networks, Reinforcement Learning	Noteworthy Tools	Tensorflow, Keras, Docker, Flask
Databases	MongoDB, MySQL	Markup	L ^A T _E X, Markdown, HTML