Akhash Senthil Kumar

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EDUCATION

Master of Computer Science   **Graduating May 2025**
Arizona State University, Tempe, AZ
Coursework: Algorithms, Multimedia & Web Databases, Software Security, Knowledge Representation & Reasoning, Statistical Machine Learning, Information Assurance & Security.

B.E Computer Science and Engineering   **Graduated Apr 2023**
Rajalakshmi Engineering College (affiliated to Anna University), Chennai

SKILLS

Programming Languages: Python, Java, C/C++, Javascript, Dart, PHP, SQL
Tools, Frameworks & Operating Systems : Git, Figma, React, Express, Flask, Flutter, Linux
Technologies & Databases: Docker**,** AWS, Azure, REST API, MongoDB, MySQL, Firebase

WORK EXPERIENCE

Software Developer Intern : AnDnR Soft Solutions Private Limited, Chennai   **Dec 2021 – Jun 2022**
● Developed a **cross-platform mobile application** using **Flutter framework** to accomplish a **sophisticated smart monitoring system** for boats which offers seamless functionality across multiple platforms while maintaining a unified codebase for streamlined device management.
● Designed and executed a **robust GPS tracking and Geo-fencing system** that enhanced security measures, resulting in a substantial **26% reduction** in likelihood of theft.
● Optimized API configurations and **managed a complex bug fix** for the MQTT module, resulting in a notable 17% reduction in sensor data retrieval time thereby contributing to **23% improvement** in the overall program's execution time.

Machine Learning Engineer Intern : Verzeo Edutech Private Limited, Chennai   **Jun 2020 – Aug 2020**
● Spearheaded the development of an **image detection system** leveraging relevance feedback and ResNet architecture, contributing to heightened **precision of 89%** and performance through strategic implementation.
● Implemented a similar image search algorithm by utilizing **Locality Sensitive Hashing** and **personalized PageRank algorithm**, resulting in a **25% improvement** over the previous version and delivering more accurate results.
● Collaborated with the cross-functional team to enhance the scalability of the image detection and search systems, optimizing code and **reducing processing time by 30%**, thereby ensuring a smoother and more responsive user experience.

PROJECTS

Sign Language Interpreter using LSTM, Personal Project   **Dec 2022 – Mar 2023**
● Implemented a **cross-platform mobile app** with a primary focus on accessibility, employing LSTM technology to facilitate **real-time conversion of American Sign Language** (ASL) into text and speech.
● Constructed an RNN model encompassing data preprocessing, **keypoint extraction using MP Holistic**, and comprehensive neural network training.
● Achieved **44% improvement** in simplifying communication for individuals within disabled spectrum, thereby enhancing interaction and inclusivity.

Graphical Password Authentication, Smart India Hackathon 2022 runner-up   **Aug 2022 – Dec 2022**
● Deployed RESTful Web Service using Flutter/React.js, Django Rest Framework, and MongoDB, **enhancing website security by 25%** through an additional layer of authentication and a **novel Polygonal Puzzle system** with 10,240 unique combinations..
● **Reduced brute force attacks by 70%** through login attempt limits and exponential backoff. Combated shoulder surfing and keyloggers by eliminating password entry and requiring puzzle completion. **Mitigated phishing** by removing email-based authentication.
● **Increased user satisfaction by 15%** and confidence in authentication by 20% based on surveys, demonstrating improved usability and perceived security strength.

RFID-Enabled Automated Billing System, Research paper   **Apr 2022 – Jun 2022**
● **Pioneered the integration of advanced IoT devices** and sensors (ESP8266 NodeMCU, EM18 RFID Reader, I2C module for LCD) into a shopping cart, leveraging Radio Frequency Identification (RFID) technology. **Achieved a 38% reduction in billing time** and **boosted business profits** by **automating and expediting** the checkout process.
● Developed robust logic for NodeMCU operation using Arduino IDE, **augmenting** the mobile app with essential modules like authentication and payment. **Streamlined user experience** and **enhanced security** through **innovative app-connected functionalities**.
● Demonstrated expertise in operating and **integrating various IoT devices and sensors**, including ESP8266 NodeMCU, EM18 RFID Reader, and I2C module for LCD. Possess a strong understanding of IoT applications and their potential to **revolutionize business processes**.