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EDUCATION

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

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

RESEARCH

Understanding the Security Impact of CHERI on the OS kernel *Accepted*

- Paper analyzing 440 Linux and FreeBSD kernel vulnerabilities, showing CHERI can prevent 60% of vulnerabilities including most critical privilege escalations.
- Accepted for publication at the Annual Computer Security Applications Conference (ACSAC) 2025.

DRAMBlast (high-performance hashtable) *Submitted*

- 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.
- Submitted for publication to the European Conference on Computer Systems (EuroSys) 2026.

IPC In-Progress

- Investigating new hardware primitives for efficient and secure inter-process isolation with minimal hardware and software overhead.
- Research conducted with the Mars Research Group. https://mars-research.github.io/

PROJECTS

JPL Compiler (class solo project)

- 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: https://github.com/utah-cs4470-sp23/class/blob/2023/spec.md
- *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/miljours/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

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)

A student who earns a grade point average (GPA) of 3.5 or higher in at least 12 graded hours during any one term (including summer) shall be placed on the Dean's List.

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

President's List (Salt Lake Community College)

Students on the President's List completed nine or more credit hours in one term with a grade point average of 3.8 to 4.0.

- Summer 2021 GPA: 3.91 14 credits

Dean's List (Salt Lake Community College)

Students on Dean's List completed nine or more credit hours in one semester with a grade point average of 3.5 to 3.79

- 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