Kaden Suderman

Electronic & Computer Engineer | Embedded Systems, Computer Vision/ML, Software Dev.

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Professional Experience

Computer Vision Engineer Intern, *Boston Scientific* - (*Jan – Aug 2023*)

- Developed real-time image processing pipelines using OpenCV, scikit-image, and NumPy for label detection in low-contrast conditions, increasing accuracy to 98%.
- Automated classification and sorting of >100GB of image data via Python (pandas, openpyxl), reducing manual search time by over 15 hours/month.
- Gained experience with secure data processing and optimization under constrained hardware resources.

Applications Engineer Intern, *Analog Devices* - (*May – Aug 2022*)

- Programmed embedded systems on Arduino and ESP32 platforms, flashing firmware using PlatformIO and debugging over UART/JTAG.
- Developed a Python-based Image Converter tool (OpenCV, Pillow) to automate format conversions and batch processing for hardware simulations.
- Investigated system-level behavior and communication protocols for embedded test setups.

Projects

Master's Thesis - *Real-Time Object Segmentation and Recognition Models in Embedded Systems*

- Demonstrated low-latency (<1s) GPU-accelerated deep learning inference on embedded platforms for autonomous navigation. Integrated remote compute nodes with constrained local systems for edge processing and optimized throughput.

Distortion Pedal Circuit Design & Scholarship Award

- Researched, designed, and presented a distortion effect pedal circuit. Recognized for engineering insight and communication with a scholarship and internship offer.

Other Projects: GitHub: www.github.com/superkabe

- Includes firmware utilities, Linux-based image processing, and embedded data streaming apps.

Education & Awards

Master of Engineering (M.E.), Electronic & Computer – National University of Ireland, Galway (2024)
- GPA: 3.85 (First Class Honors)

Bachelor of Engineering (B.E.), Electronic & Computer – National University of Ireland, Galway (2023)
- GPA: 3.5 (Second Class Honors, Grade 1)

Scholarships & Leadership: *Analog Devices Elite Scholarship (2022), President of Hope Society (2021-2023)*

Technical Skills

Programming: C/C++, Python, Java, SQL, HTML/JavaScript

Embedded Systems & Hardware: RTOS, Embedded Linux, ESP32, UART, SPI, I2C, GPIO

Networking & Protocols: NAT, L2/L3 Routing, TCP/UDP, IPv4/IPv6, HTTP, RTSP/RTCP, ONVIF

Security & OS: TCP/IP, HTTP, MQTT, IPv4/IPv6, Wi-Fi/BLE, audio/video codecs (H.264/AVC, HEVC)

DSP & Signal Processing: OpenCV, Image/Audio Processing Pipelines, Contour Detection