

## Joshua Tlatelpa-Agustin

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### EDUCATION

<b>MS Computer Science (Thesis)</b>	<b>GPA: 4.0/4.0</b>	<b>2025 - May 2026 (Expected)</b>
<i>The University of Utah</i>		<i>Salt Lake City, Utah</i>
<b>BS Computer Science</b>	<b>GPA: 3.28/4.0</b>	<b>2022 - 2024</b>
<i>The University of Utah</i>	<i>Final Year GPA: 3.96</i>	<i>Salt Lake City, Utah</i>
<b>Guest Student</b>	<b>GPA: 3.58/4.0</b>	<b>2021 - 2023</b>
<i>Salt Lake Community College</i>		<i>Salt Lake City, Utah</i>

**Graduate Coursework:** Adv. Compilers, Adv. Operating Systems, Interactive Computer Graphics, Computer Architecture (in-progress), Adv. Operating Systems II (in-progress)

**Undergrad Coursework:** Computer Architecture, Algorithms & Data Structures, Discrete Structures, Object Oriented Programming, Models of Computation, Probability & Statistics, Software Practice 1 & 2, Computer Systems, Compilers, OS, Database Systems, Computer Graphics, Visualization for Data Science, Algorithms

### SKILLS

- *Programming Languages:* C, C++, Rust, Python, Javascript, ASM (x86), Java, C#, R
- *Additional Skills:* Performance profiling, MySQL, Spanish (fluent)

### Publications

- Zhaofeng Li, Jerry Zhang, Joshua Tlatelpa-Agustin, Xiangdong Chen, and Anton Burtsev. Understanding the Security Impact of CHERI on the Operating System Kernel. *In Proceedings of the Annual Computer Security Applications Conference (ACSAC)*, December 2025.
- Jerry Zhang, Joshua Tlatelpa-Agustin, and Anton Burtsev. DRAMHiTv2: Towards the fastest hash table operating at the speed of DRAM. *Submitted to the European Conference on Computer Systems (EuroSys)*, April 2026. (Title modified for anonymity.)

### RESEARCH

<b>CHERI</b>	<i>Accepted</i>
<ul style="list-style-type: none"><li>• Study of 440 Linux and FreeBSD kernel vulnerabilities, showing CHERI can prevent 60% of vulnerabilities including most critical privilege escalations.</li></ul>	
<b>DRAMHiTv2</b>	<i>Submitted</i>
<ul style="list-style-type: none"><li>• A next-generation in-memory hash table that reaches hardware bandwidth limits and maximizes operational throughput through a multi-level prefetching scheme, a compute-memory-aware table layout, and a conflict-resolution strategy optimized for memory bandwidth utilization.</li></ul>	
<b>IPC</b>	<i>In-Progress</i>
<ul style="list-style-type: none"><li>• Investigating hardware support for low-overhead, fine-grained inter-process isolation.</li></ul>	

### PROJECTS

<b>JPL Compiler</b> (class solo project)
<ul style="list-style-type: none"><li>• Developed a compiler for the JPL programming language as part of a programming-intensive course. The project included a lexer, parser, type checker, simple optimizations, and assembly generation. Spec: <a href="https://github.com/utah-cs4470-sp23/class/blob/2023/spec.md">https://github.com/utah-cs4470-sp23/class/blob/2023/spec.md</a></li></ul>

- *Technologies:* C++ (~12,000 lines), x86-64 asm

#### **BF Compiler/Interpreter/Profiler** (class solo projects *[graduate level]*)

- Developed an interpreter and compiler for BF, a minimalist, Turing-complete esoteric language. The compiler includes optimization passes for loop elimination and utilizes vector instructions in assembly generation to accelerate memory seeking. Spec:

<https://www2.gvsu.edu/miljourn/bf.html>

- *Technologies:* C++, x86-64 asm, SIMD, LLVM

#### **Learning Management System** (class project, group of two)

- Implemented multi-phase project to develop a learning management system (LMS) resembling Canvas, involving designing a database, creating SQL tables, building a web server, and online deployment.

- *Technologies:* C#, MySQL

#### **xv6 OS Additions** (class solo projects)

- Expanded on xv6 (simple, Unix-like OS) which included adding custom system calls and implementing posix threads. With this came a lot of low level debugging and understanding of operating system principles and organization.

- *Technologies:* C

#### **OpenGL Project(s)** (class solo projects *[graduate level]*)

- Wrote various real-time interactive graphics applications each utilizing one of the following techniques: transformations, shading, textures, render buffers, environment mapping, shadow mapping, tessellation, and instancing.

- *Technologies:* C++, OpenGL, GLFW, GLEW

### **HONORS AND AWARDS**

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#### **Jerry Taylor Scholarship (Summer 2023)**

*This scholarship is designed to support second year students who have demonstrated course & character in response to a major challenge in life, or in pursuit of their education.*

- \$2,500 USD

#### **Dean's List (University of Utah)**

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|---------------|------------|------------|
| • Spring 2024 | GPA: 3.925 | 12 credits |
| • Fall 2023   | GPA: 4.00  | 12 credits |

#### **President's List (Salt Lake Community College)**

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|---------------|-----------|------------|
| • Summer 2021 | GPA: 3.91 | 14 credits |
|---------------|-----------|------------|

#### **Dean's List (Salt Lake Community College)**

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|---------------|-----------|------------|
| • Summer 2023 | GPA: 3.56 | 18 credits |
| • Fall 2021   | GPA: 3.60 | 16 credits |
| • Spring 2021 | GPA: 3.69 | 16 credits |

#### **Pride in Academics 2022 (Salt Lake Community College)**

*Pride in Academics recognizes underrepresented students who have completed thirty or more credit hours while maintaining a cumulative grade point average of 3.5 or higher.*

- GPA: 3.59