

# Sahil Mangotra

er.sahilmangotra@gmail.com | [isahil.me](http://isahil.me) | [github.com/sahil624/](https://github.com/sahil624/)

## 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/](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\\_yolo\\_for\\_edge\\_classification/](https://isahil.me/blogs/quantized_yolo_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/gJJC-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