

# JONAS BULL

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## CONTACT



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## EDUCATION

### B.S. in Computer Science

University of St. Thomas  
2018-2022 (expected)

### H.S. Diploma

Orono High School  
2014-2018

## PROGRAMMING

- Java & Javascript
- C / C++
- C#
- MIPS Assembly
- HTML & CSS
- Python
- SQL
- JSON & Data Generation

## TOOLS

- Unity / Godot / Unreal
- MS Office
- UNIX, Linux, Windows
- IntelliJ, Eclipse, VSCode, Atom
- GIMP & Paint.NET
- Blender
- MS SQL Server Management Studio

## COURSEWORK

- Computer Architecture
- Algorithms
- Data Structures & OOP
- Operating Systems
- Artificial Intelligence & Problem Solving
- Information Security

## WORK EXPERIENCE

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- **Freelance Web Developer (2019 – 2022...)**, experience building websites for a diverse variety of clients, including those in E-commerce, law and travel. Accomplishments included building several detailed layouts and components using React, building interfaces between commercial POS systems and site backend, and custom scripting for visual flair. Deployment of e-commerce sites nearly doubled profitability for one client and saw a >15% increase for another.

## PROJECTS

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### Class Projects

- **Pipelined & Other Simulators (C)**, implementations of various simulators for a custom instruction set based on the MIPS R2000 architecture. Started with a single-cycle, moved through multi-cycle, pipelined, and cache-based versions. Focus on memory management, bitwise operations and careful cleanup.
- **OS Filesystem Explorer (C++)**, a graphic file explorer utilizing SDL2. Capable of displaying file hierarchies, easily navigating up and down the filesystem tree, and opening different filetypes with the correct program based on extension.
- **OS Process Scheduler (C++)**, a system for scheduling operating system processes and benchmarking their performance based on approach. Included 4 different approaches and a robust set of test cases.
- **Currency Exchange (Javascript)**, an object-oriented system for managing accounts & exchanging currencies between countries. Employed Singleton design pattern and 10+ scripts for conversion and consistency of systems.

### Personal Projects

- **Recordkeeper (Discord.py / Python)**, a custom Discord bot used to assist in the running of large-scale tabletop RPGs, capable of maintaining dozens of custom characters for every user and seamlessly updating them. Extensive utilization of databases & input sanitization / formatting. Built on Discord.py, a python-based wrapper for the Discord API.
- **Vertigo (Unity / C#)**, a 2D “metroidvania”-style game in which the player explores a large map and acquires new abilities. Involves complex UI/UX, filesystem interaction, employing A\* for AI pathfinding, and live combat systems. Includes over 50 custom scripts for a variety of interlocked game systems.
- **Untitled Minecraft Mod (Java)**, a mod for the Java-based game Minecraft with over 30 custom items and entities and a complex scripted progression. Built using Fabric, a mod development toolchain that exposes the Minecraft source code and simplifies interacting with it.