

Michael Truell

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EDUCATION

- MIT** (Computer Science and Mathematics), 5.0/5.0 GPA, Cambridge, MA Class of 2022
· Some past courses: algorithms, real analysis, probability, AI data structs (grad), organic chem, lab bio
· Current courses: advanced algos (grad), inference systems (grad), abstract algebra, cell biology
· Activities: Undergrad Research (UROP), Teaching High Schoolers (Cascade/HSSP), Sloan Business Club
Horace Mann School, 4.0 GPA Unscaled, Bronx, NY Class of 2018

EXPERIENCE

- Google**, *SWE Intern*, May 2019 - August 2019
· Used BERT/XLNet (attention-based NLP architectures) to improve Google's Discover news feed algorithm.
· First use of XLNet in a Google product. Integrated several other document signals into our algorithm.
· Launched live experiments on 100M+ users. Improved click/view metrics.
- Broad Institute**, *Undergraduate Researcher*, Regev Lab February 2019 - Present
· Working on improving GPCR binding prediction using compressive sensing, Bayesian methods, and deep models.
· Exploring improvements to unsupervised latent chemical models (i.e. VAEs for chemicals).
- IBM Research**, *Research Extern*, January 2019 - February 2019
· Worked on improving state representation in planning problems using heirarchical, discrete VAEs.
· Planned submission to ICLR 2020.
- Two Sigma Investments**, *SWE Intern*, June 2018 - August 2018
· Returning developer on Halite; worked on web experience, new game, software tooling.
· Explored ML-oriented game testing (Deep RL & Conv Nets). Spoke at Google NEXT and the CSTA conference.
- MIT Probabilistic Computing Lab**, *Research Intern*, RSI Scholar June 2017 - August 2017
· Added new data processing capabilities to the BayesDB research project (probabilistic modeling system).
· Analyzed diabetic patient data using Bayesian nonparametrics. Identified systematic lapses in care.
- Two Sigma Investments**, *SWE Intern*, June 2016 - March 2017
· Co-founded Two Sigma's "Halite" online programming competition (<https://halite.io>).
· Series drew 10k+ users, 100k+ bots, and 100+ OSS contributors.
· Lead on backend and website (LAMP, AWS, Bash, Docker); Dev on game engine, user packages, game UI.
- Independent Reinforcement Learning Researcher** June 2015 - May 2016
· Built Q-learning successor with novel action & model selection; 4x increase in sample efficiency.
· Project recognized by NASA, CERN, Intel. Spun off codebase into popular open source library.

AWARDS & HONORS

ACM/CSTA Cutler-Bell Prize: 10k Scholarship
Intel ISEF Grand Award: Second Award in Robotics and Intelligent Machines
Intel ISEF Special Award: NASA Second Award; CERN First Award (included week at CERN campus)
New York City Science and Engineering Fair (NYCSEF): First Prize in Computer Science
Intel's Excellence in Computer Science Award
American Computer Science League National Competition: Perfect Programming Score

TALKS & PAPERS

- Truell, M./Sanger, A.** (2019). *Learning Augmented Bayesian Count-Min*.
Truell, M./Spector, B., Kenyon, E., and Clapauch, J. (2018). *The Halite AI Competition*, Google Cloud Next.
Truell, M./Spector, B. (2017). *The Design and Implementation of Modern Online Programming Competitions*.
Truell, M., Gruenstein, J. (2016). *A Universal Robot Control System Using RL with Limited Feedback*.

SKILLS

Software	Python, Java, C++, PHP/LAMP, JS, HTML, Docker
ML	NLP, VAEs, Deep Learning, Reinforcement Learning, Evolutionary Algos, Bayesian Methods
Math	Analysis, Group Theory, Linear Algebra, Discrete Math, Multivariate Calculus
Hardware	OpenSCAD, AVR, ESP8266, NI