

EDUCATION

- PhD Computer Science; 4.0** Apr 2022
Brigham Young University Provo, UT
- B.S. Applied and Computational Mathematics; 3.81** Apr 2018
Brigham Young University Provo, UT

WORK EXPERIENCE

- Qualtrics - Machine Learning Engineer, Intern** May - Aug 2018
- 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, javascript, html/css, machine learning, git, docker
- Amazon Alexa Prize Team Eve - Machine Learning Researcher** Jan - Apr 2018
- 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 **Publication** BYU-EVE: Mixed Initiative Dialog via Structured Knowledge Graph Traversal and Conversational Scaffolding, Alexa Prize Proceedings, 2018
 - o Utilized: python, natural language processing, client/server architecture, naive bayes
- Perception, Control, and Cognition Lab - Deep Learning Researcher** Dec 2016 - Present
- o Explored relationship between differential geometry and deep learning
 - o **Publication** Graph Neural Process: <https://arxiv.org/abs/1902.10042>
 - o 1st place Student Research Conference presentation
 - o Develop system to improve MRI quality by utilizing deep manifold learning
 - o Designed deep architecture to improve hearing aid quality resulting in signal to noise ratio increase of 197%
- Private Capital Group - Software Engineer, Intern** May - Oct 2016
- o Developed web solutions to significantly increase employee effectiveness by creating automated systems that resulted in yearly savings of over \$200,000
 - o Collected, cleaned, and analyzed internal and external data which was built into reporting dashboards that tracked key business insights and allowed partners to make informed decisions
 - o Decreased product downtime by 47% by implemented full testing suite and fixing critical bugs
 - o Utilized: python, javascript, html/css, git, SQL
- Carnegie Mellon University - IT Lab Research Fellow** June - Aug 2015
- 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:** Build 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
- Python 3.8 Open Source:** Fix small doc bug in cpython pull #11683
- pyproblm Open Source:** A primary contributor for Machine Learning a Probabilistic Perspective Python code