Cardell Taylor

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Education

Grand Valley State University August 2022 - December 2025
Bachelor of Science in Computer Science, Minor in Mathematics *Allendale, MI*

Experience

Undergraduate Research Associate August 2023 – Present
Grand Valley State University *Allendale MI*

- Developed data pipelines to handle large ∼30 million sample dataset from the Chan Zuckerberg Initiative
- Designed a model to integrate and generate genomics data using a variational autoencoder backbone
- Analyzed academic papers to identify useful methods and model benchmarks
- Utillized SLURM to manage jobs on university's HPC cluster
- Worked with PyTorch, Lightning and Pandas
- Compiled data into figures for review at presentations and conferences

Projects

Arithmetic Compiler | *C++* November 2024 - December 2024

- Engineered a compiler for arithmetic expressions from scratch using C++
- Implements and transforms several data structures; such the parse tree, abstract syntax and three address code
- Applied graph-coloring register allocation for usage in code generation.
- Compiles down to x86_64 assembly

MNIST Michi-GAN | *Python, Pytorch* August 2024

- Exploration of the MichiGAN framework for generating disentangled representations of the MNIST dataset, as detailed in the paper *MichiGAN: sampling from disentangled representations of single-cell data using generative adversarial networks*
- Evaluated performance using common metrics like Fréchet Inception Distance (FID) and Inception Score

Autoencoder | *C++, OpenMP, Eigen* Sep 2023 - Nov 2023

- Implemented a neural network from scratch that can be trained to compress and reconstruct image data
- Implements ADAM, a modern optimization technique reduce model convergence time
- Used multithreading with OpenMP to boost performance
- Later moved to python to test adversarial feedback techniques

Extracurricular

Research Coordinator August 2024
GVSU Computing Club

- Keeping members informed on different research opportunities offered to students
- Connecting students interested in research with faculty mentors

Grants/Awards

Student Summer Scholar Grant March 2024
Grand Valley State University

- Grant awarded to undergraduate students to support promising projects throughout the summer semester

Technical Skills

Languages: Python, C, C++, Java, C#, OCam, Rustl
Frameworks/Libraries: JUnit, Numpy, Pytorch, Keras, Tensorflow, OpenGL, Eigen, scikit-learn, Pandas, Seaborn
Developer Tools: Git, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse, CMake, Premake, AWS, SageMaker, EC2, Docker