

Matthew Yu

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UNDERGRADUATE | MAY 2021 | UNIVERSITY OF TEXAS AT AUSTIN – COCKRELL SCHOOL OF ENGINEERING

- B.S. in Electrical and Computer Engineering
- Cumulative GPA: 3.22

Related Coursework

INTRO TO EMBEDDED SYSTEMS, SOFTWARE DESIGN AND IMPLEMENTATION I, CIRCUIT THEORY, DEV. OF A SOLAR POWERED VEHICLE

Interests

EMBEDDED SYSTEMS, ROBOTICS, VIRTUAL/AUGMENTED REALITY, DATA VISUALIZATION, MACHINE LEARNING, INTERNET OF THINGS

Projects

Dev. of a Solar Powered Vehicle - Solar Array Fabrication

Fall 2018

- Helped build the lamination and testing setup for solar cells and modules.
- Fabricated solar cell modules for the BeVolt solar vehicle, including the testing, soldering, and lamination of cell modules.
- Developed milling and SMD soldering skills.

Generative Art – HTML, JavaScript

Summer 2018

- Using the P5JS API, I created a series of programs that create generative art based on a set of rules or are emulative of natural phenomenon. These works and descriptions can be found at <https://dimembermatt.github.io/projects>.

Audio Visualizer – HTML, CSS, JavaScript

Summer 2018

- Co-programmer on an mp3 audio visualizer that uses the P5JS and WebAudio API. Worked on creating the initial design, as well as wrote the working prototype of the visualizer using a particle system. This visualizer can load songs from the local file system and display several variations of a visualization based off the music.

Personal Website – HTML, CSS, JavaScript

May 2018 - Current

- Designed and wrote several iterations of a personal website. Currently on version 3, focusing on minimalist design and better readability and modularity

Intro to Embedded Systems Final Project – C, Python

May 2018

- Led the programming and wrote up the design and circuit implementation of the *TivaBoy*, an embedded system game controller using the TI Tiva microcontroller. Wrote a game implementing the battling feature of *Pokemon* against a rudimentary CPU.
- Currently reworking 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 *TivaBoy*.

How Things Work - Pet Feeder Project

May 2018

- Led the programming of the Arduino UNO microcontroller and the electronic component interfacing; CADded the initial iteration of the pet feeder design and provided input on the development of the design for customer needs and technical problem solving.

HelloTree - C

March 2018

- A game where the user attempts to grow a tree while responding to events and choices that impact its growth. The program uses populated text files, by implementing a pointer array to locate and read information. The information is parsed to obtain event flavor text, choices, and effects.

Degree Planner and Audit Program – C

January 2018

- 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 (ECE only). Users can add, remove, and edit courses.

Intro to Electrical Engineering Final Project

November 2017

- Led the fabrication of a robot car and its circuit design as well as helped debug the robot during testing to navigate a rudimentary obstacle course.

Service and Extracurricular

Institute of Electrical and Electronics Engineers

2017-Current

- Robotathon (Fall 2017) – led the mechanical fabrication and iterative design of the Robotathon 2017 RASCar robot, “Picobot”.
 - Robotathon 2017 - Undeclared Champions in Competition, 2nd Place in overall points.
- PacBot (Spring 2018) – worked with the sensor integration and testing with the “Buster”.
 - 3rd place at the competition hosted by the Harvard Undergraduate Robotics Club.

- Region V (Fall 2017-Present) – participated in the mechanical design and assembly for the 2017-2018 robot and working on the embedded systems of the 2018-2019 robot.
 - 10th place out of 30 during the IEEE Spring 2018 conference.
- Micromouse (Present) – leading the maze-solving algorithm development and integration with the Micromouse.
- RAS Leader – participating in organizational decisions and responsibilities, including volunteering.
 - Volunteered to build LEGO fields at ARM for the 2017 First LEGO League Hydro Dynamics challenge.
 - Volunteered as a judge for the 2018 Capital Area Divisional STEM Competition.
 - Volunteered to help sort garbage for Sustainability Sort Squad after UT's football games.
 - Mentoring a team of 5 students for the Fall 2018 RASumo challenge as well as presenting workshops and writing tutorials for building a Robotathon robot.

American Society of Mechanical Engineers

2017-Current

- Rube Goldberg/Design Team – designing and creating multistep processes for STEM education and competition.
 - Rube Goldberg National Competition – 6th place.
 - Volunteered at Cockrell Con to showcase Rube Goldberg Club's machine.
 - Helped design, construct, and setup a Rube Goldberg Machine for an advertising commercial by energy company Reliant.
 - Currently building a new base and planning the 2018-2019 Rube Machine, as well as planning for various National Case/Design Competitions.

Technologies/Proficiencies

- Programming Languages: C, C++ (Arduino), Java, Arm Thumb2 assembly, Python 3, JavaScript (Frameworks and Libraries: WebAudio, P5JS), HTML and CSS, XML
- Microsoft Word, Excel, PowerPoint, Google Drive, Git, GitHub, Linux OS
- Machine shop milling and lathing, laser cutting, 3D printing, SOLIDWORKS