

EDUCATION

University of Texas at Austin 2022
B.S. in Computer Science (Honors)
B.S. in Mathematics
GPA: 4.0

- Member of **Turing Scholars** CS Honors Program
- Current coursework: **Ethical hacking, Graduate OS, Virtualization**
- Completed coursework: **Graduate Security, Operating Systems, Artificial Intelligence, Computer Networks, Computer Architecture, Data Structures**

SKILLS

Languages

- JavaScript, TypeScript, C, SQL, C#, Java, bash, Python, C++, Go, PHP

Frameworks

- React, React Native, Express, Meteor, React 360, Qt, Java Swing

Competitive Programming

- USA Computing Olympiad (**USACO**)
Platinum Qualifier

Tetris

- Top 90 Puyo Puyo Tetris players in Texas
- 46s 40-line sprint
- 45 average APM
- Founded UT Tetris Society

EXPERIENCE

Microsoft 365 Core Security 2020
Software Engineer Intern **C#, SQL, Python, TypeScript, React**

- Used **machine learning** to develop an end-to-end recommendations system for datacenter access control permissions
- Performed feature selection and model evaluation on a large-scale dataset using **scikit-learn** and **MS SQL**
- Achieved **93% accuracy** with **98% user satisfaction** out of **>1000 test users**, saving at least **200 hours** of engineer time per year

University of Texas at Austin 2020
Teaching Assistant, Operating Systems **C, C++, x86 Assembly**

- Hosted weekly office hours to guide students in debugging **operating systems** implementations and discovering **race conditions** using **gdb**
- Taught and reviewed course material in weekly lectures

UT Information and Systems Security Society 2018 - Present
Engineering Officer

- Created Capture-the-Flag cybersecurity challenges using C, C++, JavaScript, and assembly for biweekly competitions with **>100** contestants on average
- Prepared and presented talks over security techniques and best practices, including **CSRF, XSS, injection, and digital forensics**
- Authored several innovative challenges for **UTCTF**, an online cybersecurity competition with **>5,000** unique competitors from **>60** countries

PROJECTS

RISC-V Return-Oriented Programming 2020
Research Project **C, RV64GC Assembly**

- Modified existing open-source tools to discover ROP gadgets under **RISC-V**
- First demonstration of arbitrary memory reads/writes, arithmetic, **function calls with arguments**, and **conditional branching** using gadgets found in RISC-V glibc and a novel **self-modifying ROP** technique
- Developed a PoC compiler from a simple Turing-complete language to RISC-V ROP in order to prove Turing completeness

OOPBoy 2019
Game Boy Color™ Emulator **Java, LR35902 Assembly**

- Built a cycle-accurate Nintendo **Game Boy™** emulator with a teammate
- Emulator plays **dozens** of games, including **Zelda, Mario, Tetris, Pokemon, Pac-Man** and **Kirby** with sound, color, save states, and rewind
- Emulator surpasses Nintendo 3DS Virtual Console in accuracy benchmarks

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