Kevin Zhang

+1 604-728-0301 | kzhang47@student.ubc.ca | www.linkedin.com/in/kzhang47 | https://github.com/va7mii

Technical Skills

Computer: Visual Studio, LTSpice, Git, Solidworks, Protocase Designer, Altium Designer,
Lab Equipment: Oscilloscope, multimeter, spectrum analyzer, software-defined radio, 3D printing (FDM and SLA)
Programming: Python (2-3 yrs), Java (2-3 yrs), C/C++ (2 yrs), Embedded programming, FreeRTOS, Linux
Amateur Radio Operator: Advanced certification with callsign *VA7MII*

Education

University of British Columbia Vancouver, BC
Bachelor of Applied Science in Integrated Engineering, Computer and Mechanical focused *Sep. 2023 – May 2028*

Courses: CPEN 312 - Digital Systems and Microcomputers (currently taking) ,
MATH 220 - Mathematical Proof (93%), MATH 257 - Partial Differential Equations (85%)

Technical Projects

Building a 6502 Computer | *Embedded Programming, Firmware, Electronics* Feb. 2024

- Watched Ben Eater's tutorial on designing a 6502 computer using parts sourced from the IGEN Clubroom (breadboard, wires), Lee's Electronics (logic gates, shift registers, passive components), and Mouser Electronics (65c02 microprocessor, SRAM, EEPROM).
- Built a breadboard clock using 555 timer chips that can either pulse at a fixed interval (astable) or only pulse when pressed a button (monostable).
- Used an Arduino Mega to read address and data inputs from a 65c02 microprocessor and control the Serial monitor speed using the breadboard clock.
- In the process of designing a DIY EEPROM programmer using an Arduino Nano and two 8-bit shift register ICs.

Bluetooth Controlled Line Following Robot | *Embedded Programming, Sensor Integration* Feb. 2024

- Prototyped an IR reflectance array, putting electronics components on a solder PCB and 3D-printing a sensor bracket.
- Implemented Bluetooth control with FreeRTOS handle multi-threading tasks like ESP-32 telemetry and control motors.

ALEASAT Engineering Model | *PCB Design, Testing Documentation* Feb. 2024

- Participated, as part of UBC Orbit, in the European Space Agency (ESA) Fly Your Satellite! Program at Belgium to test the satellite's antenna deployer PCB using vibration and functional tests.
- Presented functional test and resonance search results to ESA engineers and team leads for planning out features needed for the next revision of the PCB and the deployer structure.

3Describe - Creating "Touchable" AR Cubes | *Python, Embedded Programming* Jan. 2023

- Utilized a Intel Realsense D435 depth camera and Mediapipe to retrieve a 3D position of both hands and the AR cube.
- Rendered lines to draw cubes using OpenCV and rotational matrices.
- Used a spherical collision system to determine the direction the cube was touched by the hand.

PlasRov | *Python, TensorFlow, CAD design, Embedded Programming* Sep. 2021 — Apr. 2022

- Designed a 3D-printed rover that uses object-detection and near-infrared spectroscopy to detect microplastics
- Gained experience training computer-vision models of microplastic samples using TensorFlow
- Presented the project to experts in various fields during the two-day science fair in April 2022

Experience

Undergraduate Research Volunteer May 2024 – Aug. 2024
BC Cancer Research Center - Interactive Oncology *Vancouver, BC*

- Identified the source of electromagnetic interference of a medical device by using an oscilloscope connected to a wire probe
- Designed an electromagnetic shielding case using ProtoCase Designer while considering cost, strength, and conductivity of the metal type and fitting the dimensions with the SolidWorks assembly model of the device

Other Work Experience

Undergraduate Teaching Assistant Sep. 2024 – Present
University of British Columbia *Vancouver, BC*

- Working as a teaching assistant for APSC 160 - Introduction to Engineering Computation
- Facilitated two weekly in-person lab sessions to a group of 30 students and invigilating lab quizzes
- Assessed 30 student submissions weekly, marking on coding style and giving comments for constructive feedback
- Coordinated with the instructor about giving short recruitment pitch at the beginning of a lecture to promote UBC Orbit satellite design team to first year students

Engineering Design Team

Radio Communications Firmware Developer Sep. 2023 – Present
UBC Orbit Satellite Design Team *Vancouver, BC*

- Practiced designing an FM receiver with a software defined radio using GNURadio and testing the RF transmit functionality of a C1110 transceiver.
- Tested RF receiver sensitvity of a Ettus Research B210 software-defined radio using a spectrum analyzer.
- Designed an antenna deployer printed circuit board (PCB) using Altium Designer.

Volunteer Experience

Operations Volunteer Aug. 2024
Anime Revolution *Vancouver, BC*

- Coordinated with large line-ups at concerts and the exhibition hall at the Vancouver Convention Center to ensure that events run smoothly
- Explained directions to exhibition hall and panel rooms to help guide attendees
- Supervised panelist events to ensure that attendees complied with event rules

Project Judge Mar. 2024
Greater Vancouver Regional Science Fair *Vancouver, BC*

- Judged over twenty high-school student projects in environment, engineering, and physics
- Provided constructive feedback about scientific methodology and delivery of the presentation to student presenters
- Collaborated with a team of judges to rank projects

Aerospace Instructor Sep. 2022 – May 2023
888 Avengers Air Cadet Squadron *Vancouver, BC*

- Instructed over 20 students on aviation and aerospace in both online and in-person teaching environment
- Collaborated with an instructor and officer staff team to plan strategies to help the squadron transition from online back to in-person in response to changes in Covid-19 regulations

Awards

Engineers and Geoscientists BC Entrance Scholarship 2023
Royal Canadian Legion Medal of Excellence 2022

Interests & Activities

Hobbies: 3D Printing, Model-kit paining, Learning to code, Modding video game consoles
Sports: Stand-Up Paddleboarding, Windsurfing, Snowboarding, Cycling, Swimming
Musical instruments: Piano, Tenor Saxophone, Guitar