Nate Carlson

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EDUCATION

Brigham Young University **April 2023**
BS, Applied & Computational Math Emphasis (ACME) *Provo, UT*
Minor in Computer Science
- GPA 3.78/4.00
- BYU Academic Scholarship
- **Relevant Course Work** – Deep Learning, Algorithm Design and Optimization, Statistical Machine Learning, Data Structures & Algorithms, Advanced Programming Concepts in Java

EXPERIENCE

CVS Health **June 2022-August 2022**
Data Science Intern (Incoming) *New York City, NY*

BYU Dragn Labs **Mar 2020-Present**
NLP Researcher *Provo, UT*
- Coauthored paper on weighted target/context combinations of static word embeddings (Under Review)
- Led development of a neural machine translation model for culturally aware translation
- Presented work at BYU Student Research Conference and won best presentation at Data Science Session
- Collaborated with researchers from India and University of Utah to model user behavior on social media

Air Force Research Laboratory **May 2021-Sep 2021**
Machine Learning Research Intern *Dayton, OH*
- Led team of interns in developing novel self-supervised algorithm for learning features from unlabeled image data
- Presented findings and results of research to 100+ other interns and Air Force leadership
- Assisted in design and implementation of two key algorithms in our method:
  - k-means negative sampling (+1.7% accuracy)
  - nearest neighbors swapped prediction using feature queue (+0.7% accuracy)
- Implemented several deep learning papers in PyTorch

LEADERSHIP/VOLUNTEER

BYU Concessions **Oct 2022-Present**
Data Science Consultant *Provo, UT*
- Cleaned and analyzed sales data from university football games to make supply chain recommendationsd

BYU Data Science Club **Aug 2020-Present**
Math Representative *Provo, UT*
- Organized data analytics hackathon for club members
- Mentored younger students in revising resumes and applying for internships

Religious Organization **Jun 2016-Jun 2018**
Volunteer Representative *Taipei, Taiwan*
- Taught weekly English classes in Mandarin Chinese to non-native English speakers
- Led trainings for 30+ volunteers on language learning, outreach efforts, and teaching techniques

PROJECTS/PERSONAL

- **Multimodal Machine Translation** (*Winter 2022*): Built machine translation system that incorporates visual context aid in translating English text to Chinese
- **Filtering Spectrometer Data** (*Winter 2022*): Used Kalman and Particle filters to estimate internal states of a system and predict future spectrographic observations
- **Text Summarization** (*Winter 2022)*: Implemented extractive text summarization techniques and preformed quantitative analysis of results
- **NFL Prediction** *(Fall 2021)*: Used Random Forest, Logistic Regression, and Gradient Boosted Trees to predict NFL games against the spread

SKILLS

- **Proficient** – Python, Java, C++, SQL, Pandas, PyTorch, Scikit Learn, Docker, Chinese (Speaking/Reading)
- **Areas of Experience** –NLP, Computer Vision, Statistics, Machine Translation, Filtering