Nate Carlson

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SKILLS
- **Proficient** – Python, Java, C++, SQL, Pandas, PyTorch, Scikit Learn, Docker, Chinese (Speaking/Reading)
- **Areas of Experience** – Computer Vision, NLP, Self-Supervised Learning, Statistics, Algorithms

EDUCATION

Brigham Young University — **Dec 2022**
BS, Applied & Computational Math Emphasis (ACME) — *Provo, UT*
Minor in Computer Science
- GPA 3.78/4.00
- BYU Academic Scholarship
- **Relevant Course Work** – Data Structures & Algorithms, Advanced Programming Concepts in Java, Algorithm Design and Analysis, Statistical Machine Learning, Deep Learning

EXPERIENCE

BYU Dragn Labs — **Mar 2020-Present**
NLP Research Intern — *Provo, UT*
- Coauthored paper on static weighted target/context combinations of static word embeddings
- Presented work at BYU Student Research Conference and won best presentation at Data Science Session
- Supervised training of over 126 sets of word embeddings across 6 different training corpora
- 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
- Implemented several deep learning papers in PyTorch
- 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)

LEADERSHIP/VOLUNTEER

BYU Concessions — **Oct 2022-Present**
Data Science Consultant — *Provo, UT*
- Helping to build visualization dashboard in Tableau
- Cleaned 1400+ rows of sales data from BYU football games

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
- **Fantasy Football Data Analysis** (*On going*): Analyzing player data to identify key stats that contribute to a player's fantasy output, building predictive models to forecast player production
- **Network Routing** (*Fall 2021*): Implemented Dijkstra's Algorithm with a 2 different priority queues (binary heap and array) to compute the shortest path between two nodes in a network
- **Family Tree** (*Winter 2021*): Built app that allows a user to view their family tree and access ancestor information, implemented backend server and user interface in Java.
- **K-means Clustering** (*Summer 2021*): Implemented k-means clustering in NumPy and JAX, analyzed and quantified differences in runtime between the two implementations