

Yatian Liu

1770 Broadway St Apt 102B – Ann Arbor, MI 48105 – United States

☎ +1 (734) 272-5269 • ✉ dougliu@umich.edu • 🌐 yatian-liu.github.io • in yatliu

A master's student fascinated by embedded systems and human-computer interaction. Looking forward to applying my knowledge and experience to HCI-related hardware fields and general embedded systems development.

Education

University of Michigan

MSE, Computer Science and Engineering

Ann Arbor, US

Sept. 2021 – present

University of Michigan

BSE, Computer Engineering, GPA: 3.879/4.000 (Summa Cum Laude)

Ann Arbor, US

Sept. 2019 – Apr. 2021

Shanghai Jiao Tong University

BSE, Electrical and Computer Engineering, GPA: 3.800/4.000

Shanghai, China

Sept. 2017 – Aug. 2021

Notable courses taken and currently taking

- Intro to Embedded Systems
- Intro to Operating Systems
- Real-time Embedded Systems
- Advanced Embedded Systems
- Computer Networks
- Distributed Systems

Research and Course Projects

Signal Processing for Microphone Arrays (Research Project, Advisor: Prof. Alanson Sample and Kevin Fu)

- Designed CIC and FIR filters on an FPGA to convert PDM signals from microphones to PCM signals
- Used a FIFO buffer to store the PCM signals from FPGA and exchange data between FPGA and ARM core
- Designed and built a PCB with 49 PDM microphones and a proprietary Intel FPGA connector
- Experimenting on processing the sample data for beamforming, sound source localization, etc.

Low-Power Wireless Information Display (Graduation Group Project)

- Ported driver of an SPI-based E Ink display from Arduino to the ESP32 SoC platform
- Powered the display using solar cells, backup batteries, and PMICs to avoid AC power deployment
- Designed and built custom PCB and selected parts by reading and comparing datasheets
- Used FreeRTOS-based OS for task scheduling and interrupt handling
- Wrote an Android app for users to send text or images to the display through the Firebase database

Multi-threaded Network File Server (OS Course Group Project)

- Used TCP socket and instructor-defined protocol to communicate between the client and server program
- Implemented various file system operations with memory caching on an inode-based file system structure
- Used `std::mutex` and `std::thread` to handle concurrent multi-threaded file system requests

Awards

University of Michigan

James B. Angell Scholar

Ann Arbor, US

Mar. 31st, 2021

University of Michigan

College of Engineering Dean's List

Ann Arbor, US

Dec. 31st, 2019 and 2020

Technical Skills

- Programming languages: C/C++, Verilog HDL, ARM UAL, Java, Python, Scheme, MATLAB, Arduino, \LaTeX .
- Software experiences: Linux command-line tools, Git, FreeRTOS, Visual Studio Code, MATLAB, Mathematica, Android Studio, Xilinx Vivado Design Suite, Intel Quartus Prime, Onshape, Adobe Creative Cloud.

Teaching Experiences

Shanghai Jiao Tong University

Teaching Assistant of VG 101 (a freshman-level course on computing taught in English)

Shanghai, China

May 2021 – Aug. 2021