Matthew Staton

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OBJECTIVE

Undergraduate student looking for an internship position.

EDUCATION

Bachelor of Science in Computer Science, Minor in Mathematics GPA: 3.758/4.0 May-2026

- **Relevant Coursework:** Program Design & Concepts (CSCE 120), Intro to Computing (CSCE 181), Discrete Structural Computing (CSCE 222), Data Structures & Algorithms (CSCE 221), Computer Organization (CSCE 312), Programming Languages (CSCE 314), Principles of Statistics I (STAT 211)

PROJECT WORK

Dungeon Crawlers Game *C++* October 2023

- Developed a retro dungeon crawler game prototype with a focus on dynamic memory management.
- Implemented 2D dynamic arrays for dungeon maps, enabling efficient storage and resizing.
- Devised algorithms to handle player movements, treasure collection, and monster interactions within the dungeon.
- Ensured memory safety by preventing memory leaks by carefully allocating and deallocating dynamic arrays.
- Utilized pass-by-reference techniques to optimize function performance and maintain code efficiency.

Tetris Style Game *Ruby* April 2024

- Enhanced a classic Tetris game by implementing new features such as a 180-degree rotation and additional piece types, improving gameplay dynamics and variety.
- Developed and tested Ruby code to integrate enhancements, including a cheat feature that modifies gameplay based on player score.
- Applied object-oriented programming principles by subclassing existing code without modifying provided classes, ensuring seamless integration and functionality.

MUPL Interpreter and Language Extension *Dr Racket* March 2024 – April 2024

- Implemented a MUPL (made up programming language) interpreter in Racket, handling various MUPL expressions including variables, constants, function calls, and conditionals, ensuring accurate evaluation of expressions under different environments.
- Developed Racket functions to extend the mupl language, including `ifmunit`, `mlet*`, and `ifeq`, enhancing the language's capability to handle more complex scenarios and macros.
- Created Racket functions `mupl-filter` and `mupl-all-gt` for mupl, allowing functional-style operations such as filtering and comparison on mupl lists.
- Ensured adherence to functional programming principles by avoiding mutation and directly implementing mupl constructs using provided Racket functions and structures.

CPPeers Social Media Platform *C++* November 2023

- Designed and implemented a social media platform, CPPeers, using object-oriented programming principles in C++. The platform includes functionalities for managing users, posts, hashtags, and interactions.
- Developed four key classes: `Post`, `User`, `Tag`, and `Network`, with a focus on encapsulation, dynamic memory management, and exception handling.
- Facilitated file I/O operations for loading and saving user and post data, and provided interactive menu options for user-driven operations such as displaying posts and popular hashtags.

Advanced Data Structures and Algorithms *C++* January 2024 – May 2024

- Gained extensive experience in implementing and optimizing a variety of sorting algorithms, including merge sort and quick sort, to efficiently handle and organize data.
- Developed and utilized key data structures such as hashmaps, binary trees, and linked lists to manage and manipulate data effectively.
- Focused on improving algorithmic performance and memory efficiency through rigorous testing and optimization techniques.
- Implemented these data structures personally and gained an in-depth understanding of their runtimes and performance characteristics.

TECHNICAL SKILLS

Languages: C++, Ruby, Python, Racket, OCaml, Latex, CSS, HTML
Developer Tools: VS Code, GitHub