# William Hager

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## Education

University of Rochester                                                                                                        Rochester, NY
- B.S. in Computer Science, anticipated Spring 2028
- GPA: 3.96/4.00
- Dean's Scholarship, All Semesters
- Coursework: Data Structures and Algorithms, Formal Models of Computing, Discrete Mathematics, Calculus II

## Projects

Runesworn                                                                                                         Spring/Summer 2025
- Designed and developed a **dice-rolling RPG video game** with Godot engine and GDScript (**Python**), using over 2500 lines of code to implement turn based combat and character building
- Created **database and data management system** to efficiently store and retrieve game and player data, including 12 unique encounters and 3 playable characters, as well as 12 unique dice
- Established and balanced core game mechanics with a small-scale playtesting group in order to ensure balanced and enjoyable gameplay
- Managed game lifecycle with expected beta release in December 2025

Street Mapper                                                                                                                    Fall 2024
- Wrote over 880 lines of **Java** code to implement a street mapper that took coordinates inputs and generated a map using a **self-implemented graph data structure**
- Displayed information in a Java Swing UI
- Implemented **Dijkstra's Shortest Path algorithm** to simulate a navigation software experience

Nondeterministic Automaton Simulator and Converter                                                                 Spring 2024
- Developed over 870 lines of **C** code to create a simulated Nondeterministic Finite Automaton (NFA) and conversion algorithm to a Deterministic Finite Automaton (DFA) using subset construction
- Included custom NFA and DFA frameworks that can be used via header files for substring and binary character matching

## Job Experience

Lifeguard, Riverton Community Pool                                                                     Rochester NY | Summer 2025
- Ensured pool patron safety through **clear communication** of pool rules as well as in-water rescues
- Managed pool area and upkeep of pool facilities
- Tracked and adjusted pool chemical levels

Swimming Instructor, Rush Henrietta Central School District                           Rochester NY | Winter 2021 - Winter 2023
- Taught American Red Cross Learn to Swim courses from levels 1-6, as well as baby/toddler courses and adult swimmers
- Worked with children and parents to ensure students understood proper pool safety

## Skills

**Programming Languages:** Java, C, Python, GDScript, HTML
**Frameworks:** Java Swing, Java AWT, JavaFX, LibGDX
**Technical Skills:** Object-Oriented Programming, Linux/Unix, Visual Studio Code, Valgrind, Front End Web Development

## Volunteer Work

Scouts BSA Eagle Scout Project                                                                                               Fall 2022
- Completed full design, planning, and construction of standing gardens and roof overhang at local senior center
- Logged over 120 hours of volunteering between myself and all workers led