Garrett Gu

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EDUCATION

University of Texas at Austin *2021*
B.S. in Computer Science (Honors)
GPA: **4.0**

– Member of **Turing Scholars** Computer Science Honors Program
– Current Coursework: **Graduate Security**, Artificial Intelligence, **Computer Networks**
– Past Coursework: **Operating Systems**, Computer Architecture, **Data Structures**, Competitive Programming

SKILLS

Languages
– Fluent in JavaScript, C, Go, PostgreSQL, and Java
– Familiar with bash, Python, C++, PHP, and Octave

Frameworks
– React, React Native, Express, Meteor, React 360, Qt, Java Swing

Competitive Programming
– USA Computing Olympiad (**USACO**) Platinum Qualifier
– Won >6 UT-wide and regional programming and Capture-the-Flag competitions
– HackerRank Gold Problem Solving badge

EXPERIENCE

University of Texas at Austin — 2020 - Present
Teaching Assistant, Operating Systems — **C, C++, x86 Assembly**
– Taught and reviewed course material in weekly lectures
– In a team of four, graded weekly programming assignments
– Hosted weekly office hours to guide students in debugging operating systems implementations

The BHW Group — 2019
Software Engineering Intern — **JavaScript, Go**
– In a team of four, developed a cross-platform **React Native** app for a client in the medical industry
– In the same team, developed a large-scale school alerts system using **React Native**, **Go**, and **PostgreSQL**
– Provided detailed, communicative **code reviews** to maintain code quality

UT Information and Systems Security Society — 2018 - Present
Engineering Officer
– Created Capture-the-Flag cybersecurity challenges for biweekly competitions for >**100** contestants on average
– Prepared and presented talks over security techniques and best practices, including **CSRF**, **XSS**, **injection**, and **digital forensics**
– Co-organized and authored several innovative challenges for **UTCTF**, an online cybersecurity competition with >**5,000** unique competitors from >**60** countries

PROJECTS

OOPBoy — 2019
Game Boy Color™ Emulator — **Java**, **Z80 Assembly**
– In a team of two, built a cycle-accurate Nintendo **Game Boy™** emulator
– Developed, tested, and debugged stereo sound chip, cartridge, timing module, MMU, and CPU sections from scratch
– Created a Game Boy™ debugger with breakpoints, core dumps, instruction history, and memory access
– Emulator plays dozens of games, including **Zelda**, **Mario**, **Tetris**, **Pokemon**, **Pac-Man** and **Kirby** with color, save state, and rewind support
– Emulator surpasses Nintendo 3DS Virtual Console in accuracy benchmarks
– Full source code available on GitHub: github.com/429ers/OOPBoy

Forward Tutoring — 2017 - 2018
501(c)3 non-profit for online tutoring — **JavaScript**
– Built from scratch an online tutoring system using **Meteor** and **React**, leading to a >**140% increase** in user registrations
– Coordinated the algorithmic selection and scheduling of tutors, allowing a >**50% increase** in availability and a >**290% increase** in tutor engagement