Joseph Ryan

919 924 4887 • JosephRyan@utexas.edu • JosephRyan.me
P1n3appl3

Education

The University of Texas at Austin - Cockrell School of Engineering **Austin TX**
BS in Electrical and Computer Engineering - GPA: 3.4 *May 2021*

Experience

Vectra AI - Software Engineering Intern *Summer 2018*

- Developed an extensible automation framework to run security and compliance scanners
- Wrote a Jenkins pipeline to apply this tool to the company's nightly builds
- Designed and implemented a tool for managing virtual machines which simplified developer workflow and improved automated testing and builds

STEM Summer Camp - Teacher and Counselor *Summer 2016 & 2017*

- Mentored elementary through high school students during week-long classes
- Taught several subjects including microcontrollers, robotics, programming fundamentals, and basic digital circuits
- Revised existing course material and wrote curricula for two new courses

FIRST Robotics - Team Lead/Head Programmer *Fall 2015–Spring 2017*

- Directed 10 developers on multiple software projects
- Managed long-term projects as an elected board member
- Adopted version control, continuous integration, and unit testing best practices

Projects

The Elements of Computing Systems **HDL, ASM, Jack, Python**

- Audited a course on computer architecture and compiler fundamentals
- Built a CPU simulator, compiler, VM translator, and assembler for a minimal architecture
- Extended the above tools beyond the scope of the course by adding new language features

Unbiased Path Tracing 3D Renderer **Rust**

- Implemented non-trivial features like UV texture mapping, 3D model loading, and HDR support
- Performed extensive profile directed optimization including algorithmic improvements, multi-core parallelization, and SIMD acceleration of floating point vector operations

Pineapple Pad **C++, ARM Assembly**

- Designed and developed a microcontroller based video game with a partner
- Voted "Best Design" in embedded systems class-wide competition

PacBot **C++, Python**

- Worked with a team to design an autonomous, omnidirectional robot with size and budget constraints
- Wrote custom drivers for precision encoders and distance sensors to accurately track the robot's position

Technical Skills

Programming Languages: Proficient in Rust, Python, C, and C++
Familiar with Bash, ARM Assembly, Java, and Ruby

Other: Proficient in Linux, Git, Jenkins, and Docker
Familiar with Make, Protobuf, ROS, and LaTeX