

EDUCATION

M.S. Computer Science; 4.0 <i>Brigham Young University</i>	2020 <i>Provo, UT</i>
B.S. Applied and Computational Mathematics; 3.81 <i>Brigham Young University</i>	2018 <i>Provo, UT</i>

WORK EXPERIENCE

Google Brain - Research Intern	May - Aug 2020
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- o Design and orchestrate experiments requiring massive compute on internal infrastructure
- o Develop expertise in automatic differentiation and modern semi-supervised learning techniques

Lyft, Level 5, Autonomous Vehicles - Prediction Intern	June - Aug 2019
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- o Developed A/B testing platform in high performant C++ to compare prediction models locally and in the cloud greatly increasing my team's development velocity
- o Identified predictive features and developed real-time feature extraction system for use in machine learning pipeline
- o Explored statistical and neural models for dynamical vehicle motion prediction leading to a 22.5% performance improvement
- o Lead 3 engineers in exploratory 20% project for semantic code search
- o Utilized: c++, python, mathematical modeling, machine learning, GIS, geometry, data engineering

Qualtrics - NLP Intern	May - Aug 2018
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- o Achieved ~96% accuracy with a .005% false positive rate, matching state of the art on phishing detection by researching and implementing system using sophisticated NLP feature engineering and machine learning
- o Increased speed of system 3x resulting in a 63% reduction in hardware costs while handling 3 million daily requests by engineering asynchronous API using parallel processing and high performance computing techniques
- o Identified, explored, and implemented state of the art emerging topic tracking system which allowed my team to reach their stretch goals for the quarter and led to a **patent**
- o The final estimated impact of my internship is \$300k - 500k in yearly savings
- o Utilized: python, parallel processing, fraud detection, javascript, html/css, machine learning, git, docker, NLP

Amazon Alexa Prize Team Eve - Machine Learning Researcher	Jan - Apr 2018
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- o Designed and built an offensive speech filtering system using probabilistic methods, which performed ~3% better than current industry standards
- o Researched and designed a complex sentiment analysis tool that classified sentences as having complex sentiment used for noteworthy knowledge retrieval
- o Utilized: python, natural language processing, client/server architecture, naive bayes

Perception, Control, and Cognition Lab - Deep Learning Researcher	Dec 2016 - Present
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- o Lead multiple projects from inception to completion while mentoring students with a variety of skill levels which resulted in a number of novel contributions and publications
- o 1st place Student Research Conference presentation
- o Developed a system to improve MRI quality using a denoising auto encoder
- o Designed deep architecture to improve hearing aid quality resulting in signal to noise ratio increase of 197%
- o Utilized: python, NLP, computer vision, data science

Carnegie Mellon University - IT Lab Research Fellow	June - Aug 2015
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- o Excelled in machine learning course work as a top 3 student in the cohort, achieving a 4.0
- o Analyzed data and developed a custom web game to help local refugees learn English

OTHER EXPERIENCE

Communication: Selected by faculty and staff to represent my college's 4,000+ students by presenting my research to BYU's \$1 million+ donors and top administration.

2nd place BYU ACM Hackathon 2019: Built a computer vision pong game that is controlled with hand detection

2nd place BI Wolff Hackathon 2018: Built prescriptive ML solution to predict individual risk of becoming homeless

1st place BYU ACM Hackathon 2017: Created Auto Dino program to perfectly play the chrome dino no wifi game

1st place BYU ACM Hackathon 2016: Created *Mathify* app using polynomial interpolation to display text as math

2nd place Global Legal Hackathon Utah: Made a chrome extension using NLP to summarize terms and conditions which I grew to 2000 active users and sold

Data Science Blog: 300+ monthly readers. Data science problems solved with esoteric programming languages

Ranked 8th in world: Tetris in spring of 2011