

## EDUCATION

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- **Carnegie Mellon University** Pittsburgh, PA  
*Electrical & Computer Engineering w/ minor in Mathematical Science.* Aug. 2014 – May. 2018

## EXPERIENCE

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- **Apex Semi Inc.** Santa Clara, CA  
*Machine Learning Specialist* May 2019 - Present
  - **Super Circuit Simulator:** Patented, schema designed a platform(PaaS) to visualize, simulate testable paths in variation of fabrication parameters used in applying an integrated circuit.
  - **AutoEncoder:** Designed a python based multi-staged dimension reduction pipeline to bulk process exponentially growing combination of 7-nm gates in path level. Efficient data coding is essential to convert path information from SPICE(Simulation Program with Integrated Circuit Emphasis) via deep models without labels using Tensorflow.
  - **Dev Environment:** Analytic platform was based on NVIDIA-docker and AWS for standardized python and GPU dependencies, with a thin REST layer for data interaction.
  - **Optimized Query:** Designed an optimized hashing pipeline for circuit data for fast path query.
  - **Unsupervised Learning:** Setup, schema design for combining circuit characterization with gate-level specific labels to generate semi-supervised model. Renders entirely simulated platform to produce path timing analysis on integrated circuit system with considerable accuracy. Transcends the industry practice in physical verification process in circuit manufacturing via bypassing it. 98% reduction in runtime for some leverage in accuracy.
- **JP Morgan Chase Co.** New York, NY  
*Software Engineering Intern* Summer 2015
  - **Storage Capacity Forecaster:** Created models for internal datacenter storage capacity visualization, optimization and forecasting.
  - **Anomaly Detection:** Bulk data injection and processing through map-reduce(Hadoop) with python backend to make guesses on the cause of overloading capacity.(e.g. memory leak)
- **Stanford University** Palo Alto, CA  
*Research Software Engineer; supervisor: Dr. Jerry Kaplan* Sep 2018 - Feb 2019
  - **Center on Democracy, Development and the Rule of Law:** Designed a machine-learning based document classifier for political data scientists, to visualize and analyze classified and/or public documents from Federal Communication Commissions using state-of-art natural language processing. features such as sentence token reduction optimization, tracking using unsupervised learning.
  - **Bot Detection:** As a by-product of unsupervised analytics, our research direction was to find connections between certain classes of comments/documents with bot-generated label. This work was sponsored by Stanford School of Law with support of Professor Dan E. Ho.
- **Rainbow Robotics** Daejeon, South Korea  
*Software Engineering: Computer Vision Intern; supervisor: Dr. Jun Ho Oh* Summer 2017
  - **2015 DARPA-winning robot HUBO:** Created soft vision data transfer layer in HUBO etherCAT pipeline via memory-mapped I/O to central system that allowed various filtering to be done at execution time in C.

## PROJECTS

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- **EduBuilder:** Machine learning recommendation system via collaborative filtering and unsupervised classification of students data to better support mentorship with volunteers in academia to build their career path.
- **Artistic Style Classification[Senior Thesis]:** A classifier that quantifies how close a drawing is to any other traditional styles of artist.
- **Language-Agnostic Sentence Classification:** Unsupervised model to visualize trend of topics in natural language.
- **Mentorship:** Actively mentoring local high school students from hometown to share global perspective on math and algorithm; helped them connect to programs in community colleges in Washington for higher education.
- **Courseworks:** Pattern Recognition Theory, Distributed Systems, Discrete Differential Geometry, Computer Security, Real-Time Operating Systems.

PROGRAMMING SKILLS

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• **Languages:** Python, Rust, Java, C, C++, Javascript

**Technologies:** AWS, React