# Garrett Gu

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## EDUCATION

08/2018 –
12/2023

**B.S./M.S. Computer Science (Honors), B.S. Mathematics,** *University of Texas at Austin*
- **GPA**: 3.99, member of Turing Scholars Honors Program
- **TA**: Computer Security, Honors OS (x2), Honors Computer Architecture
- **Graduate coursework**: Advanced Cryptography, Cryptography, Reinforcement Learning, Advanced OS, Systems Verification, Automated Logical Reasoning, Computer Security
- **Undergraduate coursework**: Ethical Hacking, Virtualization, Honors AI, Computer Networks, Topology, Abstract Algebra, Number Theory

## PROFESSIONAL EXPERIENCE

05/2022 –
08/2022

**Software Engineer Intern,** *Plaid, Data Security*
- Automated AuthN/AuthZ certificate rotation in **AWS** using a **Kubernetes** cron job written in **Go**, allowing for a reduction in certificate validity period by **50%**
- Using **Go**, implemented performant, secure cryptographic signing support within a centralized cryptography service, with support for **Go**, **Python**, and **Node.js** clients
- Designed and derisked migration plan to facilitate future key rotation and revocation plans
- Investigated communication between microservices in a **Kubernetes** cluster and proposed ideas to tighten security

05/2021 –
08/2021

**Security Engineer Intern,** *Praetorian Security*
- Proposed and prototyped **GoKart**, a new open-source **Go** static application security testing (**SAST**) tool designed for vastly reduced false-positive occurrence (**2,000+** stars on GitHub)
- Conducted in-depth security audits and assessments on several Fortune-500 companies

05/2020 –
08/2020

**Software Engineer Intern,** *Microsoft, M365 Core Security*
- Trained an **ML recommendations system** for data-center access control with **scikit-learn**
- Final **C#** implementation achieved **93% accuracy** benefiting **98%** of >1000 test users, saving an estimated **200 hours** of engineer time per year while improving security

05/2019 –
08/2019

**Software Engineer Intern,** *The BHW Group*
- Developed **Go/React Native** applications for medical information and school alerts

## PROJECTS

06/2021 –
present

**Ghidra-Wasm,** *Open-Source Reverse-Engineering for WebAssembly*
- Developed the first fully-featured WebAssembly plugin for **Ghidra**, a reverse-engineering framework maintained by the NSA, enabling full disassembly and decompilation
- Collaborated with other contributors **remotely** for inclusion into Ghidra's main feature set

04/2019 –
06/2019

**OOPBoy,** *Game Boy Emulator*
- Built a state-of-the-art, fully-featured Nintendo Game Boy emulator in Java
- Surpassed official Nintendo emulator in several CPU accuracy benchmarks

## LEADERSHIP

12/2018 –
present

**UT Information and Systems Security Society,** *Co-President*
- Created dozens of cybersecurity challenges for events with **>100** contestants on average
- Prepared and presented write-ups and talks over security techniques and best practices
- Authored novel challenges for a CTF attracting **>5,000** unique competitors from **>60** countries

## SKILLS AND AWARDS

**Languages**
*JavaScript, TypeScript, C, C++, SQL, Java, C#, Rust, bash, Python, WebAssembly, LaTeX, Verilog, Go, OCaml*

**Tools**
*React, React Native, gdb, git, docker, Ghidra*

**Competitions**
*1st Place CCDC SW Regional 2021*
*USACO Platinum Qualifier*
*2nd Place BSidesSF CTF 2022*
*1st Place TAMUHack CTF 2022*
*1st Place SunshineCTF 2019*