Malcolm Kaplan

malcolmkaplan7@gmail.com | linkedin.com/in/malcolm-kaplan/ | mkaplan6.github.io

EDUCATION

University of Illinois at Urbana-Champaign Champaign, IL
Bachelor of Science in Computer Science and Anthropology – 3.98 GPA *August 2021 – May 2025*
- **Honors:** Dean's List; Phi Beta Kappa; James Scholar; Phi Eta Sigma National Honor Society, Alpha Chapter
- **Relevant coursework:** Data Structures, Algorithms, Machine Learning, Operating Systems, Distributed Systems, Database Systems, Networks, Computer Architecture, Data Science, Statistics and Probability, Linear Algebra
- **Activities:** Association of Computing Machinery (ACM), Treasurer of Illini Classics Club

EXPERIENCE

Junior Full-Stack Software Developer June 2025 – Present
AvTech Corp. *Des Plaines, IL*
- Design, maintain, improve, and test production-grade full-stack applications for the aviation industry, with a focus on efficient and user-friendly workflow management tools
- Develop web applications in Typescript, backend services in C#, and Android applications in Java
- Travel to assist in deploying applications and services in airports across the globe, working tirelessly to ensure a smooth and effective operation

Software Engineering Intern Summer 2022, Summer 2023, Summer 2024
AvTech Corp. *Des Plaines, IL*
- Developed novel full-stack solutions across the aviation industry, including the following:
  * An interactive map web console in TypeScript to display real-time locations of buses as well as a backend service in C# to parse location information from a database and calculate estimated arrival times
  * An app in Python, MicroPython, Java, and JavaScript to efficiently and securely communicate with proximity beacons via LoRaWAN technology, allowing for remote access and modification of transmitted data
  * A VBA program to algorithmically assign van drivers to service flights given a set of constraints, including shift times and weight capacities, saving hours of manual work for airport staff each day
  * A server in Python for parsing and storing ADS-B data containing the locations of nearby planes obtained from a Raspberry Pi, as well as a JavaScript web application to display the planes on a map in real-time

Undergraduate Course Assistant January 2023 – May 2023, January 2024 – May 2024
University of Illinois at Urbana-Champaign *Champaign, IL*
- Held office hours to guide students through CPU design and optimization projects in C, C++, Assembly, and Verilog
- Taught students topics in computer optimization, including pipelining, caching, parallelism, and virtual memory
- Taught students fundamental computer science topics including algorithm analysis, boolean algebra, and recursion

PROJECTS

Linux-Like Kernel | *C, x86 Assembly, GDB, GitLab* March 2024 – April 2024
- Led 4 engineers to develop a Linux-like monolithic operating system, consisting of over 13,000 lines of code
- Engineered infrastructure for running and switching between multiple processes seamlessly, including scheduling, system calls, and interrupt handling
- Implemented features to ensure security and speed, including virtualized memory and file system abstractions
- Developed comprehensive device drivers for keyboard, terminal, real-time clock, and timer

Distributed Stream Processing Framework | *Golang, Bash, GitLab* August 2024 – December 2024
- Developed a fault-tolerant, parallel stream processing framework from scratch, consisting of over 4,600 lines of code
- Engineered a fault-tolerant distributed file system for safely and efficiently storing input and output data
- Included support for arbitrary and customizable operations on the input data
- Implemented the SWIM protocol for efficient and complete failure detection among nodes in the cluster

Point-and-Click Survival Horror Game | *C#, Godot* January 2025 – May 2025
- Developed a point-and-click survival horror game from scratch consisting of around 10,000 lines of code
- Implemented scripts to support complex enemy movement patterns and behavior

Primate Guessing Game | *TypeScript, HTML, CSS, GitHub* October 2024 – December 2024
- Developed an educational game that challenges users to identify primates based on traits and hints from prior guesses
- Built robust algorithms, including a dynamic programming-based autocorrect system, to efficiently validate user input, correct errors, and generate tailored hints, enhancing both learning reinforcement and user experience

SKILLS

Languages: C, C++, Python, Java, Go, JavaScript/TypeScript, CSS, HTML, SQL, Assembly, VBA, C#, Verilog, Haskell
Tools, Frameworks, and Libraries: Git, GitHub, GitLab, Azure DevOps, GDB, Bash, PowerShell/Command Prompt, Docker, NumPy, SciPy, Pandas, scikit-learn, React, jQuery, Node.js, Make, XML, SQlite, Entity Framework
Multimedia Software: Photoshop and Sony Vegas, creating projects amassing over 1,000,000 total views on YouTube