https://andrewnc.github.io

Andrew Carr

andrewcarr06@gmail.com
(509)-654-8520

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

Lyft, Level 5, Autonomous Vehicles - Machine Learning Engineer, Intern June - Aug 2019

- 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
- Identified predictive features and developed real-time feature extraction system for use in machine learning pipeline
- Explored statistical models for dynamical vehicle motion prediction leading to a 22.5x performance improvement
- Utilized: c++, python, mathematical modeling, machine learning, GIS, geometry, data engineering

Qualtrics - Machine Learning Engineer, Intern May - Aug 2018

- 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
- 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
- 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**
- The final estimated impact of my internship is $300k - 500k in yearly savings
- Utilized: python, parallel processing, javascript, html/css, machine learning, git, docker, NLP

Amazon Alexa Prize Team Eve - Machine Learning Researcher Jan - Apr 2018

- Designed and built an offensive speech filtering system using probabilistic methods, which performed ∼3% better than current industry standards
- Researched and designed a complex sentiment analysis tool that classified sentences as having complex sentiment used for noteworthy knowledge retrieval
- Utilized: python, natural language processing, client/server architecture, naive bayes

Perception, Control, and Cognition Lab - Deep Learning Researcher Dec 2016 - Present

- Explored relationship between differential geometry and deep learning
- **Publications** see https://andrewnc.github.io/projects/publications.html
- 1^{st} place Student Research Conference presentation
- Developed a system to improve MRI quality using a denoising auto encoder
- Designed deep architecture to improve hearing aid quality resulting in signal to noise ratio increase of 197%
- Utilized: python, NLP, computer vision, data science

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.

2^{nd} **place BYU ACM Hackathon 2019**: Build a computer vision pong game that is controlled with hand detection

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

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

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

2^{nd} **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

pyprobml Open Source: A primary contributor for Machine Learning a Probabilistic Perspective Python code

Computer Vision: See https://andrewnc.github.io/projects/projects.html for videos of my various vision projects