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: *Data Structures and Algorithms, Computer Systems Engineering, IoT and Cognitive Computing, Digital Systems Laboratory, Computer Systems and Programming, Discrete Structures, Analog Signal Processing, Computational Linear Algebra, Multivariable Calculus*

SKILLS

Frameworks/Libraries: TensorFlow, TFLite, OpenCV, NumPy, SciPy, Keras, React, Angular

Languages: C++, Python, C, HTML, CSS, JavaScript, SQL, x86 Assembly, SystemVerilog

Technologies: Docker, Git, Raspberry Pi, Linux, Node.js, MongoDB, Cadence Design Systems, LTSpice, CMake

PROJECTS

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

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
- Utilized nearest neighbor search (NNS) to find the closet point to a given target point using back-traversal
- Mapped the locations of the new mosaic tiles to its appropriate tile image organized by the k-d tree

Sticker and Image editor ***June 2023 – July 2023***

- Developed a sticker image editing program that performs changes in saturation, brightness, rotation, and scale change
- Represented images with stickers using layers and handled stickers position with pointers to image objects
- Managed space using STL vector to hold collection of stickers and tested with CMake

EXPERIENCE

Northrup Grumman ***May 2023 – Present***

Hardware Electronics Intern

- Supported tests to verify design of a Linear Amplifier Converter used 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 – Dec 2022***

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

St. Peter Lutheran School and Church ***June 2022 - Aug 2022***

Summer STEM Tutor

- Taught STEM lessons to middle schoolers and facilitated STEM-related projects in class such as designing and constructing a bridge made of noodles
- Collaborated with other counselors to help create a curriculum that covers basic math and sciences
- Communicated to parents about concerns and questions about learning performances and progress