Bimarsh Bhusal

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Professional Experience

Undergraduate Researcher, *School of Computing Sciences and Computer Engineering, University of Southern Mississippi* 09/2023 – Present

- Conducted in-depth analysis of the CERT Insider Threat dataset, employing Latent Dirichlet Allocation (LDA) for topic distribution modeling.
- Executed one-class classification, utilizing K-means Clustering and Gaussian Density Estimation, alongside Principal Component Analysis (PCA), to detect and mitigate insider threats within organizational user behavior.
- Efficiently managed parallel data processing on HPC clusters using the Slurm Workload Manager for accelerated data analysis.

Mobile Application Developer, *Plato Academy of Law* 12/2021 – 11/2022

- Created a dynamic Android exam preparation app using React Native, catering to LLB, LLM, BA LLB, and Advocate License students.
- Implemented secure payment system and Firebase for secure user authentication and Firestore for efficient data storage.
- Published the app on the Google Play Store, empowering students with accessible and high-quality exam preparation resources.

Projects

Transfer Student Credit Management App, *Web Application Development for USM* 08/2023 – present
School of Computing Sciences and Computer Engineering

- Designed a web application for managing transfer student credits and implemented server-side rendering using Next.js
- Utilized PostgreSQL on RDS for database management and S3 for data storage and CloudFront for content distribution.
- Implemented reverse proxy on an EC2 instance, ensuring optimal hosting for Node.js applications.
- Deployed Express server and Next.js server on on an AWS EC2 instance, setting up reverse proxy with Nginx for optimal server hosting
- Implemented role-based authentication, providing separate admin panels and user dashboards

Veggies, The Farmers' App, 01/2022
Mobile Application for Plant Disease Detection and Weather Alerts

- Created a mobile app using React Native for the front-end and Django for the back-end, incorporating machine learning models for plant disease detection
- Improved user engagement with push notifications, delivering real-time extreme weather alerts
- Collaborated with local farmers for extensive app testing and showcased the project at Yomari Code Camp, hosted by Kathmandu University

Bhetghat, A Food App, *Android Application for Food Delivery* 12/2021

- Developed a cross-platform Android app using React Native for broad compatibility.
- Utilized Firebase and Node.js for the back-end and database management, including GPS-based location tracking and OAuth for secure user authentication.
- Published the app on the Play Store, leading to increased restaurant sales and expanded customer reach

Education

Compter Science, *University of Southern Mississippi* 08/2023 – 05/2027

Skills

Programming Languages and Frameworks (C++, Python, NodeJS, JavaScript ES6+, Django, ExpressJS, React, React Native, NextJS, Redux)

Cloud Services, Database and Other (PostgreSQL, Git, Amazon Web Services, Google Cloud Services, Android Studio, Firebase, Material Design, UNIX/Linux, Vim, Slurm Workload Manager)

Certificates

- JavaScript Algorithms and Data Structures 🔗
- Scientific Computing with Python 🔗
- Frontend Development Libraries 🔗
- Data Analysis with Python 🔗
- Data Visualization 🔗
- Responsive Web Design 🔗
- Backend Development and APIs 🔗
- Machine Learning with Python 🔗

Awards

Creatica 2022 Hackathon Winner, *Major League Hackathon (MLH)* 05/2022

Mahatma Gandhi Scholarship, *Indian Embassy* 03/2021