Samuel T. Wang

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EDUCATION

Vanderbilt University **Nashville, Tennessee**

B.S. in Electrical and Computer Engineering *Expected: May 2027*

- **GPA:** 3.96/4.00**,** Dean's List (2x)
- **Related Coursework:** Digital Systems, Analog Circuits, Statistics, Data Structures, Data Science, Material Science

PROFESSIONAL EXPERIENCE

Vanderbilt Institute for Space and Defense Electronics Lab *Aug 2023 – Current*

Undergraduate Researcher

- Investigated radiation effects at advanced transistor nodes, identifying single-event upset vulnerabilities
- Evaluated effects of low-energy protons on the 3nm bulk-FinFET node, crucial for optimizing radiation-hardened semiconductor designs

The SyBBURE Searle Research and Design Program *May 2024 – Current*

Undergraduate Research Fellow

- Integrated GPS interface into first-person view drone, delivering robust 3-mode positioning functionality
- Implemented ESP32 microcontroller for 200+ meters wireless communication using the ESP-NOW protocol, resulting in a 120% increase in signal range compared to alternative technologies
- Presented research poster at the 2024 SyBBURE summer symposium to a 40+ audience

VUSE Summer Intern *May 2024 – Aug 2024*

- Assessed manufacturing variations at the 3nm bulk-FinFET node by measuring ring oscillator frequencies on 50+ devices at 3 voltage levels, improving production reliability
- Developed measurement techniques enabling accurate reading of shift register data at sub-450 mV input voltages, enhancing functionality for low-power applications

Rutherford Appleton Laboratory *Aug 2020 – Aug 2023*

Lead Author & Researcher *Oxfordshire, England*

- Pioneered high energy particle effects research on commercial-off-the-shelf components via commercial drones
- Systematized real-time telemetry data collection at 100Hz via the 802.11n Wi-Fi protocol using Python and Wireshark, facilitating precise measurements to enhance operational stability
- Analyzed 12 key parameters of single event upsets in drones using Pandas and Matplotlib for data visualization
- Presented research poster to a 400+ audience at the IEEE Nuclear & Space Radiation Effects Conference

PROJECTS

Ribbon Cable Tester (Team Lead) *Dec 2023 – Jan 2024*

- Coordinated custom PCB development to enhance testing reliability of 40-pin ribbon cable connectors, achieving a 95% reduction in testing time

Precision Waveform Function Generator *July 2024 – Aug 2024*

- Accomplished the development of a breadboard system generating waveforms up to 10's of kHz, as measured by waveform and frequency testing, by integrating an Arduino microcontroller with ICs and custom circuitry
- Currently engineering the transition from Arduino to STM328P microcontroller for improved user control and power consumption by devising a system that can generate waveforms with adjustable amplitudes and frequencies

ACTIVITIES

Vanderbilt Nuclear Fusion *Feb 2024 – Current*

- Evaluated electrical systems in IEC nuclear fusion reactor architecture to enhance test and risk mitigation strategies
- Overhauled reactor systems software integration; consolidated documentation ranging 4 different software apps

Vanderbilt Amateur Radio Club *Aug 2024 – Current*

- Accomplish real-time weather data collection via a pico balloon, by integrating amateur radio transmitters with solar-powered sensors and ultra-low-powered electronics

SKILLS

Programming: Java, C++, Arduino (C++), Verilog, System Verilog, Python, R, MATLAB

Tools: KiCad, EasyEDA, LTSpice, VSCode, IntelliJ, PyCharm, Jupyter Notebooks