Matthew Yu

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Github: https://github.com/dimembermatt Website: https://dimembermatt.github.io

Education

B.S. IN ELECTRICAL AND COMPUTER ENGINEERING| MAY 2021 | THE UNIVERSITY OF TEXAS AT AUSTIN

- 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-Present**

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

Generative Art – HTML, JavaScript **Summer 2018**

- Created a series of programs that create generative art based on rules or natural phenomenon using P5JS
- Documented works and processes are on https://dimembermatt.github.io/Generative_Art

Audio Visualizer – HTML, CSS, JavaScript **Summer 2018**

- Co-programmed an mp3 audio visualizer that uses the P5JS and WebAudio API to load songs from the local file system and depict various visuals based off the rhythm.
- Worked on creating the initial design, as well as wrote the working prototype of the visualizer using a particle system.

Intro to Embedded Systems Final Project – C, Python **May 2018-Present**

- 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 *Pokémon* against a CPU.
- 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 – Arduino **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 design iterative process for customer needs and technical problem solving.

HelloTree - C **March 2018**

- Programmed 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**

- 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 (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-Present**

- Robotathon (Fall 2017) – led the mechanical fabrication and design of the Robotathon 2017 RASCar robot, “Picobot”.
  - Robotathon 2017 - Undefeated 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 currently working on the computer vision system of the 2018-2019 robot.
    - 10th place out of 30 during the IEEE Spring 2018 conference.
- Micromouse (Present) – lead the maze-solving algorithm development and integration with the Micromouse.
- RAS Leader (Present) – participate in organizational decisions and responsibilities, including volunteering.
    - Volunteered to build LEGO fields at ARM for the Fall 2017 First LEGO League Hydro Dynamics challenge.
    - Volunteered as a judge for the Spring 2018 Capital Area Divisional STEM Competition.
    - Volunteered to help sort garbage for Sustainability Sort Squad after UT's football games.
    - Mentor a 5-student team as well as presenting workshops and writing tutorials for the Fall 2018 RASumo challenge.

American Society of Mechanical Engineers **2017-Present**

- Rube Goldberg/Design Team – design and create 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 advertisement 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, LaTeX
- Microsoft Word, Excel, PowerPoint, Google Drive, Git, GitHub, Linux
- Machine shop milling and lathing, laser cutting, 3D printing, SOLIDWORKS