Logan Cudia

llcudia2@illinois.edu | (847)-977-2961 | linkedin.com/in/logancud | https://github.com/LoganCudia411

EDUCATION

University of Illinois Urbana-Champaign ***Expected Graduation: May 2025***
Grainger College of Engineering ***GPA: 3.23***
Bachelor of Science in Computer Engineering

SKILLS

Frameworks: OpenCV, NumPy, SciPy, TensorFlow, React.JS, SQLite
Languages: C, C++, Python, Assembly, HTML, CSS, JavaScript,
Technologies: AWS, SQL, MongoDB, Docker, Git, Intel Quartus Prime, Linux, KiCAD, Valgrind, GDB

PROJECTS

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
- Utilized Valgrind and GDB to debug and test accuracy of program

Fire Detection System

- Developed a python program that detects fire through real time video capture with an automated alarm trigger and email warning
- Implemented OpenCV and SMTPLIB along with HSV color algorithm to develop an AI that detects specific hues of fire within every frame

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 positive-edge-triggered D 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-Current***
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