

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
- **TA:** Operating Systems
- **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

Frameworks

- React, React Native, Express, Meteor, Flask

Competitive Programming

- USA Computing Olympiad (USACO) Platinum Qualifier

Tetris

- Top 150 player in the US on tetr.io
- Founder of UT Tetris Society, one of the largest organizations of its kind

EXPERIENCE

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

- Used **machine learning** to develop an end-to-end recommendations system for **M365 Core** 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

The BHW Group 2019
Software Engineer Intern **JavaScript, Go, Postgres**

- Developed a large-scale school alerts system using **React Native** and **Go** on a team of five, proposing thoughtful API and relational database specifications
- Provided detailed and helpful **code reviews**, greatly improving codebase quality

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 on a team of two
- Emulator plays **dozens of games**, including **Zelda, Mario, Tetris, Pokemon, Pac-Man** and **Kirby** with **sound, color, save states**, and **rewind**
- Emulator surpasses official Nintendo emulator 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