

# Akshitha Kumbam

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## EDUCATION

Master of Data Science, New York University, Center for Data Science Aug 2023 - May 2025

Bachelor of Mechanical Engineering, Minor in Data Science, Birla Institute of Technology and Science (BITS) Aug 2018 - May 2022

## EXPERIENCE

### AMAZON WEB SERVICES

Solutions architect intern ML | **AWS, Streamlit, LLM**, Prompt engineering, Linux, RAG, GenAI

Cupertino, California

*May 2024 - Aug 2024*

- Built an AI-powered code generation tool leveraging AWS Bedrock and Streamlit, reducing manual effort through automated code validation and optimization using EC2.
- Guaranteed code correctness using iterative feedback loops, chain-thought prompt engineering, and dynamic prompts based on inputs.
- Integrated a Retrieval-Augmented Generation (RAG) system using AWS Kendra to retrieve, rank, and leverage relevant documents for precise and context-specific response generation.

### ELTROPY INC

AI Backend Intern | **Transformers, FastAPI**, JavaScript, **Docker**, Kubernetes, Encoder-Decoder models

Milpitas, California

*Feb 2024 - May 2024*

- Fine-tuned SBERT for semantic sentence similarity quantification. Leveraged transfer learning, embedding techniques(GloVe, BERT) and cosine similarity. Achieved MSE - 0.12 and Pearson Correlation Coefficient - 0.8.
- Acquired expertise in transformer models (LLaMA, Mixtral, GPT) and text vectorization techniques, enabling effective text data representation.

Data Engineer | Python, SQL, Cloud - **AWS, Airflow, Quicksight**

*Sep 2022 - Jul 2023*

- Built ETL pipelines to automate periodic data ingestion using Airflow and cloud technologies (Athena, Lambda, S3, CloudWatch, Databrew).
- Developed Sentiment Analysis model (85% accuracy, 0.8 F1-score) using Support Vector Machine (SVM) on 5k+ scraped Google reviews. Designed and deployed an AWS QuickSight dashboard visualizing overall social media sentiment trends and top complaints.
- Developed Data Quality Assessment Dashboard scoring dataset consistency(data uniformity), completeness(missing values) and integrity(data relationships). Designed interactive trend line charts illustrating quality improvements over time.

**BLOGGER** - [Medium blog](#), [Substack blog](#), [AI inshort series](#).

*Jan 2024 - Present*

Published articles on AI/ML topics, including transformer architecture, large language models, retrieval-augmented generation, and Guardrails.

### WALMART LABS

Data Science Intern | **Pandas**, Scikit-learn, **Tableau**, NumPy, Matplotlib, Seaborn, Data visualization

Bangalore, India

*Jan 2020 - Aug 2020*

- Applied K-means clustering to uncover high-value customer segments, identifying a key group with 25% higher purchase frequency.
- Developed dynamic Tableau dashboards to visualize market trends, attribute relationships and customer behavior, providing actionable insights for business stakeholders and informing data-driven decisions.

## SKILLS AND COURSES

**Technical** Machine learning (ML), Deep learning, Natural language processing (NLP), Data structures and algorithms, Computer Science, Computer vision, Artificial Intelligence (AI), Multimodal learning, Object-oriented Programming, Data mining, Operating systems

**Languages** Python, Java, C++, SQL, C

**Tools** AWS, Git, Apache Kafka, Hadoop, MapReduce, MySQL, Spark

**PROJECTS** - [Link to my model](#), [Link to my custom-curated dataset](#)

Finetuning Gemma-2-9B - Unlocking Creative Storytelling | PyTorch, **Unsloth**, **LoRA**, GPU optimization

- Fine-tuned Gemma 2 using LoRA to build a storytelling model, generating engaging and child-friendly tales from user-provided opening lines.
- Developed a customized dataset(1k) with AI-generated one-liners for short stories, ensuring age-appropriate themes.

Seq2Seq Neural Machine Translation | **PyTorch**, Docker, Hugging Face **Transformers**, RESTful API

- Fine-tuned T5-base model using learning rate scheduling and gradient accumulation to achieve BLEU score: 53.2.
- Designed a data pipeline to preprocess French-English sentence pairs from diverse datasets (TED Talks, WMT14).

## PUBLICATIONS AND AWARDS

- Lightweight Dynamic Scheduling Technique for 6G-enabled Massive LoRa based IoT Systems - IEEE GLOBECOM 2022 conference, Brazil.
- Member of Association for Computing Machinery-Women (ACM-W) ([Link](#)). ACM-W award for attendance at IEEE GLOBECOM 2022.