

Matthew Yu

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Education

The University of Texas at Austin

May 2021

B.S. IN ELECTRICAL AND COMPUTER ENGINEERING

- Cumulative GPA: 3.34
- Coursework: Intro to Embedded Systems, Software Design and Implementation I, Circuit Theory, Dev. of a Solar Powered Vehicle, Digital Logic Design, Computer Architecture, Software Design and Implementation II

Projects

Image Generation - C++

January 2019 - Present

- Built an application using OpenFrameworks that creates art based on Markov Chains generated from image sets.
- Developed a median cut algorithm implementation for color quantization.
- Optimized program structures and processes for efficiency improvements of over 90% in runtime.

Generative Art - C++, Javascript, HTML, CSS dimembermatt.github.io/Generative_Art

Summer 2018 - Present

- Created a series of programs that create generative art based on rules or natural phenomenon using P5JS and OpenFrameworks.
- Document thought processes and results as part of an effort to better communicate code and algorithms to people.

Audio Visualizer - Javascript, HTML, CSS dimembermatt.github.io/Web-Audio-Visualizer

Summer 2018

- Co-programmed an audio visualizer that uses P5JS and WebAudio API to load MP3s and depict various visuals based off the rhythm.
- Created the initial design, as well as designed the working prototype of the visualizer using a particle system.

Intro to Embedded Systems Final Project - C, Python

May 2018 - Present

- Led the firmware system design and circuit implementation of an embedded system game controller using the TI TM4C microcontroller.
- Programmed a game implementing the battling features of Pokémon against a CPU.
- Rework an idea using Python and OpenCV to transcribe sheet music into a decodable file format that plays on MusicBox, a program that plays tunes from the game controller.

How Things Work Pet Feeder Project - Arduino, SOLIDWORKS

May 2018

- Led the programming of the Arduino UNO microcontroller and the electronic component interfacing.
- Used SOLIDWORKS to create the initial pet feeder design and contributed to the iterative design process.

Degree Planner and Audit Program - C

January 2018

- Created a program that allows the user to read and populate text files with official coursework and planned coursework as well as check the GPA and rate of progress to diploma. Users can add, remove, and edit courses.

Extracurricular Activities

Longhorn Racing - UT Solar Vehicle Team

Fall 2018 - Present

MEMBER, SOLAR ARRAY LEAD (2019)

- Lead the assembly of solar cells into modules for lamination and application onto BeVolt.
- Developed milling, laminating, and SMD soldering skills.
- Helped build the lamination and testing setup for solar cells and modules.

IEEE Robotics and Automation Society

Fall 2017 - Present

MEMBER, LEADER, HISTORIAN AND JUNIOR WEBMASTER (SPRING 2019)

- Region V (Fall 2017 - Present)
 - Participated in the mechanical design and assembly for the 2017-2018 robot.
 - Lead the DBSCAN and simulator groups for the computer vision stack of the 2018-2019 robot.
- Micromouse (Present) - Lead the maze-solving algorithm development and integration with the Micromouse.
- Robotathon (Fall 2017, 2018)
 - RASCar 2017 - Led the mechanical fabrication and design of the group's 2nd RASCar robot, "Picobot".
 - RASumo 2018 - Wrote sensor interfacing tutorials and helped host the competition as the DJ and streamer.

American Society of Mechanical Engineers

Fall 2017 - Present

MEMBER

- Rube Goldberg/Design Team (Fall 2017 - Present) - Designing multistep processes for STEM education and competition.
 - Rube Goldberg National Competition (2018) - 6th place.
 - Helped design, construct, and setup a Rube Goldberg Machine for an advertising commercial by energy company Reliant.

Skills

Programming Languages C/C++, Java, Python 3, Arm Thumb2 ASM, JavaScript

Markup Languages HTML (and CSS), XML, Markdown, LaTeX (TeX)

General Skills Microsoft Office, Google Suite, SOLIDWORKS, Git, Github, Linux OS

Technical Skills SMD Soldering, Milling, Lathing, Laser Cutting, 3D Printing