Bipul Adhikari

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EDUCATION

University of Southern Mississippi, *Computer Science BS & Mathematics BS*   05/2027
Related Coursework: Object Oriented Programming, Data Structure and Algorithm, Secure Software Development, Advanced Mathematics, Database Management Systems Design

WORK AND RESEARCH EXPERIENCE

Full-stack Developer,   08/2024 – present
Gulf South Center for Community Engaged Health Research and Innovation
- Enhanced Bridz2U health app frontend with Vue.js, improving user engagement through a more intuitive interface.
- Integrated Ruby on Rails backend with MVC architecture to streamline data access and improve performance.
- Developed and optimized interactive features, increasing engagement and facilitating more effective data collection.
- Utilized AWS LAMP stack for efficient deployment and scalability.

PROJECTS

Chama, *HackPrinceton fall 2024*   11/2024
- Developed **Chama**: A cryptocurrency literacy platform with real-time candlestick charts, sentiment analysis, and **AI-driven insights**.
- Integrated **OnChainKit** for secure in-app crypto transactions, winning **"Best Use of OnChainKit"** at Hack Princeton.
- Added **Wallet-as-a-Service (WaaS)** to support multi-blockchain wallet connectivity, enabling in-app crypto buying and selling.
- Implemented **Retrieval-Augmented Generation (RAG)** for continuous data updates from 34,000+ sources, providing news-informed buy/sell recommendations.
- Optimized data retrieval speed and real-time market analytics with **LanceDB** and **LlamaIndex** on **Databricks**.

CleanLabel: an ingredient label scanner, *2023 Hatchathon, USM*   11/2023
- Developed an iOS app in **SwiftUI** to scan food labels and alert users of harmful ingredients for improved health choices.
- Implemented **Computer Vision** to filter label text, ensuring accurate detection of unsafe substances.
- Built a backend using **Express.js** and **Node.js** connected to **PostgreSQL** for efficient data handling and storage.

Recurrent Neural Network for Music Generation, *MIT 6.S191*   07/2024
- Built a sequence-to-sequence model using **LSTM** layers to generate music in ABC notation.
- Leveraged **TensorFlow** and **Keras** for model building and training.
- Designed a text generation pipeline to iteratively predict and sample next characters to create new music sequences.
- Integrated **Comet.ml** for tracking experiments, visualizing training metrics, and hyperparameter tuning.

Product Landing Page- CleanLabel, *Golden Eagle Idea Pitch Competition*   05/2024
- Developed a responsive landing page using React and **Tailwind CSS** to promote the CleanLabel app.
- Automated the ***CI/CD*** pipeline with **Azure**, enabling faster deployments and improving the development workflow.
- Crafted modern **React components** for efficient state management and lifecycle handling, enhancing the user interface.
- Designed cohesive brand visuals using **Adobe Illustrator** to establish a strong and memorable brand identity.

AWARDS

Best Use of OnChaiKit, *HackHeist HackPrinceton Fall 2024*   10/11/2024
- Awarded "Best Use of OnChainKit" track by Coinbase at Hack Princeton for developing Chama, a cryptocurrency literacy app that empowers users with real-time insights, sentiment analysis, and seamless in-app transactions.

2023 Hatchathon | Tech for Social Impact, *The Hatchery USM*   17/11/2023
- Awarded $2,500 for the development of an innovative AI-driven project recognized as the best among 50 teams.

Golden Eagle Idea Pitch Competition 2024, *USM*   05/2024
- Secured $1,000 for presenting an innovative product idea that impressed a panel of industry experts.

SKILLS

Languages and Frameworks:
Python, JavaScript, C++, C#, React, Node.js, Next.js, FastAPI, Vue.js, Express.js, Ruby on Rails, TensorFlow, Keras, Numpy, SciPy

Cloud Services, Databases, and Other:
AWS, Firebase, MongoDB, SQL, Git, MySQL, PHP, Azure, Databricks, Supabase, LlamaIndex, LanceDB

COURSES

Introduction to Deep Learning, *MIT 6.S191*

Legacy Javascript Algorithms and Data Structures, *freeCodeCamp*