ASUTOSH KARANAM

Tempe, AZ 85281 | akarana5@asu.edu | +1-5104971855 | https://ww.linkedin.com/in/asutosh-karanam | https://github.com/asutoshkaranam

EDUCATION:

MS Computer Engineering (Computer Science) JAN 2023 - DEC 2024
Arizona State University, Tempe, USA. GPA: 4.0
Relevant Coursework: Foundations of Algorithms, Cloud Computing, Data Processing at Scale, Data Mining, Probability and Statistics.

TECHNICAL SKILLS:

Programming: C/C++, Python, Java, HTML5, CSS3, ES6 JavaScript, SQL, Node.JS, React, ExpressJS, D3.js
Databases: PostgreSQL, MySQL, MongoDB
Tools and Frameworks: Scikit-learn, Keras, Tensorflow, OpenCV, Android Studio, Bootstrap, JQuery, Mongoose, Django, REST API
OSS Libraries: NumPy, Pandas, Protobuf, MsgPack, cJSON, Hostap-WPA Supplicant, nl80211
Cloud Services : AWS

EXPERIENCE:

Software Engineer - Solutions Engineering | EdPlus at Arizona State University - Scottsdale, AZ APRIL 2023 - Present

- **ASU Online |** *HTML5, CSS3, D3.Js, Node.JS, Cypress*
  Developed a software suite that verifies multiple Web Apps on the ASU Online website such as Tuition Fee Calculator, Request for Information Form, Chat-Bot. Piloted the development of a visual-rich report generation and emailing framework using D3.js and Node.js, ***completely freeing up engineers to focus on strategic work***.
- **ASU Orchard |** *HTML5, CSS3, Node.JS, PHP, Behat, Drupal, Cucumber*
  Led the effort of building the entire software suite to automate the verification of Course Search Functionality, Role based Access control and specially delegated user access permissions to the educational content hosted on the web service. Achieved a ***90% reduction in manual debugging effort***.

Engineer II, Product Software Development | Comcast - Chennai, India JUN 2019 - DEC 2022

- **WebConfig** | *C/C++, Multipart HTTP, MsgPack, JSON, Protobuf, REST*
  Developed and maintained an application that bridges XFi Cloud and the customer device to apply the configuration packs. Parsed cloud-sent msgPack and Protobuf data, and transacted with the deviceManager app. Designed this library as a wrapper around a common configuration queue to process server config requests sequentially.
- **Passpoint** | C/C++, JSON
  Developed and maintained entire multi-threaded software application which highlights a packet processing engine implemented using several data structures. It's built following an SDN model to record and respond to the client queries over Unix sockets. Timed thread signaling mechanisms were also employed to achieve synchronization.
- **HAL 3.0 |** C/C++, JSON
  Developed the 3.0 version of the device level API abstraction layer of RDK-B Software, resulting in enhanced system performance and configurability. Conducted extensive optimizations through supporting bulk configurations, leading to ***substantial improvements in both speed and ease of configuration***.

Intern, Product Software Development | Comcast - Chennai, India JAN 2019 - MAY 2019

- **App Debug Framework** | *C++, Yocto*
  Implemented a centralized debugging framework that inspects native software applications of the product at runtime. It features a friendly CLI to retrieve runtime diagnostics data of multiple Apps using a sophisticated IPC Bus mechanism. It's designed for developers, QA and Field Engineers and resulted in a ***great reduction of manual debugging effort by 40%***.

ACADEMIC PROJECTS :

- **Health Monitor** | *Java, Kotlin, SQL, Android, CameraX-API, Google Maps SDK*
  Implemented a Mobile App to measure Heart Rate, Respiratory Rate and log disease symptoms leveraging the Camera and Accelerometer Sensor modules. This data will be fed to a probabilistically calibrated Advisory Control of a Level3 Autonomous Car modelled based on the Road Conditions inferred from Google Maps Directions, DistanceMatrix and Routes API.
- **Guardian Angel |** *React-Native, Python, Django, REST API, SciKit-Learn, Pandas, Collaborative Filtering, YOLOv5, OpenCV*
  Developed autonomous driving assistant with collision detection and adaptive infotainment. Curated context-aware music algorithm providing personalized recommendations based on preferences and location. Implemented self-adjusting audio controller customizing music volume based on traffic and user history.

RESEARCH WORK :

- **Evaluating Machine Learning models to detect DdoS Attacks in Cloud Systems**
  Proposed a research report on using machine learning and deep learning algorithms to detect DDoS attacks in cloud systems. Discussed inadequacies of traditional methods and assessed the effectiveness of alternate approaches utilizing ML on CICDDoS2019 and NSL-KDD Datasets. Also, proposed a new hybrid methodology for detecting DDoS attacks in cloud systems.

AWARDS AND ACHIEVEMENTS:

- Laurelled with accolades namely "YOU NAILED IT!" and "CHAMP-Pinnacle" by Comcast for being the stand-out performer.
- Was a Tutor at SASTRA University - Taught Quantitative Aptitude and Computer Programming in C++ to peer students.