Emily Costa

Software Engineer

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Work Experience

Machine Learning Software Developer Intern - Oak Ridge Nat'l Lab
June 2021 - August 2021

- Trained large-scale deep learning models for cancer classification
- Led technical decisions implementing software frameworks like Huggingface
- Migrated stack to AMD GPU-based exascale supercomputer with ROCm/HIP
- Demonstrated per-device software speedups of 1.5x and 1.7x

Graduate Student Researcher - Northeastern University
August 2020 - Present

- Apply machine learning and statistics to analyze throughput of data-intensive workloads on large-scale clustered file systems
- Design real-time solutions for resolving I/O issues affecting production distributed computing systems and computational workloads
- Develop an open-source package that helps users to improve code performance by throughput congestion identification and reduction

C/C++ Software Developer Intern - Florida International University
August 2019 - February 2020

- Optimized file compression algorithm for improved scalibility in I/O performance for a bioinformatic application analyzing spectroscopy data
- Implemented method using HDF5 to improve computational workflow

Python Software Developer Intern - Oak Ridge Nat'l Lab
June 2019 - August 2019

- Developed computational framework for scaling a Bayesian inference algorithm that integrated into two open-source scientific Python packages
- Automated software tests with TravisCI continuous integration to increase code reliability and quality of the complex packages

Software & Frameworks

Best BASH, Git, Java, Linux, Pandas, Python, Scikit-Learn

Better C/C++, Dask, Deepspeed, Numpy, OpenMP, Pytorch, R

Good Docker, HuggingFace, Julia, noSQL, SQL, SQLite, XML

Education

Northeastern University
Computer Engineering, M.S.
August 2020 - May 2022 3.9/4.0
Coursework: Machine Learning, Computer Architecture, Data Structures, Database Management, Distributed Systems
Funding & Distinctions:
GEM Full Fellowship, and Research Assistantship

Florida International University
Applied Mathematics with a Computer Science track, B.S.
August 2017 - July 2020 3.6/4.0

Projects

Command My Stocks
/cmdmystocks
· Created an open-source LInux command line user interface to seemlessly generate customizeable trading bots on Google Cloud Platform
· Launched an algorithm to trade based on the magnitude of stock price changes

Smoky Mountain Challenge
/datachallenge2
· Implemented a convolutional neural network, ResNet-50, that classifies diffraction patterns to reduce the workload of data intensive software
· Balanced and managed >600 GB using dynamic processing techniques and SMOTE to generate psuedo-images

OmiCloud
/OmiCloud
· Developed and implemented algorithms that rapidly detect surfaces and moving objects using 3-D points collected by a Microsoft Kinect to identify a fallen person and alert emergency medical services