

# Jacob Barrett

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## Education

2020-2023 (Current)

**Stony Brook University**      GPA: **3.85**  
B.S. in Computer Science      Expected Graduation: May 2023

2019-2020

**SUNY New Paltz**

## Skills

Experienced in C, Python, Java, Javascript (React, Node.js), OCaml, and MIPS Assembly. Familiar with SQL, MongoDB, and R. Most Interested in lower-level programming, optimization, and C.

Proficient in Microsoft Office (Word, Powerpoint, Excel), Google Suite (Docs, Slides, Sheets, Calendar, Drive)

Operating Systems: Windows, MacOS, Linux

## School Projects and Experience

Spring 2022

### Compiler Design - Decaf Compiler

Developed a compiler that takes a program written in Decaf, a language modeled after Java, and compiles it to abstract machine code. Written in Python over the course of the semester.

Fall 2021 / Fall 2022

### Systems Fundamentals I & II

Programmed multiple non trivial assembly and C programs. Learned about CPU architecture, digital logic, memory organization, floating point representation, operating systems, memory management, and multithreading.

### Other Classes

Software Engineering, Operating Systems, Machine Learning, Software Development, Computer Networks, Analysis of Algorithms, Programming Abstractions, Data Structures

## Personal Projects

### 2D Platforming Game

Developed an original 2D platforming game written in GML, a scripting language similar to javascript, over the course of several months. Required reading large amounts of documentation and writing several thousand lines of code.

### Small Projects

Created an automatic header file generator in C, Memory Allocator in C, Mancala and Mancala playing bots in python, and a trading card game probability calculator in Java.

## Relevant Interests

Interested and proficient in programming/optimization games (SHENZHEN I/O, TIS-100, Opus Magnum). Enjoys videos about shader programming, game console programming and other hardware, and mathematics. Curious about the world both technically and otherwise. Interested in understanding how hardware works and how to write performant software utilizing it.