

Jaiprasad R

DATA SCIENTIST · MACHINE LEARNING ENGINEER

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Seasoned Full Stack Data Scientist with 8+ years of experience building AI solutions and leading cross-functional teams in end-to-end project delivery. Skilled in managing diverse research and data science groups, driving innovation through AOP planning, product design, and ML architecture design. Proven track record of advising AI startups in stealth mode and early stages, providing critical guidance on technology stack selection, scalable architecture design, and product design. Demonstrates expertise in fostering collaboration, translating complex technical concepts for diverse stakeholders, and aligning cutting-edge AI solutions with organizational objectives. Consistently cultivates a culture of continuous learning and excellence in data-driven innovation, propelling both established companies and startups to the forefront of AI technology adoption and implementation.

SKILLS

Languages	Python, C/C++, Java, CUDA, Matlab, Git, Bash, LaTeX, Vim
Software	Linux, Tensorflow, Pytorch, Docker, OpenCV, FastAPI, Flask, Kubeflow, MLFlow, vLLM, Langchain, LammaIndex, Nvidia Triton, Metaflow, Jenkins, FAISS, HuggingFace
Cloud Services	AWS (aws-cdk, Lambda, step functions, Sagemaker, AWS Batch, EC2, ECR, SQS/SNS, Bedrock), GCP/Azure equivalents
AI Domains	Computer Vision, NLP, Deep Learning, Machine Learning, MLOps, NLP, LLM, LLMOps, Generative AI

Notable Projects

- Drizz: QA Co-pilot LLM Agent** Bengaluru
Company: Drizz Dev
Video-Link
Architected and implemented a sophisticated **Multimodal LLM Agent** leveraging the agentic framework of **LangChain**. This advanced system integrates custom-built **agentic tools and toolkits** like robust text interpretation, candidate extraction, and a specialized math tool for executing complex QA tests based on predefined test flows. Harnessing the power of **OpenAI's GPT-4O**, the agent demonstrates superior capabilities in interpreting user flows and validating diverse tasks with high accuracy on the mobile app functionality testing. This innovative solution significantly enhances automation in test execution, improves the reliability of QA processes, and showcases the potential of LLM-driven agents in streamlining complex workflows.
- Personalized AI Video Generation** Bengaluru
Company: Unscript.ai
Revamped the **DeepFaceLab** codebase through comprehensive modularization, achieving a **5x acceleration in inference time** for personalized video generation. This strategic overhaul significantly enhanced real-time processing capabilities, streamlining the creation of sophisticated deep-fake content. Augmented the system by integrating **Wav2Lip technology**, enabling precise lip-sync generation and elevating the overall realism of synthesized videos.
- GAIT Recognition Software** Bengaluru
Company: Frshr Technologies
Architected and implemented a cutting-edge, scalable **Gait Recognition System** for real-time surveillance applications. This innovative solution integrates state-of-the-art AI models, including **OpenGait** for gait signature analysis, **YOLOv7** for rapid person detection, and **DeepSORT** for precise multi-object tracking. The system demonstrates exceptional capability in identifying individuals at a distance based solely on their unique walking patterns (GAIT), significantly enhancing non-invasive biometric identification in various security scenarios.

EXPERIENCE

- Mensa Brands** Bengaluru/Abu Dhabi, UAE
Member Of Data Science Team(IC) Nov 2022 - Current
 - Content to Commerce Platform:** Engineered a comprehensive in-house advertising ecosystem, revolutionizing product visibility within articles through intelligent tagging. Architected a cutting-edge **recommendation engine** featuring both offline training and seamless online deployment, leveraging **FAISS** for high-performance vector search and **OpenAI's Text Embeddings** for nuanced content understanding. This innovative system achieved a remarkable increase in **Click-Through Rate (CTR) from 0.3 to 0.47**. Furthermore, developed an advanced in-house Retrieval-Augmented Generation (RAG) system, enabling efficient drafting of new articles based on existing product data and articles database, streamlining content creation workflows and ensuring consistency across marketing materials.
 - Pricing Central:** Engineered a cutting-edge dynamic pricing system, utilizing Facebook's **Prophet** library for forecast modeling and **Mixed Integer Programming (MIP)** techniques for optimizing prices across the portfolio. This state-of-the-art solution yielded a significant **5-7% EBITDA** uplift, showcasing the ability to transform sophisticated analytical methodologies into concrete financial outcomes.
 - Infinity:** Architected and implemented an innovative, serverless MLOps platform leveraging **AWS CDK**. This lightweight yet powerful system seamlessly integrates with **AWS services like Lambda, Step Functions, Batch, and GitHub Actions**, enabling automated model deployment, training, monitoring, and data ingestion pipelines.

- Johnson's control LLC** Bengaluru, India
Principal Data Scientist March 2021 - August 2022
 - Business Logic Module:** Engineered business logic layer, revolutionizing event processing from **RabbitMQ** message broker and optimizing derived metrics analysis. This transformative redesign achieved a remarkable **10X acceleration in response time** while simultaneously delivering a substantial **15% reduction in deployment costs**.
 - ACVS-Engine Revamp:** Redesigned the **object detection module** and updated the model to **YOLO V8**. Extended to module to detect multiclass and multi object tracking. Updated the Tracking module to **Deep-SORT** for multiclass tracking. Part of AI Artitect team.
 - JCI-AI RoundTable, India:** **Key contributor** to the AI Leaders Committee in **Johnson Controls International (JCI)**, driving strategic initiatives for **next-generation Applied AI applications**. Collaborated with cross-functional teams to identify, evaluate, and prioritize cutting-edge AI solutions, directly influencing the company's long-term technological roadmap and competitive positioning in the smart ACVS sector.
- Mfine Novocura Pvt Ltd** Bengaluru, India
Senior Data Scientist Jan 2019 - Mar 2021
 - Enigma ML Platform:** Spearheaded the design and implementation of a comprehensive **MLOps infrastructure** from the ground up, revolutionizing AI model lifecycle management. This cutting-edge system achieved a **50% reduction in model re-training time** and an impressive **75% decrease in AWS costs**. Key features included **one-click production deployment** and **end-to-end model tracking**, significantly enhancing operational efficiency. Built on top of **Metaflow, Mongodb, Docker, Kubernetes, DVC** for MLOps Pipeline.
 - Maya AI Assistant:** Revolutionized the doctor assistant tool through advanced AI integration, leveraging **Bayesian Inference** for precise symptom matching and **Siamese Neural Networks** for differential diagnosis and lab recommendations. This innovative redesign yielded a substantial **30% reduction in physician workload** and achieved an impressive **80% click-through rate** for top 5 predictions, significantly enhancing doctor efficiency and accuracy.
 - Medical Embedding:** Trained medical domain specific **Word2Vec, GloVe, and Bio-BERT** models on extensive proprietary datasets, including **SNOMED-CT terminology and ICD-10 codes**. These tailored embeddings drastically improved performance across multiple in-house Natural Language Processing (NLP) tasks, enabling more nuanced interpretation of clinical narratives.
 - Miscellaneous Contribution:** Spearheaded the development of a proprietary Explainable AI (XAI) library, incorporating advanced visualization techniques such as **Grad-CAM, CAM, and Attention Inference**. Simultaneously, mentored a team of interns in implementing a heart beat classification system, leveraging **MFCC (Mel-Frequency Cepstral Coefficients) features** and **spectrogram analysis** benchmarking across different machine learning models for classification task.
- SigTuple Pvt Ltd** Bengaluru, India
Data Scientist IV Dec 2016 - Jan 2019
 - Shonit(blood Analyser):** Engineered a state-of-the-art computer vision algorithm for White Blood Cell (WBC) extraction, integrating advanced **image segmentation, adaptive thresholding**, and **morphological operations**. This optimized solution dramatically enhanced the accuracy of WBC identification, achieving a remarkable **33% increase in sensitivity** to reach an unprecedented **99% detection rate**. Trained across **200+ deep learning models** for WBC classification achieving an overall of **96% F1 score** in classification. These improvements resulted in 2 successful clinical studies.
 - Drishti (Fundus/OCT screening):** Revolutionized the Diabetic Retinopathy (DR) screening process by re-engineering the existing pipeline with cutting-edge AI techniques. Architected an innovative Convolutional Neural Network (CNN) leveraging **feature pyramid pooling**, resulting in a state-of-the-art model that significantly outperformed previous benchmarks.
 - Miscellaneous Contribution:** Designed and developed the Dipstick automatic analyzer pipeline using **ORB feature Descriptors**, and **SVM classifier**. Contributed to the in-house ML platform for training the models for image segmentation, structured data and scikit-learn wrapper.

EDUCATION

Scalar Neoversity, MS in Computer Science India	June 2024
National Institute of Technology, Surathkal, B.Tech in Electrical Engineering Karnataka, India	May 2016

PATENTS/PAPERS

- Jaiprasad, Maroof ahmed, et al. (Granted(201841049496)). "METHOD AND SYSTEM FOR GENERATING A STRUCTURE MAP FOR RETINAL IMAGES". In: *Indian Patent Application*.
- Jaiprasad, Krishnam gupta, et al. (2020). "Dual Stream Network with Selective Optimization for Skin Disease Recognition in Consumer Grade Images". In: *Conference, ICPR*. doi: <http://arxiv.org/abs/1406.2616>.
- Mundhra, D et al. (2017). "Analyzing Microscopic Images of Peripheral Blood Smear using Deep Learning". In: *Workshop, DLMIA 2017*.