HARSHA VARDHAN D

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PROFESSIONAL SUMMARY

AI Engineer with 2+ years of experience across computer vision, generative AI, machine learning, and data products. Built applied AI systems spanning data pipelines, model development, evaluation, and real-world implementation, including racquet-sports video analytics and AI-driven garment pattern generation. Delivered measurable AdTech outcomes at MIQ, including 13% lower CPM and 40% higher impressions through ML-based campaign optimization. Combines hands-on Python, deep learning, computer vision, and data engineering experience with a focus on practical, deployable AI solutions.

TECHNICAL SKILLS

- **Programming & Data**: Python, SQL, Pandas, NumPy, Statistics, Exploratory Data Analysis (EDA), Feature Engineering, Data Cleaning
- **Machine Learning**: Supervised & Unsupervised Learning, Predictive Modelling, Model Evaluation, scikit-learn, A/B Testing
- **Deep Learning & GenAI**: PyTorch, TensorFlow, Computer Vision, NLP, LLMs, RAG, Embeddings, Vector Search, Agentic AI, Diffusion Models
- **Computer Vision**: Object Detection, Segmentation, Multi-Object Tracking, Pose Estimation, Video Analytics, Camera Calibration, Stereo Vision
- **Data & Cloud**: Databricks, PySpark, Delta Lake, Azure Data Lake, Azure Data Factory, AWS S3, REST APIs, PostgreSQL
- **Deployment & BI**: Docker, Git, CI/CD, GPU Inference Optimization, Power BI, Dashboarding, Data Pipelines
- **Simulation**: NVIDIA Warp, XPBD Cloth Simulation, GPU-Accelerated Pipelines

PROFESSIONAL EXPERIENCE

Freelance AI Engineer (Computer Vision) | Lvl-Up Sports AI Pvt Ltd

Jun 2026 – Present

- Managed a four-member team and delivered the racquet-sport analytics product end-to-end, from prototype to on-court use.
- Design and deliver an end-to-end computer-vision pipeline for racquet-sport match analysis, spanning ball and player tracking, court calibration, pose-based stroke classification, and rally segmentation.
- Established live-court data acquisition and an annotation workflow using on-court camera installations and multi-camera stereo setups; curated a 60,000+ frame labelled dataset for ball, bounce, and stroke events.
- Trained detection and classification models achieving 0.94 F1 for ball detection on held-out match footage; pose-based stroke detection sustains 85–90% accuracy on live match play.
- Architected a modular analytics engine combining six perception streams (court, players, pose, ball, racket, swing) into shot- and rally-level events with confidence scores and physics-based validation.
- Optimized GPU inference economics to approximately ₹60 (~$0.70) per hour of footage.

Lead AI Engineer | Stylique AI Pvt Ltd (fashion-tech startup)

Aug 2025 – Jul 2026

- Led a six-person engineering team from research prototypes to market release for an AI garment pattern-making and simulation platform.
- Built an end-to-end pipeline converting natural-language design briefs into production-ready garment patterns (DXF/PDF) across 20+ garment types using LLM-based parameter extraction, a rule-driven pattern engine, and ASTM-standard sizing.
- Engineered GPU-accelerated XPBD cloth simulation using NVIDIA Warp and validation checks for drape behaviour against reference garments and physical measurements.
- Developed diffusion-based garment design synthesis and a multimodal system mapping text briefs, sketches, and reference garments to executable pattern-drafting actions, reducing manual pattern-making time by ~30%.
- Containerized application components with Docker and used CI/CD workflows to support repeatable builds, testing, and release deployment.

Product Data Analyst | MIQ Digital Pvt Ltd

Jun 2024 – Jun 2025

- Owned end-to-end development of internal product suites for DOOH, social, and cross-channel advertising, supporting US sales and campaign teams with budget and performance insights.
- Launched a DOOH sales-intelligence tool for screen availability, impression forecasting, and budget optimization across audience, geography, proximity, and venue filters; supported $9M in sales in 2024 and $12M in H1 2025.
- Automated paid-social campaign workflows from initiation and budget allocation to performance dashboards, saving ~10 hours per week and driving $3M in 2024 revenue, with $7M projected for 2025.
- Built a beta cross-channel budget-allocation engine using machine learning and reinforcement learning across audio, video, display, CTV, and LTV; contributed to $2M in sales and adoption on campaigns for Coca-Cola, Walmart, and Target.
- Integrated an interactive chatbot to explain and visualize budget allocations, improving internal adoption and client confidence.

Product Data Scientist (Intern) | MIQ Digital Pvt Ltd

Jan 2024 – Jun 2024

- Developed a Connected TV CPM-optimization model that reduced CPM by 13% and increased impressions by 40%.
- Delivered a Feature Intelligence Dashboard providing granular campaign-performance insights, adopted by 5+ daily active users.
- Streamlined data preprocessing and storage on AWS S3 and performed pre/post effectiveness analysis to validate campaign-level lift.

AI & ENGINEERING PROJECTS

AI-Powered Intelligent Talent Repository & Resume Intelligence Platform

- Built an end-to-end resume intelligence workflow that processed approximately **20,000** resumes, centralizing candidate information from resumes, assessments, and recruitment trackers into a searchable Candidate Master.
- Automated document ingestion, extraction, and candidate discovery to save HR employees an estimated **8–10 hours per week**.
- Implemented PDF/DOC/DOCX validation, SHA-256 hashing, native text extraction with OCR fallback, structured candidate-field extraction, duplicate detection, and PostgreSQL-backed metadata and review workflows.
- Used Python, OCR, Retrieval-Augmented Generation (RAG), LLM-assisted extraction, embeddings, vector search, and semantic retrieval for natural-language talent search and job-description matching.

Vinayaga Timbers ERP | Full-Stack Engineer *Production ERP for a four-plant export packaging manufacturer*

- Built and shipped a 34-table production ERP for **4 plants and 47 staff** (FastAPI, PostgreSQL, React + TypeScript), covering orders, inventory, production planning, compliance, dispatch, payroll, and receivables.
- Integrated Claude vision API for invoice OCR, extracting supplier, line items, and tax from photographed bills into a human-review workflow, plus bilingual (Tamil/English) voice numeric input for shop-floor data entry.
- Built server-side role-based access control and 2FA; found and fixed **two race conditions** (concurrent requests let 56 guesses past a 5-attempt lockout) using row locks and PostgreSQL advisory locks, verified with 20-thread tests.

EDUCATION

M.Sc. Data Science (5-Year Integrated) | Coimbatore Institute of Technology | 2019 – 2024
CGPA: 8.81 / 10

CERTIFICATES & PUBLICATION

IBM Data Science Professional Certificate • DeepLearning.AI: Neural Networks and LLMs • Stanford University: Machine Learning • Computer Vision Bootcamp • Generative AI (Udemy)

Predictive Modelling and Spatiotemporal Trend Analysis of the COVID-19 Pandemic:
A Data-Driven Forecasting Study Published in the International Research Journal of Modernization in Engineering Technology