

# JACOB CRANE

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## EDUCATION

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**Bachelor of Science in Computer Science**, University of Utah, GPA: 3.8 Expected 2026

Certificate in Computational Linguistics

Jorgensen Summa Engineering Scholarship (08/2022 - present), For Utah Scholarship (08/2021 - present)

## SKILLS

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**Programming Languages** C#, Python, Java, JavaScript, C++, C

**Technical Skills** .NET, Version Control (Git, Perforce), WebGL, Qt, SQL

## EXPERIENCE

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**Head Teaching Assistant for Data Structures and Algorithms** Aug 2023 - Present

Kahlert School of Computing *Salt Lake City, UT*

- Led multiple labs of 30 students demonstrating and explaining specific data structure and algorithm concepts.
- Hold office hours to help students with programming assignments, quizzes, and computer science concepts.
- Grade student assignments, quizzes, and exams.
- Organize grading partitions, assign help hour schedules to other TAs

**IT Computer Assistant Internship** April 2023 - Aug 2023

Red Butte Gardens *Salt Lake City, UT*

- Set up and supported concert/event systems, including computers, printers, barcode scanners, wireless wi-fi access points.
- Administered and supported IT systems, applications, and services.
- Administered and deployed devices, software updates, patches, scripts, and licenses.
- Documented IT systems configurations and procedures.

## PROJECTS

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**Tune Timeline – Educational Music History Application - Qt - C++**

- Led a team of 6 to develop an interactive music history application, managing project planning and task delegation via Github projects for efficient sprint cycles.
- Converted MIDI files into 8-bit NES-style tracks and integrated audio playback for user-selected artists.
- Built custom decade-selection menus and dynamic artist info displays with Qt UI.
- Implemented animated, interactive Box2D physics notes in the main menu.

**Full Stack Spreadsheet Application - MAUI - C#**

- Implemented a spreadsheet engine supporting mathematical formulas with operators (+, -, \*, /) and variable references resolved via a custom lookup interface.
- Engineered a cell dependency graph for efficient, dynamic recalculation.
- Developed modular formula parsing and evaluation, supporting numeric, string, and formula cells.
- Supported persistent storage and evaluation for double, string, and formula cell types in an object-oriented framework.
- Refactored and extended the evaluator system for GUI integration.