Aashish Thapa

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EXPERIENCE

Undergraduate Research Assistant   Jan. 2025 – Present
The University of Southern Mississippi   *Hattiesburg, MS*

- Conducting research on IoT device fingerprinting for network security.
- Developing machine learning models to classify IoT devices based on traffic patterns.
- Utilizing the IoT-23 dataset for data preprocessing and evaluation of classification models.

Undergraduate Research Assistant   Oct. 2024 – Present
The University of Southern Mississippi   *Hattiesburg, MS*

- Developed a real-time image detection system using YOLO and Raspberry Pi.
- Built a custom user interface for a robot, enabling it to detect and analyze objects or their parts in real time.
- Strengthened skills in computer vision, embedded systems, and robotics.

Web Developer Intern   Dec. 2022 – July 2023
Islington College   *Kathmandu, Nepal*

- Boosted website performance, cutting load times by 30 percent through image compression, file minification, and server-side optimization with Node.js and Express.
- Ensured cross-browser consistency by identifying and resolving bugs, maintaining smooth performance across different platforms.
- Enhanced site interactivity by 20 percent by integrating a blog section and contact form, leveraging React and MongoDB to ensure fast content delivery.

TECHNICAL SKILLS

Languages: Python, C/C++/C, SQL PostgreSQL, JavaScript, Typescript, HTML/CSS
Frameworks: React, Angular, Vue, Node.js, Flask, WordPress, Material-UI, FastAPI, Ruby on Rails
Developer Tools: Git, Docker, Google Cloud Platform, VS Code, Visual Studio, PyCharm
Libraries: pandas, NumPy, Matplotlib

EDUCATION

The University of Southern Mississippi   Hattiesburg, MS
Bachelor of Science in Computer Science, Bachelor of Science in Mathematics   *Aug. 2023 – May 2027*

PROJECTS

Zero Waste Kitchen Recipe | *Expo, Node.js, Firebase, TensorFlow, Computer Vision, OpenAI API Jan. 2025 – Present*

- Developed a full-stack app with Expo and Node.js for seamless user interaction.
- Implemented ingredient scanning with computer vision and TensorFlow for real-time recognition.
- Integrated OpenAI APIs for intelligent recipe recommendations optimizing ingredient usage.

Sentiment Chatbot Web App | *React.js, FastAPI, PostgreSQL, cURL, Git*   *Nov. 2024 – Dec. 2024*

- Integrated Hugging Face's "j-hartmann/emotion-english-distilroberta-base" model for emotion detection, leveraging DistilRoBERTa's lightweight transformer architecture.
- Optimized a full-stack application pipeline for seamless communication between the React frontend and FastAPI backend with minimal latency.
- Integrated a PostgreSQL database to store user messages and sentiment analysis results securely.

FireTracker Mobile App | *React Native, FastAPI, CNN model, NASA FIRMS API, AWS*   *Oct. 2024 – Nov. 2024*

- Built a mobile application to display real-time satellite data of fire-prone locations using NASA FIRMS API.
- Integrated a backend with FastAPI and a CNN model to predict fire spread and provide advanced fire detection insights.
- Developed geolocation-based functionality to show the user's current location and nearby fire alerts on an interactive map using React Native Maps.

LICENSES AND CERTIFICATIONS

Introduction to CyberSecurity - Cisco
Machine Learning with Python - freeCodeCamp
Data Visualization - freeCodeCamp