Joseph Vargovich

Machine Learning Research Assistant · Computer Science Student

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Objective

Pioneer the development of innovative software solutions that drive a variety of modern research fields. Create optimized software that is innovative and impactful in the information age.

Core Skills: Java, C, C++, JavaScript, HTML5/CSS, Python, R, Linux, LaTeX, and Agile methodologies. Proficient in Spanish.

Work Experience

NAU SICCS Machine Learning Lab — *Flagstaff, Arizona*

Machine Learning Research Assistant — *Oct. 2018 - Present*

- Working within a diverse lab team to develop Machine Learning algorithms for accurate, scalable, and cost-effective genomic data analysis for cancer diagnosis and prediction using C++ and R.
- Proved time/space complexity of new change point detection algorithms and implemented necessary data structures for efficient computation.

PetSmart — *Phoenix, Arizona*

IT Engineering Intern — *May. 2020 - Present*

- This internship with PetSmart was an IT Engineering internship that entailed shallow learning concepts in Python. However, the official internship was modified due to COVID-19 concerns. The internship transitioned into a remote Summer Experience where I designed IT systems using Agile methodologies such as Scrum.

Northern Arizona University IEEE — *Flagstaff, Arizona*

Student Branch Chair — *Oct. 2018 - Oct. 2019*

- Led a team of officers to hold Computer Science and Electrical Engineering related workshops, events, and hackathons.
- Improved event attendance by 40% through tracking of student interests and demographics.
- Held workshops on C programming to fill in a knowledge gap required for advanced courses such as Operating Systems.

Projects

Linear Time Dynamic Programming Algorithm for the Exact Path of Optimal Models — *Nov 2019*

Machine Learning Research Publication

- Developed and proved a linear time dynamic programming algorithm for selecting the exact path of optimal changepoint segmentation models from a finite set provided by binary segmentation.
- Observed a **200% (x4) speedup** of processing time over previous quadratic time algorithms. Algorithm was developed using C++ and R.

Operating System Simulator — *Apr 2020*

OS development with C

- Implemented a C based Operating System Simulator that simulates process selection algorithms, multithreading, concurrent processing with context switching, and memory management. Developed exclusively within a Linux command-line environment.
- Demonstrated clean coding practices by developing a C codebase with 1000+ lines of code with no memory leaks reported through valgrind.

Chore Tracker Android App — *Apr 2020*

Android Development with Java

- Created an app that incentivises users to complete household chores. **The app achieved 1st place of 6 competing teams** when presented in a mock investor meeting due to its outstanding user interface design and marketable concept. Developed using Java, SQLite, and AWS.

Line Following Robot — *Mar 2018*

Arduino Robotics

- Formed a team with four other NAU IEEE members to create a C++ based Arduino robot that followed a preset path to completion.
- **Placed 2nd of 8 teams** in attendance as the bot completed 90% of the path.

Education

Northern Arizona University — *Flagstaff, Arizona*

B.S. in Computer Science (Honors); Masters in CS planned for 2022 — *Aug. 2017 - May. 2021*

- **GPA:** 3.85 (Dean's List)
- **Scholarships/Awards:** LumberJack Scholarship (2017-Present); Dean's List (2017-Present); Pheatt Family Research and Design Award (2020); Nackard Family Honors Scholarship (2020); Perko Family Honors Scholarship (2019); Google Favorite App Award (2015)