Shubham Agarwal

+917023511169 | sragarwal@outlook.in | Github | LinkedIn | Website

WORK EXPERIENCE

Deepen.AI   **Hyderabad**
Senior Software and Research Engineer   *April 2022 – Present*

- Designed and integrated a Qwen-VL–based Vision-Language Model pipeline for multimodal attribute labeling in diverse environmental scenarios, achieving a **~50% reduction in manual labeling time** while maintaining high semantic accuracy.
- Engineered breakthrough computer vision system achieving **500% performance improvement** over industry-standard solutions, revolutionizing detection efficiency through simultaneous multi-pattern recognition
- Redeveloped the **AI Sense for 3d Pcd object detection using spatial sparse convolutional network and centerpoint inference** and **Hosted it as a Microservice on Azure Pools using batch pools** reducing operational costs by $72000 annually**.**
- Responsible for **development of complete life cycle of ROS2** targetbase lidar-camera and camera intrinsics (Research , POC development and production development and shipping)
- Built robust data processing pipelines for fisheye calibration, handling noisy datasets and extracting features from them to use in calibration.
- Incorporated the **Segment Anything Model** for **Targetless Lidar-Camera** calibration this improved the **accuracy by 66 %** and **reduced time** taken for segmentation by **70%**
- Responsible for **Research and Development of F-Theta and Kannala-brandt Camera Model from scratch** and Productionising the same. Also Incorporated the **KISS-ICP SLAM** to handle unidirectional lidars in a better way.
- **Led** cross functional team of 5 engineers for **Research , Development and productionising of One Shot Overlapping camera Calibration** with **High accuracy of 1 mm in translation and 1 degree in angles**
- **Led** the Implementation of **Outlier Rejection and grouping** in the whole calibration suit which helped with identifying low quality data and improving the accuracy.
- Responsible for the **Transformation and localisation for multi sensor fusion data** in a wide range of scenarios which **reduced the manual labeling man hours by at least 40 percent** .
- Responsible for training a **multiclass classification model on top of an open source model (RESNET)** for classification of multiple properties pertaining to autonomous vehicle driving.
- Responsible for Development of **auto-generation of bifurcation points** which decreased the **extra efforts** needed by labelers for bifurcating points **to 0** saving more than **300,000 manual manhours yearly**.
- Responsible to **improve the time taken to run optimization in calibration by 15.7%**
- **Custom built opencv** for internal use with improvements, fixes and specific use cases and **deployed** it in our environment .
- **Led the development of the charuco generating tool** live on our website and **Improved** the **auto board detection** for lidar and camera to handle noisy or blurry inputs.

Arcesium   **Hyderabad**
Software Engineer   *February 2021 - April 2022*

- Responsible for **Designing and Developing monitoring and alerting systems** for post trade reconciliation application.
- Responsible for **Designing and Driving data Integrity management** for major changes in the architecture and services.
- Improved and re-wrote the previously written code to comply with company standards and adding functionalities and automating many tasks that **saved at least 700 human hours** yearly.
- Worked on **improving the internal proprietary framework .**

LogMeIn   **Bangalore**
Associate software engineer Trainee   *January 2020 - December 2020*

- Responsible for Increasing the **email classification** accuracy for ICICI bank **from 63% to 94% (that classified 10000+ emails daily)** where I worked on creating tools for collection of better quality data,cleaning and formatting of data for better training of ML model and training the Machine Learning Models.
- **Researched and developed a POC** where the email classification was based on word matching which gave an accuracy of 80 percent.
- **Research and developed** a POC for S**peaker diarization for the segregation of transcripts generated** from a single source of audio used in remote work meetings.
- **Responsible** for the formatting and creation of workflow for real-time updating of data between different components along with the creation of charts to provide useful insights to the user.
- **Only Employee** who **Worked Remotely with innovation fields team based out of Boston** in developing "go to office" from scratch.
- Built the **system for Web scraping** the designation and classification of 40k+ customers based on their department within a company for targeted marketing of different products.

SKILLS & INTERESTS

Skills/Tools: Python , Algorithms, Research and Development, Machine Learning, Opencv, pytorch, deep learning, Computer vision, System Design, azure , Google cloud platform (GCP), AWS, Back-end Web Development, Docker, data structures, mongodb, Vision Language Model (VLM), Scalable systems**,** Linux, API, Generalist

Interests: Computer vision, scalable systems, Financial markets (**cleared CFA L1**)