YUXUAN HAN

Phone: (614) 256-8128
han.1454@osu.edu

938 Deacon Cir.
Columbus, OH 43214

EDUCATION

B.S. Electrical and Computer Engineering Aug. 2018 to May 2022
The Ohio State University
Major GPA: 3.92 (Only considering ECE and CSE courses)
Cumulative GPA: 3.82

Related coursework: *Advanced Digital Design*, *Computer Architecture and Design*, *Mixed Signal VLSI*, *Advanced Hardware Architecture*, *Introduction to Machine Learning, Operating System*

AREA OF INTERESTS

Digital/Mixed-Signal VLSI, Digital IC Design, Computer Architecture, Embedded System

HONORS AND AWARDS

CBI SURF Fellowship 2021
The research topic "Denoising E-Textile Sensors for Real-World Kinematics Monitoring after mTBI" was awarded Chronical Brain Injury Summer Undergraduate Research Fellowship by Office of Academic Affair, the Ohio State University with $4000 project funding.

Third Prize, DJI Robomaster Robotics Competition 2019
The OSU IEEE Undergrad Chapter Robomaster Robotics Team took part in DJI Robomaster Robotics Competition global final held in Shenzhen, Guangdong, China in 2019 and awarded the Third Prize. Yuxuan Han worked for the team as lead of electrical & embedded sub-group.

Engineering Honor 2018
Yuxuan Han was granted for OSU Engineering Honor standing from 2018 to 2021 because of his excellent academic performance.

PROFESSIONAL EXPERIENCE

EletroScience Laboratory, Columbus, OH Feb. 2021 to Feb. 2022
Undergrad Research Assistant, Supervised by Prof. Asimina Kiourti
Research Topic: *Denoising E-Textile Sensors for Real-World Kinematics Monitoring*

- Use Network Analyzer to measure antenna transmit coefficient
- Analyze sensor noise and construct mathematical model

- Implement machine learning algorithms to denoise the sensor drifting problem caused by uneven fabric stretches alone with joint movement
- *URSI-NRSM 2022* conference presentation in Boulder, CO, Jan. 2022. **First author.**

Qualcomm Inc., San Diego, CA
Interim Software Internship Jun. 2021 to Aug. 2021

- Use ARMv8 External Debug Interface and DAP interface to build Python-based debugging API that is capable of:
  - Dump Memory
  - Walk through page-table for virtual address to physical address translation
  - Read core registers and general-purpose registers
  - Run assembly instructions

OSU Robomaster Team, Columbus, OH
Lead of Electrical & Embedded System sub-group Oct. 2018 to Dec. 2019

- Communicate with Software & Computer Vision sub-group for demands needed
- Develop listing modules for STM32 based embedded systems on robots
  - CAN bus communication
  - Serial communication (UART, I2C, etc.)
  - Gyroscope filtering
  - PID controller
- Manage sub-group development schedule and progress

DJI Innovations Science and Technology Co. LTD., Shenzhen, China
Summer Internship Jul. 2018 to Aug. 2018

- Cooperate with the mechanical team to build an application-specific robot
- Develop C-language based robotics project with freeRTOS on STM32
- Implement PID controller, multi-tasking, and sensor raw data filtering for robot

PATENTS

Jin, Zixu., Han, Yuxuan., "Front Position Tracking Robot," Chinese Utility Model Patent, No. CN2017212642431.

PROJECTS

Mixed Signal VLSI: High Speed 4-bit Perceptron with 256-bit SRAM

A bottom-up design from transistor level to implement a 4-bit perceptron with 256-bit SRAM for weight data storage. Various optimization methods were used to reach 2.87GHz maximum clock frequency, including transistor width resizing and pipelining. The project was completed using Cadence Virtuoso + ADE GXL with Cadence GPDK 45nm Technology.

Advanced Digital Design: Custom 4-bit Signed Fast Multiplier

The multiplier was able to take 4-bit signed inputs to calculate 8-bit signed product. The multiplier was mainly consisted of 2 4-bit bidirectional shift registers, a 4-bit

parallel adder, a 9-bit custom bidirectional shift register, a 4-bit binary counter, and a system controller. The project was implemented in VHDL using Xilinx ISE.

SKILLS

Programming Languages: C, Java, Python, ARM Assembly, VHDL, MATLAB

Design Tools: Cadence Virtuoso, Xilinx ISE, SPICE, SolidWorks

Professional: Sufficient Linux knowledge, OS knowledge (Memory, I/O, Multi-threading), basic algorithm knowledge (Data Structures, BFS, DFS, Dijkstra's, Graph, Time complexity), Machine Learning (Linear Regression, Logistics Regression, SVM, NN, CNN, PCA, Random Forest Tree, XGBoost, etc.)

Languages: English (Professional), Chinese (Native)

Others: Good communication and project management skills