Steven Gu

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Education

M.S. Computer Science — *Northwestern University* *Expected* MAR 2025
B.A. Computer Science — *Northwestern University* *Expected* JUN 2024
GPA — 3.8/4.0

Coursework — *Computer Game Design (C#), Computer Networking, Data Structures & Algorithms, Scalable Software Architectures (AWS), Human Computer Interaction*

Skills

Languages	Python, SQL, C#, C++, C, JavaScript, AWS, Bash, Node, React, HTML/CSS, Unity, R
Communication	English, Chinese

Technical Experience

Campus Kitchen Management System — Full-Stack **APR 2023 — Present**

- Developing a full-stack web application using React frontend and Node.js/Express backend to manage food inventory, shift records, and user records for Northwestern University's Campus Kitchen.
- Deployed scalable backend infrastructure to AWS, using S3, RDS, and IAM services to support data storage, processing, and user access permissions.
- Led research and design sprints to gather user feedback on prototypes, resulting in clearer understandings of user needs and improved user-centered UI/UX designs.

Network Scanner — Python **MAR 2023**

- Wrote a Python tool to perform comprehensive network and security assessments of website domains.
- Utilized the subprocess module to extract key network information, including TLS versions, root CA's, and rDNS names, using command-line arguments within the script.
- Automated the data collection process to generate detailed reports on the network characteristics and security features and capabilities of each domain with minimal user input.

Low-Level Computer Systems — x86-64, Linux, C **SEP 2022 - DEC 2022**

- Analyzed algorithms written in low-level x86-64 instructions of a "binary bomb" executable with GDB to find the hidden keywords required to "defuse" it.
- Exploited a buffer overflow bug to modify the runtime behavior of a binary executable.
- Used parallel programming and compiler optimization flags to optimize a C program's runtime by ∼500%.

Game Design — C#, Unity **SEP 2022 — DEC 2022**

- Developed 3 complete 2D and 3D games (Billiards, a Bullet Hell sim, and a Target Practice game) using Unity (C#) in a span of 3 weeks.

Research Experience

Bioinformatics Intern — Hartmann Lab **JUN 2021 — MAR 2022**

- Wrote a Bash/Python data pipeline that automated the processing, quality controlling, and reformatting of 100 GB of DNA text files into usable data. Researched literature to select the appropriate modules to use.
- Post-processed data into graphical representations with R and presented the big-picture findings to peers.

Awards & Activities

Northwestern University Summer Internship Grant Program, *1/339 recipients* JUN 2022, JUN 2023
Dean's List — Northwestern University, *5 academic sessions* SEP 2020—Present
Chicago Botanical Garden — Plant Research Volunteer APR 2022 — MAY 2022