ASUTOSH KARANAM

akarana5@asu.edu | 510-497-1855 | https://ww.linkedin.com/in/asutosh-karanam | https://github.com/asutoshkaranam

EDUCATION:

Master of Science, Computer Engineering (Computer Science) **| GPA: 4.0** JANUARY 2023 - DECEMBER 2024
Arizona State University, Tempe, USA.
Relevant Coursework: Foundations of Algorithms, Cloud Computing, Data Processing at Scale, Data Mining, Mobile Computing.

TECHNICAL SKILLS:

Programming: C, C++, Python, HTML5, CSS3, ES6 JavaScript, Node.JS, React, Express JS, D3.JS, Java, Hadoop, Spark, SQL
Databases: PostgreSQL, MySQL, MongoDB
Tools and Frameworks: Scikit-learn, Keras, Tensorflow, OpenCV, Android Studio, Bootstrap, JQuery, Mongoose, Django, REST API, NumPy, Pandas, PyTorch, Protocol buffers
Cloud Frameworks: AWS IAM, EC2, S3, SQS, Lambda, Cloud Watch, Docker

EXPERIENCE:

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

- **ASU Online |** *HTML5, CSS3, JavaScript, Node.JS, D3.JS, Cypress, Slack SDK.*
  - Develop software suites for verifying Web Assets on the ASU Online Content Delivery Platforms and Chat-Bot.
  - Piloting development of a visual-rich report generation and emailing frameworks with Charts designed in D3.js and Slack SDK - Node.js, ***completely freeing up engineers to focus on strategic Analytical work***.
- **ASU Orchard |** *HTML5, CSS3, Node.JS, PHP, Behat, Drupal, Cucumber.*
  - Leading the effort of building a software suite to automate the verification of Course Search, Permissions to the educational assets on the ASU's content delivery platform. Achieved a ***90% reduction in manual debugging effort***.

Software Development Engineer 2 | Comcast - Chennai, India JUN 2019 - DEC 2022

- **WebConfig** | *C, C++, Python, Multipart HTTP, Protocol buffers, REST.*
  - Developed an application that bridges XFi Mobile App and customer home device to apply user configurations.
  - Involved parsing cloud-sent Protocol buffers to transact with device Manager App.
  - Designed this as a scalable open source wrapper library for processing cloud server messages asynchronously.
- **Passpoint** | *C, C++, Python.*
  - Devised and maintained the multi-threaded software application including a packet processor engine from scratch.
  - Built this following an SDN model to process client network requests over Unix sockets.

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

- **App Debug Framework** | *C++, Python, Socket Programming.*
  - Implemented a centralized debugging framework to inspect native software applications of Xfinity devices at runtime.
  - Featured a CLI to invoke remote commands and retrieve runtime metrics of Apps over an IPC Bus mechanism and Designed to reduce developers, QA and Field Triage ***manual debugging effort by 40%***.

ACADEMIC PROJECTS :

- **Image Recognition as a Service** | *Node JS, Express JS, InceptionV1-ResNet, PyTorch, Python, AWS EC2, SQS, S3.* *Link*
  Developed a web application capable of flexibly adjusting its resources, dynamically scaling up or down by 20 EC2 instances according to user traffic using AWS tools. Customized Amazon Machine Images (AMIs) for deploying Pytorch image recognition application on EC2 instances and employed SQS for managing request and response handling. Successfully executed and tested on AWS for client access, conducting thorough testing with 1000 requests in 5 Minutes.
- **Health Monitor** | *Java, Kotlin, SQL, Android, Camera-X API, Google Maps SDK.* *Link*
  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 w.r.t cognitive load & Road Conditions inferred from Google Maps Directions, Distance Matrix and Routes API.
- **Guardian Angel |** *React-Native, Python, Django, REST API, SciKit-Learn, Pandas, , YOLO Net v5, OpenCV.* *Link*
  Managed a team of 5 people and Developed an AI powered driving assistant with object detection, adaptive infotainment controllers. Curated context-aware music prediction algorithm for personalized song recommendations based on preferences and location. Devised a self-adjusting audio controller to customize volume based on traffic situation and user history.

RESEARCH WORK :

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

AWARDS AND ACHIEVEMENTS :

- Laureled with accolades namely "YOU NAILED IT!" and "CHAMP-Pinnacle" by Comcast for being the stand-out performer.
- Elected as a Professional Mentor at SASTRA University to teach Quantitative Aptitude and Programming in C++ to peer students.