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

Projects

Generative Art - Javascript, HTML, CSS *Summer 2018 - Present*

- 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 - Javascript, HTML, CSS *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.
- Project can be found at: https://dimembermatt.github.io/Web-Audio-Visualizer/

Personal Portfolio Website - Javascript, HTML, CSS *Summer 2018*

- 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 - 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 pet feeder design and contributed to the iterative design process for customer needs and technical problem solving.

HelloTree - C *March 2018*

- A C application eventually to be ported to Java/Android. 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 in order to navigate a rudimentary obstacle course.

Extracurricular Activities

Longhorn Racing - UT Solar Vehicle Team *Fall 2018 - Present*

Member, Solar Array Lead

- Elected as Solar Array lead and official representative for the 2019 season.
- 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.
- Work featured in a video for Silicon Labs.

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.
  - 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.
  - Submitted a proposal and presentation with the Design Team to the APICS International Supply Chain Case Competition.

Institute of Electrical and Electronics Engineers Robotics and Automation Society *Fall 2017 - Present*

Member, Leader, Historian, Junior Webmaster

- 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.
  - 10th place out of 30 during the IEEE Spring 2018 conference.
- 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 1st place RASCar robot, "Picobot".
  - RASumo 2018 - Wrote sensor interfacing tutorials and helped host the competition as the DJ and streamer.
- RAS Leader (Present) - Participate in organizational decisions and responsibilities, including volunteering
  - Elected as Historian and given duties as junior Webmaster for Spring 2019 Semester
  - 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.

Skills

Programming Languages	C/C++, Java, Python 3, Arm Thumb2 ASM, JavaScript (WebAudio API, P5JS)
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