SAMAR PRATAP SINGH

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Education

University at Buffalo, The State University of New York August 2022 – January 2024
Master of Science in Computer Science and Engineering *New York, United States*
Coursework: Analysis of Algorithms, Computer Vision, Database Systems, Modern Network Concepts, Machine Learning.

Vellore Institute of Technology, Vellore July 2018 – May 2022
Bachelor of Technology in Computer Science and Engineering *Vellore, India*
Coursework: Data Structures and Algorithms, Networking, Operating Systems, Web Programming, Database Management.

Technical Skills

Languages: Python, Java, C/C++, SQL, JavaScript, TypeScript, HTML/CSS, C#, Go lang

Technologies/Frameworks: ReactJS, NodeJS, TensorFlow, OpenCV, Git, RestAPI, Spring boot, CI/CD

Cloud/Database: AWS, IBM, MongoDB, Postgres, Docker, Hadoop, PySpark, GraphQL, Kubernetes

Work Experience

X-Lab - University at Buffalo, SUNY December 2023 - Present
Research Assistant - Flask, ReactJS, NodeJS, Selenium *Buffalo, NY*
- **FASA Web:** Spearheaded the development of a web application that converts audio into text descriptions. Responsible for web development, integrating audio processing capabilities, and ensuring compatibility across various audio formats, resulting in a **capacity of over 500 requests per week.**
- **SLPWiki:** Developed a Selenium-based web crawler for extracting and organizing publication data from asha.pubs.org. Managed the collection and listing of over **2,000 detailed publications** and their attributes.
- **X-lab-home:** Led the front-end development of the lab's home website, focusing on user interface design, enhancing overall user experience, and mobile responsiveness - **increasing mobile traffic by 25%.**

Honeywell February 2022 - July 2022
Machine Learning Intern - Spring boot, Angular, CSS, RestAPI, TensorFlow *Pune, India*
- Developed an advanced machine learning model on an Arduino for real-time object identification from CCTV feeds, categorizing 20+ objects. Enhanced with a web interface using **HTML, CSS, JavaScript, and Angular** for displaying feeds and alerts.
- Utilized **Python, TensorFlow, YOLO-v3,** and MS-COCO dataset for the ML model. **Integrated backend with Java and Spring boot** and data fetching with **RestAPI** for real-time data management, enhancing operational efficiency and safety by improving protocol adherence by 20%.

TimeWatch Infocom June 2020 - August 2020
Software Engineering Intern - Python, OpenCV, TensorFlow *Delhi, India*
- Engineered and analyzed 'minutiae' of different fingerprints using machine learning for fingerprint identification. Trained model on over 10,000 fingerprints.
- Streamlined biometric verification processes, **reducing false-positive rates by 25%** and enhancing overall security.

Projects

Online Dictionary - ReactJS, NodeJS, MongoDB, IBM June 2023
- Crafted an 'Online Dictionary' website from scratch, emphasizing an ad-free and distraction-free user experience, unlike other dictionary websites. **4.7/5 rating of website** from survey taken in university.
- Amalgamated a word database with over 120k words and added more than 50k natural-sounding audio pronunciations.
- Partnered with a team of four to implement **frontend, backend and database.** Final deployment on **IBM Cloud.**

Gait Recognition System - OpenCV, TensorFlow, Python November 2022
- Harvested data from Max Planck Human Pose dataset and assembled model. The model is capable of detecting first the pose, then the gait of person using a single camera. Model accuracy was over 85%.
- Optimized the system to accomplish a biometric authentication system without any intrusion into the subject. The system could **distinguish angle differences of less than 2 degrees.**

Online Grocery Shopping Portal - JavaScript, CSS, PHP, MySQL January 2022
- Led the development of an innovative online grocery and fruit shopping portal, deploying a user-centric design, achieving a 25% increase in user engagement through intuitive navigation and aesthetics.
- Utilized **PHP** for dynamic server-side logic and **MySQL** for robust database management, ensuring seamless handling capability of 5,000+ daily transactions.