

Garrett Gu

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EDUCATION

- 08/2018 – 05/2023 **B.S./M.S., Computer Science (Honors), B.S. Mathematics, University of Texas at Austin**
- **GPA:** 4.0, member of Turing Scholars Honors Program
 - **TA:** Honors Operating Systems, Honors Computer Architecture
 - **Graduate coursework:** Cryptography, Automated Logical Reasoning, Systems Verification and Synthesis, Advanced Operating Systems, Computer Security
 - **Undergraduate coursework:** Ethical Hacking, Virtualization, Honors Artificial Intelligence, Computer Networks, Algorithms, Honors Computer Architecture, Honors Data Structures

PROFESSIONAL EXPERIENCE

- 05/2021 – 08/2021 **Security Engineer Intern, Praetorian Security**
- Proposed and prototyped **GoKart**, a new open-source static application security testing (**SAST**) tool with vastly reduced false-positive occurrence (**1500+** GitHub stars)
 - Conducted in-depth security assessments on several Fortune-500 companies, performing exploit development and client communication
- 05/2020 – 08/2020 **Security Engineer Intern, Microsoft, M365 Core Security**
- Implemented an end-to-end **recommendations system** for data-center access control
 - Performed feature selection and model evaluation using **scikit-learn** and **MS SQL**
 - 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, contributing thoughtful code reviews, database schemas, and a new performant document storage format

PROJECTS

- 06/2021 – present **Ghidra-Wasm, Open-Source Reverse-Engineering for WebAssembly**
- Developed first fully-featured WebAssembly plugin for **Ghidra**, a reverse-engineering framework provided by the NSA, enabling full disassembly and decompilation
- 09/2020 – present **Constant-Time WebAssembly, Advised by Dr. Hovav Shacham**
- Modified existing **Rust WebAssembly JIT** compiler and runtime to accept code in a secure superset of Wasm and implemented static data-flow analysis in **Ghidra** to formally verify security of resulting ARM machine code
 - Devised and successfully presented new constant-time extension proposal to WebAssembly **Specification Group** for voting
- 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

ORGANIZATIONS

- 12/2018 – present **UT Information and Systems Security Society, Director of Engineering**
- Created hundreds of cybersecurity challenges for events with >**100** contestants on average
 - Prepared and presented writeups and talks over security techniques and best practices
 - Authored several novel challenges for an international CTF attracting >**5,000** unique competitors from >**60** countries

SKILLS AND AWARDS

Languages

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

Tetris

Top 0.07% player on Tetris Effect Zone Battle

Tools

React, React Native, Express, gdb, git, docker, Ghidra

Competitions

USA Computing Olympiad (USACO) Platinum Qualifier
First Place CCDC Southwest Regional 2021