

Tristan Lonsway

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EDUCATION

Stony Brook University [GPA: 3.5/4.0]

Stony Brook, NY

BS in Computer Science and Physics with honors

Expected Graduation: May 2024

Relevant Coursework: Analysis of Algorithms (Honors), Data Structures (Honors), Systems Fundamentals, Graph Theory and Combinatorics, Linear Algebra, Differential Equations

EXPERIENCE

File Systems and Storage Lab at Stony Brook University

Stony Brook, NY

Undergraduate Research Fellow

January 2023 – Present

- Collaborated with a team of researchers from IBM and Stony Brook to research the optimal scheduling of containerized machine learning applications on large-scale GPU clusters
- Created software to interface with OpenShift and Kubernetes to deploy containers and collect performance data
- Used profiling tools such as linux perf and NVIDIA Nsight to identify bottlenecks and predict application performance

Stony Brook University

Stony Brook, NY

Teaching Assistant - Analysis of Algorithms Honors

January 2023 – May 2023

- Worked with a team of TAs to create assignments, exams, and other learning material for a class of 40 students
- Held office hours and met with students to teach algorithms concepts such as dynamic programming, randomized analysis, external memory analysis, and efficient sorting

Syracuse University

Syracuse, NY

Teaching Assistant - Cybersecurity

July 2018 – August 2020

- Developed original course material with a team of graduate students for a course directed at high school students
- Proposed and developed an expansive set of tools including simulated malware, exploit analysis tools, password cracking tools, and cryptography demonstrations
- Contributed to the growth of the program's enrollment from under 10 to over 50 students in three years

PROJECTS

OpenGL Powered Game Engine

August 2021 – Present

- Collaborated with several peers to produce a GPU-accelerated 3D game engine in Java
- Built a physics library to incorporate physically accurate water, particle, and collision simulations
- Implemented efficient reflections, lighting, and shadow mapping through custom GLSL shaders
- Utilized object oriented concepts to organize over 10k lines of code, significantly speeding up further development

GPU-Accelerated Machine Learning Framework

March 2021 – August 2021

- Worked with a peer to design and implement a generic framework used to develop neural network models in C++
- Achieved extremely fast training speeds on a home-built GPU cluster using the cuBLAS and CUDA libraries
- Successfully trained models on standard computer vision tasks such as on the MNIST database

opinion

Website for High School Computer Science Club (coderams.net)

Feb 2019 – Sep 2019

- Designed the website for a computer science club using HTML, CSS, and JavaScript
- Collaborated with a team of 5 members to manage website content, updates, and hosting
- Utilized the website to supply algorithm problems, tutorials, and information to over 30 club members

Genetic Algorithm Based Neural Network Models

Dec 2018 – May 2020

- Programmed a neural network that learned its structure and weights through reinforcement learning
- Developed a generic framework for genetic algorithms and neural networks used in numerous other projects

Server Hosted Social Media Platform

Feb 2018 – Mar 2018

- Created a social media platform from the ground up with a fellow student for an AP Computer Science project
- Implemented a custom database format and networking scheme using Java's socket libraries
- Designed a simplistic and modular user interface using the Swing and AWT libraries

SKILLS

- Programming Languages: Java, C/C++ Other: Git, Kubernetes, Linux, Vim, Visual Studio, Eclipse, LaTeX