SURAPUREDDY AMARNATH REDDY

Research engineer (AI/ML)

SUMMARY

I am Research professional with a broad skill set in research, developing and deploying advanced technology solutions. My role involves turning complex data into actionable insights and creating intelligent systems. I bring innovative projects from concept to reality, ensuring they operate smoothly on cloud platforms. I am always curious to explore new ideas and unafraid to ask questions.

Electrical Engineer | AI(Deep Learning, Computer Vision , Machine learning) | Generative AI

| NLP | Cloud Computing | Data Analysis | Web Development | CPP |

TECHNICAL

- Programming   Python, C++
- Front-end   HTML, CSS. JavaScript(NodeJS), Bootstrap.
- Operating system   Linux, Windows.
- Database   MySQL , MongoDB.
- DevOps Tools   Git, GitHub , Bitbucket .
- Cloud computing   AWS.
- Development Tools   Postman, VS Code, Swagger UI.
- Cloud   Docker.
- Frame works   Flask, Fast Api.

EDUCATION

Bachelor's of Technology   2015 – 2018
Annamacharya institute of technology and science, Rajampet.

Diploma   2012 – 2015
ESC Govt Polytechnic College, Nandyal.

Navabharath em &tm High School   2011 – 2012
SSC, Nandyal.

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Amarnath Reddy Surapureddy

WORK EXPERIENCE

Research Engineer   07/2024 – Present
Mantra Softech India Pvt Ltd, Bengaluru

- Conducted research on emotion recognition using state-of-the-art methodologies and technologies.
- Implemented object detection and multi-object tracking pipelines for diverse real-world applications using Python and C++, ensuring robust tracking accuracy in dynamic environments.
- Evaluated and compared the performance of multiple tracking algorithms to identify the most effective solution for diverse use cases.
- Deployed C++ code on Hailo devices using Meson build, optimizing the system for real-time applications.
- Developed and deployed C++ applications with shared libraries using the Meson build system, streamlining the build process for scalable software.
- Integrated custom object tracking solutions into Media pipe for enhanced functionality and adaptability.
- Designed and implemented nodes, calculators, and graphs to execute Media pipe pipelines effectively for real- time object tracking tasks.
- Designed and Implemented nodes, calculators and graphs to execute Media Pipe pipelines efficiently for smile detection using C++.
- Implemented real-time monitoring of personal and industrial protective equipment (PPE) safety gear using YOLO object detection, ensuring compliance and safety in operational environments.
- Converted YOLO object detection model to Hailo-optimized format (HEF) for seamless integration, enabling efficient real-time monitoring and enhanced performance in edge devices using C++.

Computer Vision Engineer   09/2023 – 04/2024
Alluvium IOT Solutions, Ahmedabad

- Engineered Object Detection Model: Delivered a comprehensive object detection solution using YOLO, including data collection, augmentation, and model training, elevating the precision of detection processes.
- Yolov8 for detecting the objects(Number plate detection, Truck segmentation) and OCR.
- Pioneered Multi-Threaded Video Streaming: Innovated video processing by implementing multi-threading techniques, enabling simultaneous streaming and analysis of multiple camera feeds with real-time detections.
- Integrated Database for Data Management: Streamlined data storage and management by incorporating Mongo DB, ensuring efficient handling and retrieval of critical operational data.
- My expertise includes services like EC2, S3, Lambda, and ECR. I am skilled in designing, deploying, and managing scalable cloud infrastructure.
- Client Engagement and Collaboration: Spearheaded weekly client meetings and collaborated to improve data transformation logic in response to evolving requirements.
- Fast Api Web Frame work for backend and swagger UI for frontend(testing the the Application).

Software engineer   03/2023 – 08/2023
System controls technology solutions private limited, Bengaluru

- Computer vision engineer for cutting edge Applications to detect and extracting the features and train the models and evaluating. Design system architecture to ensure that the software is scalable, reliable, and efficient.
- The backend, developed in Python/C++ with CMAKE, manages data processing, image storage. It handles API requests from the front end and interacts with the backed based on API.
- The front end is built using Node as the user interface. It communicates with the backend for dataretrieval and display, providing a seamless user experience.
- Train computer vision models using OpenCV C++ ML model, optimization and hyperparametertuning.
- Pioneered Multi-Threaded Video Streaming: Innovated video processing by implementing multi-threading techniques, enabling simultaneous streaming and analysis of multiple camera feeds with real-time detections

Software engineer   11/2021 – 02/2023
Kalvet technologies llp, Bangalore

- Technical Knowledge Dissemination: Conducted comprehensive knowledge transfer sessions, empowering team memberswith critical technical insights and best practices.
- The backend, developed in Python/C++ with CMAKE, manages data processing, image storage. It handles API requests from the front end and interacts with the backed based on Flask API.
- Pioneered Multi-Threaded Video Streaming(Python and C++): Innovated video processing by implementing multi-threading techniques, enabling simultaneous streaming and analysis of multiple camera feeds with real- time detections.
- Client Engagement and Collaboration: Spearheaded weekly client meetings and collaborated to improve data transformation logic in response to evolving requirements.
- The front end is built using Node/PYQt5 as the user interface. It communicates with the backend for data retrieval and display, providing a seamless user experience.
- PyQt5 UI development using python and data visualize tools like matplotlib, Seaborn.
- Proficient in translating Python code to C++ by applying proper syntax conversion, type handling, Exceptional handling, Class oriented and optimization techniques for performance and compatibility across both languages.

TECHNICAL

Detecting outer diameter of cable.   11/2021 – 02/2023

Detecting outer diameter of Cable with Python/C++ image processing for Cable industries and user interface with PyQt5/Nodejs

Quality detection of Wooden slats.   03/2023 – 08/2023

Developed a Deep learning model to detect the Quality of wooden slats using Scikit-learn and Tensor flow.

Object Detection and Segmentation   09/2023 – 11/2023

An interactive object detection and segmentation application where users upload images. The system leverages thestate-of-the-art YOLO v8 model for real-time object detection and segmentation. The application returns the imagewith highlighted areas.

Automatic updation of fastapi Docker using Github Actions and AWS   03/2024 – 03/2024

1. Building Automatic Fast Api docker image using AWS EC2 and GitHub Actions. New changes automatic update based on GitHub Action.
2. https://github.com/amarnathreddy0201/docker_fastapi

PERSONAL DEVELOPMENT

EMBEDDED SYSTEMS   6 months
Vector India private limited, Bengaluru

Python and SQl basics   6 months
Hacker rank

ACHIVEMENTS

- Contributed to the hiring process in alluvium iot solutions private limited by providing valuable insights and recommendations on candidate selection.
- Contributed to the hiring process in Kalvet technologies llp limited by providing valuable insights and recommendations on candidate selection.
- Contributed to the hiring process in System controls technologies private limited by providing valuable insights and recommendations on candidate selection.
- Under the guidance of Traffic Police worked as a Traffic controller for one day in Rajampet, Kadapa.
- Elected as a CR in Diploma.