

Evan Hubinger

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EDUCATION **Harvey Mudd College**, Claremont, CA
B.S. in Mathematics and Computer Science

Expected Graduation: May 2019
GPA: 3.906 (Dean's List)

The College Preparatory School, Oakland, CA

Graduated: May 2015

PROGRAMMING	Expert	Proficient	Knowledgeable
LANGUAGES	Python, Coconut	Go, JavaScript, C++, Haskell, Lean	R, Java, MATLAB, Mathematica

SUMMARY Machine learning research experience working for HRL Laboratories and the Music Information Retrieval Lab at Harvey Mudd College as well as a personal project using DQN to solve a Minecraft environment. AI safety research experience at MIRI. Professional software engineering experience at Google, Yelp, and Ripple. Author of the Coconut programming language, which has over 2,300 stars on GitHub and over \$1,500 in yearly support from individuals and companies including TripleByte and Kea. Presented at PyCon 2017. Dean's list student majoring in mathematics and computer science at Harvey Mudd College.

RESEARCH **Team Member** Fall 2018 – Spring 2019
EXPERIENCE **HRL Laboratories Clinic Team, Harvey Mudd College**
• Was solely responsible for the design, implementation, and training of a deep reinforcement learning agent to tune quantum dots by controlling voltage gates embedded in a silicon heterostructure.

Lab Member Spring 2018 – Spring 2019
Music Information Retrieval Lab, Harvey Mudd College
• Team lead on the Sheet ID team using machine learning image retrieval techniques to identify cell phone images of sheet music.

WORK **Internship** May – August 2017
EXPERIENCE **Machine Intelligence Research Institute, Berkeley, CA**
• Came up with the idea, organized a research group, and began work on the paper “Inner Optimization.”
• Worked on a confidential type theory project using the Lean theorem prover.

Site Reliability Engineering Intern May – August 2017
Google, Sunnyvale, CA
• Worked as a Launch Coordination Engineer (LCE) developing the software Google uses to perform production readiness reviews of new product launches.
• Revamped the custom domain-specific language built by the LCE team to automate launch reviews.

Software Engineering Intern June – August 2016
Yelp, San Francisco, CA
• Primary author of Undebt, an open-source automated code refactoring tool with over 1,500 stars on GitHub.
• Wrote a blog post on Undebt (link below), which proved to be Yelp's most popular blog post to date and was featured on the front page of Hacker News.
<https://engineeringblog.yelp.com/2016/08/undebt-how-we-refactored-3-million-lines-of-code.html>
• Fixed errors in Yelp's configuration management that had previously taken down yelp.com.
• Rewrote Yelp's system for running large data processing operations in Elastic Map Reduce.

Software Engineering Intern June – August 2014; June – August 2015
Ripple, San Francisco, CA
• Worked on designing Interledger, a trustless system for cross-currency transactions between arbitrary agents.
• Wrote a tool to do cryptographically secure generation of wallets for financial institutions.

PERSONAL **The Coconut Programming Language** October 2014 – Present
PROJECTS <http://coconut-lang.org>
• Created the Coconut programming language, a functional programming language that supports pattern-

matching, algebraic data types, TRE/TCO, and compiles to any Python version.

- Coconut has over 2,300 stars on GitHub; over \$1,500 in yearly support from individuals and companies including TripleByte and Kea on Open Collective; and has made the front page of r/Python, r/Programming, and twice on Hacker News.
- Presented on Coconut at PyCon 2017 (see <https://us.pycon.org/2017/schedule/presentation/56>).
- Was interviewed on Coconut for TalkPython, Podcast._init_, and Functional Geekery.

BBopt

September 2017 – Present

<https://github.com/evhub/bbopt>

Developed a universal black box optimization framework for tuning hyperparameters.

Minecraft Deep Learning

November – February 2018

<https://github.com/evhub/minecraft-deep-learning>

Used Deep Q Learning to solve the task of navigating to a house in Minecraft during a snowstorm starting from a random location. Used imitation learning, Dueling Double DQN, and Boltzmann-Gumbel exploration.

cPyparsing

July 2017

<https://github.com/evhub/cpyparsing>

Reimplemented PyParsing in Cython to achieve $\approx 30\%$ better performance for Coconut and Undebt.

PyProver

March 2017

<https://github.com/evhub/pyprover>

Developed a library for resolution theorem proving in first-order predicate logic.

Iterated Recursive Prisoner's Dilemma Simulator

April 2015

<https://github.com/evhub/prisoner>

Developed a library for performing and competing in iterated prisoner's dilemma competitions in which the competing programs can simulate the opposing programs.

The Rabbit Programming Language

April – December 2014

<https://github.com/evhub/rabbit>

Created the Rabbit programming language, a purely functional, interpreted, dynamically-typed scripting language built on top of Python. Wrote a technical paper describing the language.

OPEN SOURCE CONTRIBUTIONS

Keras-RL Added support for Boltzmann-Gumbel exploration based on the paper “Boltzmann Exploration Done Right” and fixed an issue with the Normalized Advantage Functions implementation.

November 2018, November 2017

Keras Fixed an issue involving invalid serialization of Keras models.

November 2017

Conda Added support for advanced PEP 496 packaging features.

May 2017

Typeshed Added type annotations for the `future_builtins` module.

October 2016

Jupyter Added support for custom syntax highlighting.

July 2016

RELEVANT COURSES

Machine Learning

Fall 2017

Neural Networks

Fall 2017

Bayesian Statistics

Spring 2018

Algorithms

Spring 2018

Mathematical Analysis II

Fall 2018

Representation Theory

Fall 2018

Abstract Algebra

Fall 2017

Image Processing and Object Recognition

Fall 2016

Advanced Differential Equations and Linear Algebra

Summer 2016

Multivariable Calculus

Summer 2016

Discrete Mathematics

Spring 2016

OTHER ACTIVITIES AND AWARDS

Harvey Mudd Physics Department Rojansky Writing Award Winner

May 2017

<http://evhub.github.io/papers/everett.pdf>

Awarded for the technical writing in my paper *Multiple Worlds, One Universal Wave Function* (link above).

Harvey Mudd Effective Altruism Club Leader (2017 – 2019) — AI Summer Fellows Program Attendee (2018) — Effective Altruism Global Attendee (2017) — World Wide Web Consortium Interledger Payments Community Group Member (2016) — National Forensics League Honor Society Outstanding Distinction (2015)

— National Policy Debate Tournament of Champions Participant (2014, 2015) — East Bay Debate League
Assistant Tournament Director (2013 – 2015)