PRASHANT VERMA

AI Architect | Generative AI, Computer Vision & Robotics

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PROFESSIONAL SUMMARY

Innovative AI and Computer Vision specialist with 10+ years of multidisciplinary experience in research and full-stack solution development, from theory to deployment. Founder of EulerDB and seasoned technical lead, architecting high-performance graph databases, multimodal VLMs, and generative AI pipelines that power enterprise-scale products in manufacturing, finance, and document intelligence. Adept at steering cross-functional teams, securing stakeholder alignment, and translating cutting-edge academic insights—diffusion models, federated learning, RAG, RL—into robust, secure, real-world systems. Passionate about unsolved graph-theory problems and cognitive architectures, seeking a senior research or engineering role where creativity, leadership, and relentless problem-solving drive strategic impact for global innovation.

CORE COMPETENCIES

AI & Machine Learning: Generative AI, Retrieval-Augmented Generation (RAG), Agentic Systems, Large Language Models (LLM), Vision-Language Models (VLM), LLM/VLM Fine-Tuning, Diffusion Models, Stable Diffusion, Deep Learning, Machine Learning, Transformers, NLP, MCP (Model Context Protocol)

Computer Vision: Video Analytics, OCR, Document Processing, Image Restoration, Object Detection (YOLO), 3D Vision, Face Recognition, P&ID Diagram Parsing, SigLIP 2, BLIP 2

Robotics: Vision-Language-Action (VLA) Models, Robotic Manipulation, Perception-Driven Control

Programming & Frameworks: Python, R, C++, React JS, PyTorch, TensorFlow, Hugging Face, Docker, SQL, Neo4j, GraphML

Cloud & Data Engineering: Oracle Cloud Infrastructure (OCI), SAP OCI, ETL Pipelines, Prefect, RapidMiner, Time Series Analysis, Data Science

Leadership: Team Leadership, Project Management, Research & Innovation, Stakeholder Management, Cross-functional Collaboration, Technical Mentoring

PROFESSIONAL EXPERIENCE

Technical Specialist — Advanced Robotics
March 2026 – Present

HCLTech, India

- Leading the Advanced Robotics initiative, driving research and development of Vision-Language-Action (VLA) models for robotic manipulation.
- Designing and building manipulation pipelines that translate visual and language inputs into precise robotic control actions.
- Developing and evaluating a range of perception-driven approaches to improve object grasping, handling, and task execution in dynamic, real-world environments.
- Translating state-of-the-art vision-action research into deployable, production-grade robotics capabilities.

Lead Data Scientist — Data Science & AI
August 2025 – February 2026

EPAM Systems & ARAMCO, Saudi Arabia

Project: ARAMCO Refinery – Heat Exchanger Fouling Factor Analysis

- Developed microservice for heat transfer fouling factor calculation, enabling real-time performance monitoring and predictive maintenance.
- Implemented time series analysis algorithms to detect fouling trends; built automated event generation using statistical process control.

Project: ARAMCO SCDT – Supply Chain Digital Twin

- Architected ETL pipeline for Material Resource Optimization (MRO) using Prefect workflow orchestration framework.
- Developed Python-based SAP OCI data extraction modules; implemented data transformation for Material Resource Table population.

Lead Data Scientist / Technical Lead — AI, Computer Vision & Analytics **May 2022 – August 2025**

L&T Technology Services & SABIC, Saudi Arabia

Client: SABIC – Enterprise AI & GenAI Platform (October 2023 – August 2025)

- Designed company-wide Generative AI architecture fusing LLMs (GPT-4-Turbo, Llama 3) with VLMs (SigLIP-2, BLIP-2), delivering multilingual knowledge retrieval for 14 business units.
- Built agentic, priority-aware RAG pipeline with adaptive chunking and vector re-ranking—reduced latency 37% and cloud cost 42%.
- Engineered Transformer-based OCR + VLM adapters, boosting accuracy on industrial docs from 68% to 95%.
- Fine-tuned Stable Diffusion for image/text inpainting, recovering degraded engineering drawings with 93% OCR accuracy.

Project: Oil & Gas Asset Health Monitoring (May 2022 – October 2023)

- Architected end-to-end CV system for Oil & Gas asset-health monitoring; implemented YOLOv8 defect detection achieving 92% mAP.
- Integrated Python inference with RapidMiner and Jetson edge devices, enabling 24/7 monitoring and cutting manual inspection 60%.
- Built BERT-based NLP engine parsing maintenance logs and sensor telemetry for predictive insights.

Computer Vision Engineer — CV, 3D Vision & Real-Time Analytics **April 2019 – April 2022**

HCL Technologies, Noida, India

Project: PearsonVUE – Exam Proctoring Malpractice Detection

- Engineered microservice-based solution for detecting malpractice in proctored exams using RetinaNet for stationary item detection (books, devices) and human/object models for unauthorized behavior flagging.
- Built real-time WebRTC video streaming handling 10,000+ concurrent users using Wowza; integrated video encoding with Python-based quality filters for brightness, contrast & anomaly detection.

Project: 3D Vision, Face Recognition & Video Analytics

- Trained conditional GAN for LiDAR/structured-light up-sampling (4x density, ±2mm fidelity); developed ArcFace face-ID engine achieving 98.6% accuracy on LFW.
- Built GPU-accelerated live video stitching (320ms→110ms latency); implemented ResNet-18 human re-ID with 3D camera projection geometry.
- Developed CNN-driven dermatology pipeline (U-Net + colorimetry) for skin/hair analysis, cutting manual assessment 70%.

Senior Data Analyst — Image Processing & Document AI **July 2018 – March 2019**

Data & Analytic Services (DAAS Labs), Gurgaon, India

Project: Real-Time Correlation Platform – Document Imaging for Account Payables

- Designed and developed end-to-end application consuming Invoice and Cheque documents, extracting information and posting into General Ledger (GL) to automate the Account Payables process.
- Built Cheque Classifier as an assistive model for automated document categorization and validation.
- Led integration and deployment of application with existing processes at Financial Institution client; enhanced OCR capability for market-leading RPA tools as Technology Partner.

Data Scientist — Machine Learning & Deep Learning **Feb 2018 – June 2018**

Zvesta, Gurgaon, India

- Developed data visualizations using Python packages (Plotly, Seaborn, Matplotlib) for enhanced data analysis and business insights.
- Utilized artificial neural networks to predict real estate property prices; compared results with other ML algorithms for optimal model selection.
- Created deep learning-based chatbot and property recommendation engine for personalized user experience.

Scientist (Statistics) — Public Health Analytics **October 2017 – February 2018**

National Institute of Medical Statistics, New Delhi, India

- Contributed to National HIV Sentinel Estimation (INDIA 2017-18) in collaboration with UNAIDS, NACO, and WHO.
- Analyzed epidemiological data to provide actionable insights for HIV prevention strategies across India.
- Developed statistical models to forecast HIV trends; collaborated with international organizations to improve public health outcomes.

Senior Researcher — Image Processing & Statistics **January 2017 – October 2017**

IASRI - ICAR, New Delhi, India

- Pioneered CNN-based crop-disease detection prototype classifying 18 crops with 91% accuracy, guiding early-warning advisories to farmers.
- Developed statistical yield-forecast model combining satellite NDVI and weather data, improving district-level harvest predictions by 15%.

Founder — Startup **July 2015 – December 2016**

GreySugar, Pune, India

- Founded and spearheaded operations at seed-funded startup, overseeing business development and customer acquisition.
- Led product development and go-to-market strategy; managed cross-functional team for platform delivery.

Research Fellow — Financial Modeling & Computational Research **December 2014 – June 2015**

Indian Institute of Science Education & Research (IISER), Kolkata, India

- Conducted research on financial prediction using time series models and soft computing techniques (genetic algorithms, fuzzy logic) in R.
- Explored computational biology applications in R; delved into graph theory and network analysis.
- Collaborated with research team at IISER Kolkata to drive innovative interdisciplinary research projects.

EDUCATION

MTech in Data Science & Artificial Intelligence — Indian Institute of Technology (IIT), Patna | 2024 – 2026

MTech in Computer Science & Engineering — RGP University, Bhopal | 2013 – 2015

BTech in Computer Science & Engineering — UIET, CSJM University, Kanpur | 2007 – 2011

PUBLICATIONS

- "S2 Chunking: A Hybrid Framework for Document Segmentation Through Integrated Spatial and Semantic Analysis" — ArXiv, 2025
- "Degree-Based Logical Adjacency Checking (DBLAC): A Novel Heuristic for Vertex Coloring" — ArXiv, 2025
- "High Dimensional Object Analysis Using Rough-Set Theory and Grey Relational Clustering" — IJARCCE, 2016

CERTIFICATIONS & AWARDS

Certifications: Google Cloud (2023): Transformer Models, BERT, Generative AI Fundamentals, Encoder-Decoder Architecture, Attention Mechanism | Udemy (2017): Python & R for ML/DL, Advanced Python

Awards: Spot Award – L&T Technology Services (2023) | ERS Champion Award – HCL Technologies (2021) | Winner HCL Hackathon (2019)