Matthew Y. Zhu

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Education

Arizona State University Expected May 2026
B.S in Computer Engineering *GPA: 4.0*

- Clubs: Sun Devil Robotics Club, Software Developers Association
- Relevant coursework: Computer Organization & Assembly Language Programming, Computer Languages (C/C++), Circuits I, Object-Oriented Programs & Data (Java), Digital Design Fundamentals

Experience

ASU Interplanetary Lab Initiative Nov 2022 — Present
Electrical Engineering Volunteer *Tempe, AZ*

- Collaborated with a mentor to integrate a CubeSat motherboard and a ground computer to obtain flight data and implement commands. Supplied critical flight data and satellite functionality to ground station equipment
- Practiced written and oral communication through meticulous documentation of lab activities, delivery of progress updates in meetings, and writing testing procedures to supply crucial CubeSat data
- Worked with a mentor to develop a PCB designed to measure the temperature and particle count in a clean room to protect sensitive satellite components from particles, dust, and contaminants
- Conducted a detailed assessment of an electronic power system to ensure optimal performance by implementing a simulated battery and solar array. Provided the team with essential CubeSat power system electrical data
- Performed a battery capacity test on a demo flight battery using an electronic load and dev board to record current over time. Identified and addressed problems with battery discharge rates and faulty over-current protections

Arizona State University Aug 2023 — Present
Teaching Assistant for Digital Design Fundamentals *Tempe, AZ*

- Exhibited effective communication skills by helping students grasp digital design concepts, leading to a 4-point improvement on quizzes about logic gates, Karnaugh maps, sequential design, and microprocessor fundamentals
- Enhanced written communication skills by performing quiz corrections and guiding students on solving missed questions correctly. Students learned from their mistakes and effectively understood digital design fundamentals
- Demonstrated adept problem-solving skills by assisting students with technical issues related to circuit design and homework software. Enabled punctual assignment submissions and a smoother learning process

Projects

DHT11 & LCD Driver w/ STM32 ARM Cortex M4 December 2023

- Created a DHT11 and LCD driver on an ARM Cortex STM32 by reading data from individual bits from the DHT11 communication protocol and decoding 8 bit segments to decipher data and construct strings on an LCD, enabling acquisition of temperature sensor data and displaying real-time temperature readings
- Employed a logic analyzer for precise debugging of firmware issues and intricately interfacing with DHT11's proprietary communication protocol
- Utilized Altium Designer to design a schematic and PCB to incorporate the M4 Cortex chip

Automatic Dog Feeder July 2023

- Designed a PCB with an Arduino Nano microcontroller to autonomously dispense dog food at user-defined intervals through a simple remote interface. Incorporated an LCD for configuring feeding times and alerting low food levels
- Developed firmware by writing drivers for remote inputs of feeding times, low food level sensing, and automatic dispensing through integrating existing libraries for the LCD, remote sensor, ultrasonic sensor, and real-time clock

Licenses

FCC Amateur Ham Radio License: Technician (Callsign - KN6ZQD) May 2023 — May 2033

Skills

Languages: C, C++, Python, Java
Software: Linux, Git, Altium, KiCad, Fusion 360
Hardware: Schematic reading, Oscilloscope, Logic Analyzer, Power supply, Soldering, PCB Design