Logan Cudia

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EDUCATION

University of Illinois Urbana-Champaign ***Expected Graduation: May 2025***

Bachelor of Science in Computer Engineering ***GPA: 3.27***

Relevant Coursework: *Computer Systems Engineering, Digital Systems Laboratory, Data Structures and Algorithms, IoT and Cognitive Computing, Applied Parallel Programming, Analog Signal Processing*

PROJECTS

Missile Command Game ***Aug 2023 – Sept 2023***

- Created a text mode version of classic arcade video game, Missile Command, in x86 assembly and extended to the Linux real-time clock (RTC) driver
- Deployed a linked list of structs managed in Kernel space to hold vital data for each missile such as velocity, position, and explosion status
- Designed a Linux Kernel Tasklet that updates the game and missiles in real time on each RTC interrupt
- Interfaced 5 ioctl functions to manage Kernel/User interactions and communications

Sticker and Image editor ***Aug 2023 – Sept 2023***

- Developed a sticker image editing program that performs changes to input image and sticker
- Added features such as darken/lighten, rescale, grayscale, and illinify to base image
- Enabled add/remove, position translate, and sticker render functionality

PhotoMosaic Generator ***June 2023 – July 2023***

- Incorporated a 3-dimensional k-d tree to find the closest average color of each specific tile image to the average color of pixel sections in the source image
- Mapped the locations of the new mosaic tiles to its tile image organized by the k-d tree structure

IoT Security System ***Apr 2023 - May 2023***

- Designed an IoT network using AWS IoT core and MQTT protocol to establish communication between Raspberry Pi edge nodes, user's mobile device, and NVIDIA Jetson Nano sink node
- Implemented facial recognition and object detection models using Inception ResNet and EfficientNet architectures on Raspberry Pi's
- Accelerated real-time identity verification by cross-referencing detected identities with an AWS SQL server database

EXPERIENCE

Northrop Grumman ***May 2023 – Aug 2023***

Hardware Electronics Engineer Intern

- Gained Secret Clearance to support specific programs and projects on the LITENING Targeting Pod
- Verified voltage sequencing for a missile detection interface CCA to fit military standard sequence timing
- Supported design and verification process of a linear amplifier converter for small motor control
- Performed plot testing on a highspeed optical transceiver module to show degree of signal power loss due to signal reflection
- Assisted creating Interface Control Documents (ICD) and Material Workbooks for various programs

Illini EV Concept ***Aug 2022 – Feb 2023***

Embedded Software Engineer

- Pioneered the team's first Tachometer PCB with a STM32 microcontroller, IR sensor, and CAN transceiver to track the RPM of the wheels
- Utilized C++ to detect a triggered pulse, calculate the RPM, and send the data over a CAN bus to the display module
- Aided electrical and mechanical team to integrate PCB into the car's infotainment system

SKILLS/INTERESTS

- **Frameworks/Libraries:** TensorFlow, TFLite, OpenCV, NumPy, SciPy, Keras, React
- **Languages:** C++, C, SystemVerilog, Verilog, Python, x86 Assembly, CUDA, HTML, CSS, JavaScript
- **Technologies:** Docker, Git, Raspberry Pi, Linux Systems, Cadence Design Systems, LTSpice, GDB
- **Interests:** Basketball, Powerlifting, Formula 1 Racing, Traveling, Violin, Cooking