

# Nikhil Pavan Kanaka

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## PROFESSIONAL SUMMARY

AI Engineer with 3+ years of experience in designing, developing, and deploying ML and NLP solutions. Specialized in fine-tuning LLMs, designing RAG pipelines, and building language agents. Skilled in full-stack development and building AI infrastructure using Python, JavaScript, and Java.

## INDUSTRIAL EXPERIENCE

**Enterprise Data Analytics - The Ohio State University** Columbus, OH  
*AI Engineer Intern* Jan 2024 – Dec 2024

- Developed a GenAI-powered educational assistant using RAG pipelines with LangChain, Pinecone, and Llama to help students query course materials. Stored data on Azure Blob Storage, automated updates with Event Grid, and built a Gradio app on Azure App Service.
- Led a data migration project to optimize preprocessing for large-scale NLP datasets, reducing ETL time from 6 hours to under 56 minutes using Airflow MWAA and fine-tuned connectorX.
- Built an automated lecture transcription system using OpenAI's Whisper model, enhancing accessibility and learning experience within the university's learning management system.

**Wexner Medical Center** Columbus, OH  
*Machine Learning Engineer Intern* May 2023 – Aug 2023

- Built an NLP-driven data validation system by integrating LLMs with Great Expectations, featuring human-in-the-loop processes and domain-specific fine-tuning to automate data quality checks. The system generates dynamic data validation rules from natural language using GPT-3.
- Developed an NLP pipeline to analyze 250K+ patient feedback using BERT (sentiment), BERTopic (topic modeling), and medspaCy (keyword extraction) to generate actionable healthcare insights.

**Ninjacart** Bengaluru, India  
*Senior Software Engineer* Jun 2022 – Dec 2022

- Led an 8-member backend development team for ninjacart.com's B2B platform, driving API integrations with key partners using Java, Spring Boot, Node.js, MongoDB, Kafka, and Apicurio Registry. Achieved a 28% increase in transaction volume within two weeks of implementation.
- Automated API schema generation and validation pipelines using T5 and OpenAPI Validator.

**Head Digital Works** Hyderabad, India  
*Software Development Engineer* Feb 2020 - Jun 2022

- Led the design, feature development, and deployment of backend systems for cricket.com and a23.com, supporting over 80M users, utilizing Java, Spring Boot, AWS EC2, ECS, DynamoDB.
- Engineered a fraud detection system by combining anomaly detection with a rule-based system for monitoring player behavior, resulting in an 18% increase in player retention. Integrated NLP models to detect suspicious communication with retraining pipelines for evolving fraud patterns.

## SKILLS

**Languages** : Python, Java, SQL, Javascript, Scala, C, C++  
**Web** : Spring Boot, Node.js, Express.js, React.js, Angular.js, Flask, Django, FastAPI  
**AI/ML** : TensorFlow, Keras, Pytorch, Scikit-learn, RAPIDS, JAX, MXNet, H2O.ai, Fastai  
**NLP** : Transformers, NLTK, spaCy, LlamaIndex, LangChain, Pinecone, Haystack, GraphRAG  
**Databases** : MySQL, Cassandra, MongoDB, DynamoDB, Elasticsearch, Neo4j, Redis, Prometheus  
**Cloud** : Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform (GCP)

## EDUCATION

**Ohio State University**  
MS by thesis in Computer Science (NLP) Jan 2023 - Dec 2024

**GRIET**  
Bachelor of Technology in Computer Science and Engineering Oct 2020

ACADEMIC  
PROJECTS

**Comparative Investigation of Grokking: A Study on Reasoning**, *Mentor: Dr. Sachin Kumar, OSU*  
Understanding and Improving LLM reasoning by investigating parametric memory. [[info](#)] [[slides](#)]

**911AIPredict**, *Mentor: Dr. Rajiv Ramnath, OSU*

AI assistant for 911 services, integrating call transcription, fine-tuned LLMs, and vector database to extract critical details, suggest health conditions, and enhance dispatcher efficiency. (*under review*)

**Voicequity**, *Mentor: Dr. Srinivasan Parthasarathy, OSU*

Advanced ASR fairness by creating a novel metamorphic testing framework to expose and address bias, driving robust and inclusive voice recognition solutions for global demographics. [[report](#)]

**Long-Answer Question**, *Mentor: Dr. Chris Brew, OSU*

Developed a pipeline using LongFormer attention and generation models to create long-answer questions from academic texts, achieved 42.3% semantic accuracy through evaluation. [[report](#)]

**HiDL**, *Mentor: Dr. DK Panda, OSU*

- Engineering Java Bindings for MVAPICH and advancing GPU-accelerated workflows within Nvidia's Spark-Rapids, GDS, and DALI to set new benchmarks in HPC+AI. [[info](#)]
- Investigating GPU offloading in Nvidia Rapids. [[report](#)]

**LogiChain**, *OSU*

Developed a system integrating LLMs with symbolic solvers to enhance reasoning by translating natural language into solver-executable code, executing it with symbolic solvers, and feeding results back to the LLM, achieving up to 30% performance gain over LLM-only approaches. [[code](#)]

**Benchmarking of File Systems**, *Mentor: Dr. Ting Zhu, OSU*

Evaluation and optimization of file systems performance to enhance applicability. [[report](#)]

**ProdReview**, *Amazon Research*

Developed an e-commerce review analysis platform incorporating sentiment analysis and a novel graph-based summarization technique, enabling actionable, product-specific insights. [[info](#)]

SERVICE

- Founding member of the Advanced Academic Center at GRIET, for academic research. [[link](#)]
- Technical Head for Spirals, the Language and Literature club of GRIET. [[link](#)]
- Tech mentor at Sahaya Society, fostering skill development for the less privileged. [[link](#)]

TALKS

Domain-Specific Fine-Tuning <i>Advancing Analytics in Medical Research through NLP -at- Wexner Medical Center</i>	2023
Unlocking Meaning <i>NLP's Role in Shaping the Future of Intelligent Systems -at- Ninjacart</i>	2022
Quantum Perspectives on Intelligence <i>How quantum reshapes our understanding of intelligence, new possibilities for AI -at- GRIET</i>	2020
Bridging Minds and Machines <i>Psychological Impact of AI Evolution -at- GRIET</i>	2020