ALAN GUO

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EDUCATION

Northwestern University Evanston, Illinois

- Doctor of Philosophy in Computer Engineering Jan. 2024 – Present

Northwestern University Evanston, Illinois

- Master of Science in Electrical Engineering *Overall GPA: 3.8/4.0* Sep. 2022 – Dec. 2023

University of Shanghai for Science and Technology Shanghai, China

- Bachelor of Engineering in Electronic Information Engineering Sep. 2018 – Jun. 2022

EXPERIENCE

ASIC Design Engineer Jul. 2023 – Present

Fermilab (Fermi National Accelerator Laboratory) Batavia, Illinois

- Participated in the designs of SPROCKET3 ASIC blocks for Skipper CCDs for detecting electrons of dark matter with Fermilab ASIC Design Groups
- Responsible for back-end digital flow for Photonic Transmitter block including RTL, simulation, verification, implementing floorplan and P&R
- Verifying the XPROCKET2 and SPROCKET3 on TSMC 65nm design flow on Xcelium, remediating all errors

Research Assistant Apr. 2023 – Present

Northwestern Hardware Systems and Design Automation Lab (Prof. Seda Ogrenci) Evanston, Illinois

- Using Cadence EDA tools for synthesizing, verifying, floorplanning, and P&R for various blocks and designs
- Research on memory fault memory designs for neural SRAM network accelerator

Hardware Test Engineer Jul. 2021 – Aug. 2021

Shanghai STEP Electric Corporation Shanghai, China

- Tested various data against the diagrams of circuit boards and provided suggestions for the R&D department
- Designed schematic diagrams, conducted PCB reviews and component changes, and assisted in handling production and after-sales quality issues for future works

Software Development Jul. 2020 – Aug. 2020

COMAC Software Co., Ltd. from Commercial Aircraft Corporation of China Chengdu, China

- Participated in the development of a company interview system in Java, solved permissions problems, and questioned banks accessing

RESEARCH

Smart Knob with Haptic Feedback by BLDC Motor Controlled by Web Server Apr. 2023 – Jun. 2023

- Using embedded C++ to build firmware for ESP32 to control BLDC motor, designing PCB using KiCad
- Using AWS server for controlling the knob from the cloud, writing webpage

Webcam Based on Atmel MCU and ESP32 as Wi-Fi with Website Integrated Jan. 2023 – Mar. 2023

- Used embedded C to build firmware for MCU, designed website for streaming video using Wi-Fi
- Designed PCB using Eagle, built 3D models for camera case in OnShape, assembled the whole camera

Manned Beach Car Based on STM32 with Self-designed Drive Board Mar. 2021 – Jun. 2022

Shanghai University Student Innovation and Entrepreneurship Project, Team Leader

- Designed and soldered H-bridge PCB circuit, used embedded C in Keil to program the STM32 MCU
- Combined STM32 with a self-designed DC brush drive board and a high-power motor to assemble the vehicle

ADDITIONAL

Skills: Embedded C (Microchip Studio, Arduino, Keil), C, C++, Java, Python, MATLAB, LabVIEW, Cadence Tools (Genus, Innovus, Xcelium), RTL, Digital IC Design, Verilog, Tcl, Makefile, PCB Design (Eagle, Fusion 360, KiCad), Web Design (AWS Server, HTML, JavaScript, CSS)

Languages: English, Mandarin, Shanghainese, Japanese

Hobbies: Violin (studied for over 18 years), Badminton (was on USST competition team)