AITHIHYA KOMPELLA

ELECTRICAL ENGINEERING IV, McMASTER UNIVERSITY

kompella@mcmaster.ca • 613-601-6753 • https://www.linkedin.com/in/aithihyakompella/ • https://aithihya-k.github.io

EDUCATION

McMaster University *September 2020 – December 2025 (Expected)*

- Bachelor of Engineering in **Electrical Engineering**

EMPLOYMENT

Hardware Engineering Intern, IMAX *May 2024 – August 2024*

- **Tested**, **debugged**, **reworked**, and performed **bring-up** of various **PCBs**, using **oscilloscopes** and **multimeters.**
- Implemented and followed testing protocols for **EMI compliance**, **thermal performance**, and **signal integrity**, ensured design and performance criteria were met, then **documented results** and implemented improvements.
- **Designed 4 PCBs** in **Altium Designer** and collaborated closely with the **mechanical engineering team** to ensure mechanical fit, packaged files, created a **bill of materials (BOM)**, uploaded required **engineering documents** to **SAP PLM.**
- Reviewed **cable drawings** in **Microsoft Visio**, ensuring correct cable lengths, pin assignment, and component availability.
- **Initiated redesign** of a polarizing lens mover for an IMAX projector, aiming to reduce movement time by 73% by replacing the belt mechanism with a lead screw and selecting a **new motor** based on **torque calculations.**

Electrical Engineering Intern, Introba *May 2023 – April 2024*

- **Supported** senior electrical engineers in **designing electrical systems**, conducting **load calculations**, and ensuring compliance with the **Canadian Electrical Code and OESC** for 8 commercial and residential projects.
- **Modelled** electrical equipment in **Revit**/**Autodesk AutoCAD** like lights, transformers, and circuit panels on floor plans.
- Drafted **detailed single-line diagrams** illustrating **power distribution**, **fire alarm and lighting control risers** to precisely map device locations within a facility and performed 100+ **photometric lighting calculations** with **Elumtools.**

PROJECTS

Electronic Power Systems & Mechanical Lead – Smart Dartboard – Capstone Project *September 2024 – Present*

- **Led** the **component** and **wire gauge selection** and **design** of a **power management PCB** in **Altium Designer**, ensuring efficient power distribution from a wall outlet to systems such as the Raspberry Pi 5, Raspberry Pi Pico, and an LED strip.
- **Engineered** and **modelled** a 3D-printable dartboard in **Autodesk Inventor**, utilizing TPU and PLA to build a durable dartboard compatible with traditional metal-tip darts to create a dynamic, interactive playing experience.
- **Directed** and **executed** both the **power** and mechanical modules, ensuring seamless integration of **hardware** components with microcontrollers and software developed by a team of 4, optimizing overall system performance.

Embedded Spatial Measurement System – Microprocessor Systems Project *January 2022 – April 2022*

- Leveraged **computer architecture** and **hardware** skills to **design** and **build a circuit** using **GPIO**, **I2C**, and **UART** to interface a **ToF sensor** and **stepper motor** with a **microcontroller** to achieve the functionality of a **LiDAR scanner**.
- Programmed in **embedded C**, **tested** and **debugged** the system in **Keil uVision** to **verify** and **validate** the system's functionality with the given requirements of the project.
- Generated a 3D model of a room in Realterm with a **Python** script, the **PySerial API** and **Open3D library**.

CLUBS AND ACTIVITIES

Circuitry Lead – McMaster Chem-E Car Team *June 2024 – Present*

- **Led** the **circuitry sub-team** at the AIChE National Chem-E-Car Competition in San Diego this October, gaining expertise in **mechanical systems** to represent both the mechanical and circuitry sub-teams.
- Conducted **rigorous testing** of circuitry with propulsion and braking systems to ensure seamless integration and functionality.
- **Organized** and **facilitated** workshops on electronics, GitHub, and PCB design using **Altium Designer** to enhance team technical knowledge.
- **Managing** a team of 5 to design a **custom PCB** and **develop Arduino code** for the upcoming regional competition (March 2025), aligning with the electrical needs of propulsion, mechanical, and braking systems.

Circuitry Team Member – McMaster Chem-E Car Team *September 2023 – June 2024*

- **Researched** requirements and drew a schematic for a **PCB** that integrates 8 major components of an electric vehicle.
- **Programmed** an **Arduino UNO** to interface with **motors** and the **IMU module** on the vehicle and implemented a **Kalman filter** to **reduce sensor noise.**
- **Won 1st place** in the car concept poster presentation at the regional competition at Ohio State University in April 2024.

SKILLS

- **Software/Languages:** Altium Designer, LTSpice, Cadence OrCAD, Autodesk EAGLE, Autodesk Inventor, C/C++, Python, Git, Microsoft Visio, Microsoft Office Suite
- **Equipment:** Oscilloscope, Digital Multimeter, Microcontroller (MSP432, STM32, Arduino), Power Supply, Soldering Iron