

# Joseph Ryan

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in Joseph-B-Ryan • 🔄 P1n3appl3

## Education

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**The University of Texas at Austin - Cockrell School of Engineering**  
*BS in Electrical and Computer Engineering*

**Austin TX**  
*May 2021*

## Experience

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### FIRST Robotics - Team Lead/Head Programmer

*August 2015–June 2017*

- Directed 10 developers on multiple software projects
- Managed long term projects as an elected board member
- Used version control, continuous integration, and unit testing with multiple languages
- Integrated libraries such as OpenCV for autonomous vision tracking

### STEM Summer Camp - Teacher and Counselor

*July 2016–August 2017*

- Mentored elementary and middle school students during week long courses
- Taught basic circuitry, microcontroller programming (Arduino-C++), Android app development (Android Studio-Java), robotics (C++), and object oriented programming (Python)

## Projects

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### Genetically Evolving Neural Network

**C++, Python**

- Implemented a machine learning solution for real time, continuous, controllers
- Used a blend of neural networks and genetic algorithms for competitive training

### The Elements of Computing Systems

**HDL, ASM, Jack, Python**

- Completed online course on computer architecture, assembly, and compilers
- Finished projects including a CPU simulated in HDL, an operating system, a compiler, a virtual machine translator, and an assembler

### Handwritten Character Recognition

**Python**

- Wrote a machine learning digit classifier using a weighted kNN algorithm
- Increased accuracy of recognition on testing data to 98% while maintaining high performance

### ACE FRC Robot

**Java, Python, WPILib**

- Met project deadlines in a 3 month testing and development cycle for international competition
- Developed successful algorithms for autonomous control of an omnidirectional robot using ultrasonic sensors and image recognition
- Created and conformed to a strict style guide and development strategy to maintain a unit tested and understandable code base with multiple programmers

## Technical Skills

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**Programming Languages:** Proficient in Python, C++, and Java

**Other:** Proficient in Git, Markdown, JUnit, and Arduino

Familiar with OpenCV, CMake, Gradle, Linux, and  $\text{\LaTeX}$