Gavin McKay

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EDUCATION

North Carolina State University
Raleigh, NC
B.S. *in Computer Science | Philosophy Minor* **Expected Graduation December 2026**
Relevant Coursework: Software Fundamentals and Lab, Discrete Math, C and Software Tools, Data Structures & Algorithms, Automata & Languages

ACADEMIC EXPERIENCE

Compressed File Archiver (Snark) – *C and Software Tools*

- Developed a C-based command-line program to create and extract files from a custom-format compressed archive, similar to **tar** or **zip**.
- Implemented file compression logic to reduce archive size and managed all file I/O operations.

Assistive Gaze Communication – *Neurotech at NCSU*

- As lead SWE of *Neurotech at NCSU*, I'm developing a grid-based, switch-accessible AAC application for non-verbal children with severe motor impairments
- Implementing an eye tracker for using grid-based app and for playing semi-complex turn-based games

User Activity Log – *Data Structures & Algorithms*

- Developed a Java-based log management system with a partner, implementing a Map ADT and array-based list for efficient log storage.
- Applied quicksort and bubble sort to generate sorted reports.
- Utilized Singleton and Strategy design patterns for centralized management and flexible sorting logic.

Backlog Manager – *Software Fundamentals*

- Created a Java-based backlog management system to track products with assigned tasks and owners.
- Implemented exception handling.

Pack Scheduler – *Software Fundamentals Lab*

- Collaborated with a team of programmers to build a Java-based course registration system for students.
- Developed JUnit tests with the team for integration testing and passed all staff regression testing.

PERSONAL PROJECTS

CageIntel – AI-powered UFC analytics application **2025-Present**

- Built a Python scraper using BeautifulSoup & Requests to create a comprehensive dataset of UFC fight stats, including detailed round-by-round data from ufcstats.com.
- Trained a PyTorch model on the collected data to forecast winners.
- Containerizing the full-stack application using Docker to ensure consistent, isolated environments and enable streamlined CI/CD pipeline deployment.

Password Manager – Python-based password storage application **2022-2023**

- Created a Python-based password database application using SQL for storage and Python for the full tech stack.
- Engineered the application to store passwords locally via a hidden folder, encrypted using the SHA-256 algorithm, and accessed via a master password.
- Implemented a secure password generator for enhanced security.

Space Invaders – Pygame 64-bit top-down scroller game **2021-2022**

- Developed a 32-bit game in Python using the Pygame library, reminiscent of Space Invaders.
- Implemented core game mechanics including different levels, a point system, and an object-oriented death system.
- Enabled game stats from previous sessions to be saved to a document and accessed at launch.

SKILLS

Tools: Git/GitHub, Docker, Oracle DB, MATLAB, MySQL, TensorFlow, PyTorch, Tkinter, pygame, Flask, Tailwind CSS, Selenium, BeautifulSoup, Linux (Ubuntu, Arch, Kali, Debian, CentOS & Fedora (Red hat distro))

Languages: Python, Java, Javascript, Typescript, C, C#, Bash, SQL, HTML5, CSS3

Frameworks: React Native, Node.js ,Yarn, Django, FastAPI, .NET