Jonathan Bogie

jmbogie@outlook.com (949)-542-0177

GitHub: *https://github.com/rukadev* **LinkedIn:** *www.linkedin.com/in/jonathanbogie*

Education

Bachelors of Science in Computer Science, University of Oregon, OR, USA MGPA 3.75 | 2020 - Present

Relevant Coursework

Data Structures and Algorithms, Linear Algebra, Discrete Mathematics, Computer Organization, Web Development, Data Science I, Data Science II

Skills

- Programming Languages: C++, C, Python, Lua, HTML, JavaScript
- Platform/OS: Windows, Linux
- Databases: MySQL
- Revision Control: Git
- Frameworks & Applications: Django, Bootstrap, Pandas, Firebase

Projects

- **Visualized polygon triangulation:** Built an algorithm to partition a polygonal area into a set of triangles by the "ear-clipping" method. An input of ordered nodes will generate normally, while an input of unordered nodes must be mapped to their direct adjacencies to produce a convex hull, whose nodes are traversed to account for concavities.
- **Culling System**: Designed and implemented a culling system to dynamically render objects in 3D space according to proximity. The logic is split into a "broad" search, which utilizes octree spatial partitioning to instantiate objects, and a "narrow" search, which defines level of detail.
- **Lossless data compression technique:** Constructed an algorithm to compress JSON encoded packets using LZW (Lempel-Ziv-Welch) compression. Repetitive sequences of characters are dynamically chosen and stored with a key for all past and future occurrences to effectively minimize the amount of data transferred.
- **GUI Priority Queue:** Designed a GUI notification system that enables developers to display messages to users based on a priority queue structure. The system incorporates modularity for GUI templates, which can be 2D animated with a library of interpolation "tween" effects.
- **Postfix calculator:** Implemented a language parser and interpreter for a postfix (reverse polish notation) calculator that accepts basic arithmetic operations in the form of a binary expression tree.
- **Compartmental modeling:** Designed an SIR (susceptible-infected-recovered) model to simulate the potential transitions of individuals from states of susceptibility, infection, and recovery. The simulation model is divided into two parts, with the first computing the next state of an individual, and the second advancing an individual to said state.
- **Virtual computer architecture model:** Modeled a basic computer inspired by the ARM instruction set architecture. It features a CPU, general purpose and specialized registers, storage of instructions and data in RAM, codes for operations, and a fetch/decode/execution cycle to simulate program execution.

Work Experience

- **Walmart Stock Associate** November 2019 - Present

  Organized and maintained the stockroom, while contributing to positive customer relations through clear and effective communication on the floor. Executed daily tasks by management to ensure consistent store operations with the help of coworkers.