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** DECEMBER 2024
Arizona State University, Tempe, USA.
Relevant Courses: Foundations of Algorithms, Cloud Computing, Data Processing, Data Mining, Data Visualization, Mobile Computing.

TECHNICAL SKILLS:

Programming: C, C++, Python, HTML5, CSS3, ES6 JavaScript, TypeScript, Node.JS, React, Express JS, D3.JS, Java
Libraries and Frameworks: NumPy, Pandas, Scikit-learn, PyTorch, Keras, Tensorflow, OpenCV, Hugging Face, Hadoop, Spark, Android, Bootstrap, JQuery, Mongoose, Django, Protocol buffers, Leaflet.js, Bitbucket Pipelines, Salesforce, CI/CD
Databases: PostgreSQL, MySQL, MongoDB, DynamoDB
Cloud Technologies: AWS IAM, EC2, S3, SQS, Lambda, Elastic Beanstalk, ECR, Cloudwatch, Docker, Google Cloud - Maps

EXPERIENCE:

Software QA 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, Bitbucket pipelines, Salesforce, Postman.*
  - Developed web assets and set up automation pipelines for ASU Online content delivery network and Chat-Bot.
  - Piloted development of visual-rich report generation and emailing frameworks with Slack SDK - Node.js and visualizations designed in D3.js, ***completely freeing engineers to focus on strategic analytical work***.
- **ASU Orchard |** *HTML5, CSS3, Node.JS, PHP, Behat Gherkin, Selenium, Drupal, Cucumber, LTI-canvas.*
  - Led the entire effort of building a software suite to automate verification of Course Search and Permissions to educational assets on ASU's online 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 bridging XFi Mobile App and customer home device to apply user settings.
  - Processed protocol buffers received from the cloud endpoint and transacted with Device Manager App.
  - Extended further to an open-source library for processing Protocol Buffers, JSON, and msgPacks asynchronously.
- **Passpoint** | *C, C++, Python.*
  - Devised and maintained multi-threaded software applications, including a packet processing engine from scratch.
  - Modeled algorithms following Software Defined Networking design 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. 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 multi-tier web application capable of dynamically scaling up or down according to user traffic using AWS. Customized AMIs for deploying the InceptionV1 Image recognition model on EC2 instances and employed SQS to manage request and response handling. Validated on AWS, resulting in 1000 requests that took less than 5 minutes to process.
- **Health Monitor** | *Java, Kotlin, Matlab, Simulink, SQL, Android, Camera-X API, Google Maps SDK.* *Link*
  Implemented an Android Mobile App to measure Heart and Respiratory Rates & symptoms logging, leveraging the CameraX and Accelerometer modules. Curated a probabilistically-calibrated Level-3 autonomous vehicle modeled w.r.t human cognitive load & road conditions inferred from Google Maps Directions, Distance Matrix, and Routes APIs.
- **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 ADAS with object detection and 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.
- **Habituate |** *React-Native, Python, Django, REST API, Hugging Face, PyTorch, OpenCV.*
  Ideated and devised an AI-driven habit-tracking app employing ResNet, Mistral-7b RAG, and Moondream2 chatbot for sustainable anomaly detection in cultivating habits. Integrated object detection models and VLMs to offer personalized feedback and tips, fostering healthier habits and workspace tidiness with images uploaded by users.

AWARDS AND HONORS:

- Laureled with accolades, namely "YOU NAILED IT!" and "CHAMP-Pinnacle" by Comcast for outstanding performance.
- Honored with "SUN Award" for consistent performance and hard work by EdPlus at Arizona State University.
- Elected as a Mentor at SASTRA University to teach Quantitative Aptitude and Programming in C++ to more than 500 students.