

Sahil Mangotra

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Skills

Programming Languages: GoLang, Python, Django, Redis, GRPC, Angular, Typescript, Postgres, PyTorch, FastAI

Systems/Tool: Linux, Kafka, Docker, Kubernetes

Machine Learning: Deep Learning, RAG, LLMs, Vector Databases, Pattern Recognition, CNNs, Transformers

Experience

Graduate Research Assistant, Kennesaw State University– Kennesaw, GA Aug 2024 – July 2025

- Engineered a production-grade RAG pipeline using LangChain and Llama-based models to dynamically synthesize curricula from complex technical documentation, enhancing adaptive learning delivery.
- Designed a hybrid network [simulator](#) featuring autonomous AI agents for natural language topology generation and automated log analysis to translate system metrics into human-readable insights.
- Optimized the NSF-funded "[QUINTET](#)" agents using Chain-of-Thought and Sandwich prompting strategies, driving a 111% increase in Faithfulness (0.38 to 0.80) and achieving a 0.735 overall RAGAS validation score.
- Authored peer-reviewed research on AI-driven simulation accepted for IEEE (FIE) 2025 conference.

Software Engineer, uTrade Solutions – Mohali, India June 2019 – July 2024

- Developed a scalable algo-trading platform, architecting it to handle 500+ concurrent custom trading algorithms and 10K+ retail traders within the first quarter of launch, demonstrating experience with high-volume, real-time data processing.
- Optimized data reception speed by 30% through custom compression algorithms and in-house database sharding solutions, enhancing the platform's ability to handle millions of real-time market data rows.
- Planned the migration of legacy monolithic architecture to micro-service architecture, adding new technologies like Golang and Kafka. This resulted in a 40% enhancement in the turnaround time for development and deployment.
- Gained experience working with distributed systems concepts while developing and maintaining the algo-trading platform, which involved coordinating multiple processes and managing data consistency across different components.

Software Developer Intern, uTrade Solutions – Mohali, India June 2018 – May 2019

- Collaborated with the Product Team to build web-based financial tools using modern TypeScript frameworks, presenting technical solutions directly to senior executives.

Projects & Hackathons:

Financial Knowledge Graph & Risk Simulator https://isahil.me/blogs/news_driven_news_propagation/

- Constructed a large-scale Financial Knowledge Graph (FKG) by processing 350k+ news articles using a BERT-based relation extraction model (SMARTE) and spaCy, resolving 200k+ entities into Neo4j
- Engineered a custom "Ripple Effect" propagation algorithm (variant of Spreading Activation) to quantify and simulate systemic risk transmission across corporate networks in real-time
- Developed a high-performance backend using FastAPI and WebSockets to stream live simulation results to an interactive dashboard, visualizing complex financial interdependencies

Edge AI Optimization - YOLOv11n Deployment https://isahil.me/blogs/quantized_volo_for_edge_classification/

- Fine-tuned YOLOv11n for tomato ripeness detection, achieving 95.5% mAP@0.5 on a custom composite dataset.
- Optimized for resource-constrained edge devices using OpenVINO INT8 quantization, achieving a 4.3x inference speedup (6.5ms) with negligible accuracy loss.

DayCanvas - AI-Powered Journal Visualizer <https://lnkd.in/gJXJC-X6>

- Integrated Claude 3.5 for emotional pattern extraction with Google's Imagen 3 for visual metaphor generation
- Engineered multi-model AI pipeline transforming written emotions into visual narratives through NLP processing

Education

Kennesaw State University – MS in Computer Science with a concentration in Artificial Intelligence Expected May 2026

Chitkara University – BS in Computer Science and Engineering (GPA 3.8) May 2019