Andrew Carr

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Education

M.S. Computer Science Apr 2020
Brigham Young University *Provo, UT*

B.S. Applied and Computational Mathematics; 3.81 Apr 2018
Brigham Young University *Provo, UT*

Work Experience

Machine Learning Research Intern May 2018 - Aug 2018
Qualtrics *Provo, UT*

- Researched and implemented phishing detection tool using sophisticated feature engineering, random forest, and logistic regression techniques. Achieved ∼96% accuracy with a .005% false positive rate
- Engineered and developed asynchronous API using parallel processing and high performance computing techniques to achieve a 3x speed up resulting in a 63% reduction in hardware costs and handling millions of daily requests
- The final estimated impact of this project is $300k - 500k in yearly savings
- Built question similarity tool using sentence embeddings after collecting and curating a dataset of ∼130,000 questions. Improved f1 score from .3 to ∼.7

Machine Learning Researcher Jan 2018 - Apr 2018
Amazon Alexa Prize Team Eve *Provo, UT*

- 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

Deep Learning Research Assistant Dec 2016 - Present
BYU Perception, Control, and Cognition Lab *Provo, UT*

- Developed parallel solutions to augment arbitrary image data sets and simulate MRI results, reducing processing time by 300%
- Designed and built a deep learning platform to reduce background noise for hearing aid users resulting in a system that reduced the signal to noise ratio by 197%
- Detected and resolved with various bugs in learning algorithms and probabilistic programming models

Software Engineer May 2016 - Oct 2016
Private Capital Group *Alpine, UT*

- Developed Django Python web solutions to significantly increase employee effectiveness by creating automated systems that resulted in yearly savings of over $200,000
- 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
- Designed and constructed full testing suite for both front and back end testing resulting in a 47% decrease in product downtime

IT Lab Research Fellow June 2015 - Aug 2015
Carnegie Mellon University *Pittsburgh, PA*

- Excelled in machine learning course work as a top 3 student in the cohort, achieving a 4.0
- 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.

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

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

2^{nd} **place Global Legal Hackathon Utah**: Made a chrome extension that uses NLP to read and summarize terms and conditions for people before they accept them.

Computer Vision/Control Theory: Developed computer vision curriculum for a control theory class and built an autonomous following car