SHUBHAM PRASAD

Data Scientist

LinkedIn | GitHub | Portfolio
Hackerrank
shubhamprasad910@gmail.com
9871846435

SUMMARY

Innovative and Results-driven professional with 6 years of experience, including 5 years specializing in machine learning and deep learning. Expert in developing AI solutions, optimizing models, and extracting actionable insights. Proven success in leading projects by leveraging cutting-edge technologies to deliver scalable, efficient solutions.

KEY SKILLS

Python, Machine learning, Deep learning, Computer Vision, OpenCV, NLP, SQL, EDA, TensorFlow, Pandas, Numpy, LLM, Mlops, Time Series, Microsoft Azure, Probability Statistics, Tableau, docker

WORK EXPERIENCE

Senior Research Scientist , Agilysys — **Feb 2021 - Present**

Leading a patented project in Computer Vision and different modules of projects in GenAI, and LLM to improve the customer experience and operational efficiency.

Projects:

Self-checkout kiosks: Detects multiple food items at once using computer vision - **Yolov4** model was used. Multi-camera fusion was performed for high accuracy.

- **Hyperparameter tuning** using Ray Tune to improve model accuracy.
- **Image Transfer & Storage:** Developed a **multi-threaded program** facilitating seamless image transfer from client devices to **Azure containers.**
- Designed and implemented a robust **database schema** to efficiently store model data and developed APIs for streamlined retrieval of model and item catalog information.
- **Real-Time Alert System:** Utilized **Azure Function App** to send real-time notifications to Microsoft Teams, improving response times to errors or exceptions.
- **Semi-Supervised Learning:** Developed meta-learners using ResNet-18 with prototypical networks, leveraging PyTorch and the easyfsl library. This approach eliminated the need for manual annotation, reducing the annotation time by 90%, and requiring only validation.
- Conducted **t-test analysis** on total transaction time to compare the performance of deploying two models versus a single model to determine the impact on customer experience.
- Developed **APIs in Python Flask** for the UI application that visualizes items detected by the model. Collaborated with team members to seamlessly integrate frontend and backend.

Quick Resolve AI: Led the development of a **RAG-based** system that enables customer support teams to query documents directly, reducing ticket resolution time by 80%.

- Utilized LangChain and open-source LLMs to generate concise and accurate responses.

Technologies: YOLOv4, u2net, Ray Tune, MobileNet, Python Flask, Azure Function App, SQL workbench, labelimg, Azure DevOps. img2vec, Imagehash, hugging face, git, pytest, mediapipe

Software Scientist (Executive), Apollo tyres — **Dec 2018- Jan 2021**

Global Research and Development

Associated with Computer vision and image processing projects.

Tyre Inspection System: Detect manufacturing defects in tyres. Mask RCNN model was used.

- Optimized hyperparameters - Train_ROIs_Per_Image and Detection_Min_Confidence used in the Mask RCNN model using Tensorflow to improve confidence in masking defects in tyres.

Forklift detection and counting: Identify the number of forklifts leaving and entering BU.

- Used fine-tuned **yolov4 and OpenCV for detection** and **Deep SORT** for tracking movement.

Technology innovator, SPI Incubator **Jun 2018- Nov 2018**

Personalized Learning: Conducted research on the development of Multi-Agent Systems for personalized learning.

EDUCATION

Master of Science in Computer Science, specialization Artificial Intelligence and Machine learning, Woolf University **Sept 2022 - Present**

Bachelor of Engineering in Instrumentation and Control **Aug 2014 - May 2018**
Netaji Subhas Institute of Technology, Dwarka Delhi 7.61 CGPA

12th CBSE Senior Secondary Examination **March 2013**
S.M.Arya Public School Punjabi Bagh PCM - 84.6%

10th CBSE Secondary Examination **March 2011**
Kendriya Vidyalaya Paschim Vihar 9.8 CGPA

PERSONAL PROJECTS

Song Recommendation system: (Explore project - github link)

- Developed a streamlit application that allows users to select a song they like and recommends similar songs based on a similarity matrix.
- The similarity matrix is derived using cosine similarity between all the songs. It is an implementation of the Content-based recommendation system.

News classification application: (live_project_link, github_link)

- Simple streamlit web application that classifies news articles into one of five categories.
- RandomForest, DecisionTree and Multinomial NB models can be used for classification.

CERTIFICATION

Az 900- Microsoft Azure Fundamental: June, 2023

- Proficient in foundational concepts of Microsoft Azure
- Demonstrated understanding of cloud computing principles and services

AI 900 - Microsoft Azure AI Fundamental: Sept, 2023

- Proficient in foundational AI concepts and Microsoft Azure AI services

COURSES

Generative AI with LLM from Coursera:
Explored pre-training vs. fine-tuning's impact, unpacked Generative AI, LLMs, prompts, and Transformer architecture, investigated LLM lifecycle decisions, analyzed scaling laws, enhanced LLM performance with fine-tuning, addressed catastrophic forgetting with PEFT

Mastering OpenCV with Python from OpenCV University:
Comprehensive training in image processing, video analysis, deep learning integration, object detection and tracking, and deploying computer vision applications on the web and cloud.

PUBLICATION

Patent: SYSTEM AND METHOD FOR SYNCHRONIZING 2D CAMERA DATA FOR ITEM RECOGNITION IN IMAGES. (Link) April 2021 - Oct, 22

Publication: Design of FOPID controller for Regulating Anesthesia. (Link) April, 2017-May, 18