Logan Cudia

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EDUCATION

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

Bachelor of Science in Computer Engineering ***GPA: 3.30***

Relevant Coursework: *IoT and Cognitive Computing, Computer Systems and Programming, Discrete Structures, Analog Signal Processing, Computational Linear Algebra, Multivariable Calculus*

SKILLS

Frameworks: TensorFlow, TFLite, OpenCV, NumPy, SciPy, Keras

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

Technologies: Docker, Git, Raspberry Pi, Arduino, Linux, Node.js, MongoDB, KiCAD

PROJECTS

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

- Designed a Wireless Sensor Network connected by MQTT to create a cloud supported security system composed of 3 Raspberry Pi's as edge devices and a Jetson Nano to processes data from Raspberry Pi
- Developed facial recognition and object detection ML models deployed on each Raspberry Pi for live feed security and authentication from cameras
- Implemented hardware such as RFID tags, electronic locks, PiCameras, and fingerprint sensors to allow approved guests into the house

Maze-Solver ***Nov 2022 - Dec 2022***

- Created a maze solver in C that solves a prebuilt maze from a text file inputted by file I/O
- Implemented a recursive depth first search (DPS) algorithm to that detects dead ends within the maze, visited parts of the maze, available path options, and the end position

Vending Machine Finite State Machine (FSM) ***Feb 2022 - Apr 2022***

- Designed a vending machine simulation that identified only dimes and quarters, tracked the amount of money inputted, accepted/rejected coins accordingly, and signaled when exactly 35 cents have been paid
- Developed a schematic on Intel Quartus Prime and tested functionality through a simulated waveform
- Incorporated sequential logic of FSMs with TTL chips, 555 Timer IC, and flip-flops to keep track of current vending machine states and transitions

Wall Following Car ***Oct 2021 - Dec 2021***

- Designed a motor-control circuit that utilizes ultrasonic sensors to move away from any nearby walls
- Created a 9 to 5 volt converter for the ultrasonic sensor using Zener diodes and validated using Thevenin theory
- Utilized a square wave oscillator to trigger the ultrasonic sensor to ensure proper pulses
- Implemented a push-button delay by utilizing an RC time constant to temporarily shut off the car motors

EXPERIENCE

Illini EV Concept ***Aug 2022 – Dec 2022***

Embedded Systems Engineer

- Designed a PCB board with a STM32 microcontroller, Hall Effect sensor, and IR sensor to track the RPM of the wheels
- Developed a corresponding program that tracks the RPM and relays that data through CANBus to the driver headboard display

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

Summer Camp Leader

- Taught STEM lessons to second graders and facilitated STEM-related projects in class such as designing and constructing a bridge made of noodles
- Coordinated and collaborated with other counselors to implement camp events, field trips, and Water Days
- Communicated to parents about concerns and responded to Summer Camp Coordinators' expectations and policies
- Provided leadership to second graders and helped them learn cleanliness, rules, respect, and communication

Wurth Baer Supply Company ***July 2018 - Aug 2019***

Purchaser/Buyer

- Participated in weekly meetings about inventory analysis and cost optimization
- Networked with current vendors and customers about current catalog and inventory
- Documented reports for purchase order history and resolved product defects and order discrepancies