JAINISH PATEL

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RESEARCH AND SELECTED PROJECTS

X-KGRank: Knowledge Graph RAG for Explainable Recommendation

arXiv: 2608.01732

- Built a MovieLens-1M graph with 9,762 nodes and 999,264 edges to connect user-item interactions with recommendation evidence.
- Reached NDCG@10 = 0.2956, a 17.1% improvement over a popularity baseline, with explanations grounded in graph evidence.

Perception-Aware Dynamic Diffusion Transformers for Safety-Critical Scene Generation

- Replaced pixel-entropy prioritization with scene-importance allocation to focus generation on vulnerable road users in safety-critical driving scenes.
- On Cityscapes, improved vulnerable-road-user precision/recall by 2.2x, reached 96.4% of the attainable precision ceiling, and fine-tuned Stable Diffusion with 4.4M LoRA parameters.

Quantization Recovery for Tool-Calling Reliability

GitHub: hassaanmuzammil/quantization-recovery-tool-calling

- Tested whether LoRA-based recovery preserves tool selection, argument validity, and abstention after 2-bit quantization.
- Established a five-configuration comparison across reasoning, instruction-following, and function-calling benchmarks to isolate where quantization degrades tool use and which recovery strategy restores it.

COCO-to-KITTI Object Detection Benchmark

GitHub: jainish1p-code/object-detection-benchmark

- Benchmarked three detector families across COCO and KITTI with a matched vehicle/person taxonomy, isolating cross-dataset generalization and speed-accuracy tradeoffs in reproducible evaluation code.

PROFESSIONAL EXPERIENCE

Amazon | *Senior Program Manager* | *Tempe, AZ* | *Jun 2022-Mar 2023*

- Prevented and removed fraudulent listings across Amazon marketplaces worldwide; reduced operational error rates by 78% and scaled legal oversight by 90%.
- Converted global operational pain points into technical PRDs, lowering Mean Time to Resolve by 30% and escalation notices by 75%.

Kribhco | *Project Manager / Senior Engineer* | *Surat, India* | *Aug 2014-Aug 2020*

- Engineered predictive-maintenance models using real-time and historical telemetry, cutting equipment downtime by 60% and saving $1.2M annually.
- Integrated IIoT monitoring systems and led inventory/root-cause initiatives that saved $0.5M annually and expanded plant capacity by 50%.

The Home Depot | *Sales Lead* | *San Jose, CA* | *2025-2026*

- Technical product advising, consultative diagnostics, and customer-focused problem solving.

EDUCATION

San Jose State University | M.S. Artificial Intelligence, GPA 3.85 | Aug 2025-Present

Rice University | MBA | May 2022

National Institute of Technology, Surat | B.Tech. Mechanical Engineering | May 2014

TECHNICAL SKILLS

ML/DL: PyTorch, PyTorch Geometric, TensorFlow, Scikit-learn, Hugging Face, Transformers, VLMs, Diffusion Models, DiT, DDIM, LoRA

Graphs/Retrieval: Neo4j, Cypher, NetworkX, FAISS, GNNs, Knowledge Graphs, LightGCN, node2vec, Modularity, RAG

Systems: Python, C/C++, SQL, R, Linux/Bash, Git, CUDA/GPU acceleration basics

Portfolio: jainishpatel.com | Interests: hiking, biking, running; sub-25-minute 5K and completed 200 km BRM.