https://andrewnc.github.io

Andrew Carr

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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

- 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, scala, javascript, html/css, machine learning, git, docker

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
- **Publication** BYU-EVE: Mixed Initiative Dialog via Structured Knowledge Graph Traversal and Conversational Scaffolding, Alexa Prize Proceedings, 2018
- Utilized: python, natural language processing, client/server architecture, naive bayes

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

- Explored relationship between bayesian methods and deep learning
- **Publication** Graph Neural Process: https://arxiv.org/abs/1902.10042
- 1^{st} place Student Research Conference presentation
- Develop system to improve MRI quality by utilizing deep manifold learning
- 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

- Developed 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
- Decreased product downtime by 47% by implemented full testing suite and fixing critical bugs
- Utilized: python, javascript, html/css, git, SQL

Carnegie Mellon University - IT Lab Research Fellow June - Aug 2015

- 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.
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
Python 3.8 Open Source: Fix small doc bug in cpython pull #11683
pyprobml Open Source: A primary contributor for Machine Learning a Probabilistic Perspective Python code