Raghav Prabhakar

Machhine Learning Engineer
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Experience

Machine Learning Engineer December. 2023 – Present
Dubverse.ai *Gurugram, India*

- Developed language classification, music separation models and pushed transcription features to improve product offerings and built internal tools to support business analytics
- Created Text-To-Speech SDK, designed end-to-end data pipelines, and managed large-scale dataset processing and infrastructure setup.
- Led and managed a team of 2-3 engineers, ensuring efficient execution of projects while optimizing infrastructure costs and scaling services for product launches.

Research Assistant August. 2023 – December. 2023
National University Of Singapore (NUS), Singapore *Remote*

- Developed a framework and QA datasets to analyse and improve physical common-sense reasoning in embodied agents.

Research Assistant October. 2023 – December. 2023
Machine Learning Lab - IIIT Hyderabad *Hyderabad, India*

- Researched and deployed Pose Estimation and Tracking Models to provide qualitative feedback to users, enhancing their exercise experience and performance monitoring.
- Orchestrated the on-site deployment of these models in a gym environment for real-world testing and validation.

Research Assistant January. 2023 – August. 2023
Robotics Research Centre (RRC), IIIT Hyderabad *Hyderabad, India*

- Created a pipeline for generating detailed top-down maps with instance data, enhancing autonomous wheelchair's Visual Language Navigation.
- Engineered a gesture-controlled person-following robot with static obstacle avoidance capability.
- Research the applications of Large Language Models (LLMs) in embodied AI domain and code generation.

Co-Founder April. 2020 – June. 2023
Flowdrive.ai *Patiala, India*

- Architected and developed an open-source, cross-platform Level 2 Advanced Driver Assistance System (ADAS)
- Led diverse edge device model deployment and directed robust data collection and logging.
- Executed thorough validation of software functionality through meticulous testing within the CARLA simulator framework.
- Developed pseudo LIDAR system using cameras and deep learning, utilizing DenseDepth for 3D reconstruction from monocular images.
- Implemented deep learning-based behavioural cloning models for autonomous vehicles, creating models that learn and imitate human driving patterns.

Data Science Fellow January. 2022 – March. 2022
Fellowship.ai *Remote, Global*

- Conducted Research and Development on Video Classification Models, Pose Estimation for Video Analytics.
- Contributed to the development of algorithms and tools for analysing video content, including feature extraction, data cleaning, and visualization.

Junior Machine Learning Engineer June. 2021 – August. 2021
Omdena.ai *Remote, Global*

- Developed and deployed real-time object recognition models to detect buses and OCR models to recognize their license plates.
- Integrated the models into the company's mobile app for real-time bus detection and seat occupancy detection and optimized models for efficient processing and low latency
- Spearheaded data collection and engineering efforts, establishing robust data pipelines to fuel AI model development.

Software Engineer January. 2020 – February. 2020

Thapar Satellite Development Center (ThapSat), TIET *Patiala, India*

- Contributed to the design and development of ThapSat Nano-Satellite for monitoring greenhouse gases in Punjab region
- Worked on Software Defined Radio (SDR) development for ThapSat Nano-Satellite project

Publication

1. A. Agrawal, **Raghav Prabhakar**, A. Goyal, and D. Liu. Physical reasoning and object planning for household embodied agents. *Transactions on Machine Learning Research*, 2023

2. L. Nanwani, A. Agarwal, K. Jain, **Prabhakar Raghav**, A. Monis, A. Mathur, K. M. Jatavallabhula, A. H. Abdul Hafez, V. Gandhi, and K. M. Krishna. Instance-level semantic maps for vision language navigation. In *2023 32nd IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*, pages 507–512, 2023

Education

Thapar Institute of Engineering and Technology Patiala, India

Bachelors of Engineering, Computer Engineering, CGPA: 8.6/10 *2019 - 2023*

Spring Dale Senior School Amritsar, India

Higher Secondary, CBSE, 92% *2019*

Spring Dale Senior School Amritsar, India

Secondary, CBSE, CGPA: 10/10 *2017*

Projects

Face surveillance system for Hostels | *Python, Pytorch, React, PostgreSQL, Docker, Django*

- Led the deployment of a full-stack facial surveillance system for monitoring student attendance within campus premises, successfully managing at a scale of 10,000 individuals.

Nucleus Segmentation From 2D Scans | *Python, Keras, OpenCV*

- This project was an implementation of U-Net from scratch in the Bio-Imaging sector. It was also part of the Kaggle Data Science Bowl 2019. A model with accuracy of 94.3% was made to detect cells and nucleus from scans.

Image Captioning | *Python, Pytorch, OpenCV*

- Implemented a Deep Learning project utilizing a CNN-LSTM model trained on Flickr30k dataset. Task involved image summarization through caption generation using PyTorch framework.

Painter For Noobs | *Python, Pytorch, OpenCV, Streamlit*

- It is a website which lets you transform an image into an artstyle and allows you create virtual backgrounds for online meetings. It is based on Neural Style Translation. It was deployed on Web using Streamlit.

Technical Skills

Languages: Python, Java, C++, SQL
Frameworks: Pytorch, Keras, ROS Navigation Stack, Flask, Celery, FastAPI
Developer Tools: Git, Docker, GCP, AWS, Azure, Gradle, Swagger, Grafana, Prometheus

Achievements

Top 8% in Kaggle Mayo Clinic - STRIP AI Competition
OpenAI Researcher Access Program, 2023
Finalist in Manthan Cybersecurity Hackathon (Organised by Govt of India) - Deepface Detection Track