Zhi Zheng

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Education

Rensselaer Polytechnic Institute **Aug. 2023 – May. 2024**
M.S. in Computer Science : ***GPA: 3.86/4.0*** *Troy, NY*

Rensselaer Polytechnic Institute **Aug. 2020 – May. 2023**
B.S. in Computer Science & Game Development: ***GPA: 3.74/4.0*** *Troy, NY*

Experience

Game Programmer **September 2023 – March 2024**
Rather Be Fishing *Troy, NY*

- Worked at a small local indie game studio to develop a game using Unreal Engine 5: ***Messozoic***. Implemented and organized several scalable systems, these systems include space efficient saving/loading, various UI systems, inventory management, skeleton building mechanics, and puzzle gameplay mechanics.

Undergraduate Teaching Assistant for Algorithms **August 2022 – December 2022**
Rensselaer Polytechnic Institute *Troy, NY*

- Held office hours, graded homework assignments and included feedback for students.
- Class topics include: Algorithm Analysis, Graph Theory & Algorithms, Greedy Algorithms, Network Topology, Dynamic Programming, Flow Networks, and NP-Hard Problems.

Research Assistant **June 2022 – August 2022**
Institute for Data Exploration and Applications (RPI IDEA) *Troy, NY*

- Developed an emergent and dynamic Force Directed Graph with a geometric constraint in Unity.
- Worked with a multi-dimensional visual analytical hardware, *The Campfire*, in order to import unique datasets and simulate environments with the graph and implemented an interactive visual display for nodes to select edge connections for the Force Directed Graph.

Projects

Geo-Vegetation Spatial Information Model | *JavaScript, Vite, React, Python* **April 2024**

- Established a unique tool for agricultural analysis by working on a geo-vegetation spatial information model. Vegetation (NDVI) data and precipitation data is stored in a AWS container, then dynamically loaded on a vercel app that renders our visualization. We developed a legend, check boxes to enable and disable data and a calendar to look at any particular date. Data is scraped from NASA, NOAA, and USGS.
- Link to view the information model: *xinfo.vercel.app*

Project Protocol | *Python, JavaScript, React, Open Source* **May 2023**

- Produced a protocol simulator that takes in a .json format file of nodes and links and transforms it into devices and wires. Then runs through the simulation and outputs the simulation with a visualization of sending and receiving information through devices.
- Helped lead with the project coordinator in developing the simulation, visualizer and website.

Custom Game Engine | *C* **December 2022**

- Created a multithreaded custom game engine utilizing the windows API and vulkan as the graphics engine.
- The game engine includes a detector that reports memory leaks at where the memory is allocated, an asynchronous file decompression system using LZ4, a CPU profiling system that creates a trace of the CPU thread and outputs it as a chrome trace, and a simple game with bounding boxes.

CPU Scheduling Simulator | *C* **July 2022**

- Developed four different algorithms for simulating CPU scheduling (FCFS, RR, SJF, SRT) with various and randomized test cases. All processes are forked and all algorithms run with timed results.
- The test cases are recorded with statistics such as average CPU burst time, average wait time, CPU utilization, average turnaround time, context switches, and preemptions.

Skills

Technologies/Frameworks: C++, C#, C, Python, Java, JavaScript, TypeScript, SQL, LaTeX, Git, Microsoft Office (365), Linux, Eclipse, React, Unity, Unreal Engine 5, OpenCV, Visual Studio 2022, Perforce SCM, Plastic SCM, Numpy, Pandas, Tensorflow, PyTorch, HDF5, JSON