Sivakumar Kunapuli
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TECHNICAL SKILLS

- **Programming:** Python, Verilog, Java, HTML/CSS, JavaScript, Node.js, Git, Android, C++, React, Go, MATLAB

EDUCATION

University of Cincinnati **Graduation: Summer 2026**
College of Engineering and Applied Sciences
Bachelor of Science, Computer Engineering, Math (minor)
Cincinnati, OH

- Active involvement in campus organizations such as: **Bearcat Electric Vehicle** Club (**Drivetrain** Team)

EXPERIENCE

Research Assistant – University of Cincinnati College of Medicine, and Cincinnati Children's **Feb 2024 – Present**

- **Proactively researching** transformers, **Large Language Models** applications in peptide sequence generation through **independent study of relevant research literature**.
- This is laying a strong foundation for future contributions to the project and developing expertise in this area.
- **Actively training** models and **benchmarking** results to peptide sequences generated by GANs.

Research Assistant – University of Cincinnati College of Engineering and Applied Sciences **Jan 2024 – Present**

- **Engaged** in **ongoing research** on **quantum computing**, specifically **focusing** on a **quantum teleportation project**.
- This **involves actively exploring** the underlying **concepts** through attending classes, participating in discussions and workshops, and **gaining** a solid **understanding** of **quantum mechanics** and related **algorithms**.

Advanced Engineering Intern – Chamberlain Group, A BlackStone Company **Sept 2023 – Dec 2023**

- **Spearheaded** the **development** of a **native app (in Java)**, integrating **Yolo Neural Network** for real-time **object recognition** within live (RTSP) streams, and **collaborated** on a **cross-functional team** of **5** enhancing the **IoT** product functionality.
- **Developed server-side code** to host the **RTSP Stream** on a **Raspberry Pi 4** using **Python** and utilized **mediamtx** for **efficient management** of **media data**.
- **Gained proficiency** in developing RTOS, STM32, Raspberry Pi, ESP32, and various other dev boards and sensors, contributing to IoT product prototyping, and **developed** a theoretical **SoC.**
- **Guided** the **theoretical design** of a pioneering **System-on-Chip (SoC)** featuring the **AMBERALLA CV25S chip** for computer vision and night vision, **seamlessly integrating** Wi-Fi and Bluetooth capabilities.
- **Actively engineered** a sophisticated notification system **leveraging** Java/Android and MQTT communication services, designed to trigger alerts based on specific object detection, enhancing real-time responsiveness and system efficiency.

Computer Engineer – NASA L'SPACE Academy **June 2022– Dec 2022**

- **Developed** a **theoretical design** of a **communication system** for the **Mars Cave Exploration Rover mission**.
- **Defined meticulous system requirements**, handpicked **µSDR-CTM SDR** from Space Micro, and **crafted a UHF antenna**.
- **Managed** the **manufacturing process**, involving outsourcing the **SDR module** and custom manufacturing of the **antenna**.
- **Directed integration processes**, overseeing comprehensive testing by both Space Micro and the MACAR team.
- **Executed** thorough validation and verification testing, meticulously simulating conditions akin to the Martian cave environment.
- **Successfully** demonstrated the **system's robustness** in the **transmission** of **data** and **reception** of **navigation commands**.

PROJECTS

Alarm Web App **Mar 2024**

- **Architected a full-stack web application,** employing **ReactJS** on the **frontend for** dynamic user interfaces and **Node.js with Express.js** on the **backend** for **scalable** and efficient **API handling.**
- **Integrated** the **Spotify API** to **facilitate seamless** song selection**,** employing **advanced HTTP methods** and **URL path parameters** for **enhanced API** flexibility**.**
- **Engineered** user **authentication** and employed **MongoDB** to **store** and **retrieve** user**-**specific preferences**.**

Small-Scale REST API **Nov 2023**

- **Utilizing** the Gin web framework and **Golang** to **build a RESTful API** with multiple endpoints.
- **Implementing** three **HTTP method**-and-**endpoint** combinations for **GET** and **POST actions**, facilitating **conversion between** a **Go struct** and **JSON**.
- **Supporting** URL path parameters for enhanced API flexibility and functionality.

AI Image Generator **Aug 2023**

- **Utilized** OpenAI API to **craft** an AI-powered image generator, enabling users to create images based on provided prompts.
- **Implemented** asynchronous **JavaScript** for a smooth user experience of **real-time image generation** without page refresh.
- **Integrated** particle.js for an engaging visual background, enhancing user experience with visually appealing elements.

Weather Forecast Web Application **July 2023**

- **Developed** a user-friendly **web application** for **real-time** weather forecasts, by **integrating** the **OpenWeatherMap API** to **retrieve** and **display** detailed **weather information**, including temperature and current conditions.
- **Implemented** responsive design principles using **HTML**, **CSS**, and **JavaScript**, ensuring usability across various devices.