

AKSHIDHA UNNI

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SUMMARY

AI & Data Science professional with hands-on experience in optimizing LLM pipelines, predictive modeling, and scalable cloud solutions. Proven track record of driving measurable impact in customer analytics and operational efficiency across industry projects and internships. Adept at applying advanced ML techniques to real-world challenges, with successes spanning medical AI, image classification, and time series forecasting.

EDUCATION

Master of Engineering - Data Science, Analytics and Artificial Intelligence
Carleton University | **CGPA – 3.9**

Bachelor of Engineering - Computer Science and Engineering
Anna University | **CGPA – 3.8**

TECHNICAL SKILLS

- **Programming & Data:** Python, R, SQL, MySQL, JavaScript
- **ML & NLP Frameworks:** PyTorch, Hugging Face, LangChain, TensorFlow, Keras, Scikit-learn
- **LLM Techniques:** Fine-tuning (LoRA/QLoRA), Prompt Engineering, RAG, Zero/Few-Shot Learning, Chain-of-Thought (CoT), ReAct
- **Cloud & Deployment:** AWS (Lambda, EC2, S3), Flask, FastAPI, Docker.
- **Data Engineering:** Pipeline Automation, Data Cleaning, Vector Databases (Qdrant, Pinecone), ETL
- **Analytics & Visualization:** Tableau, Power BI, Matplotlib, Seaborn
- **Version Control & Collaboration:** Git, GitHub, Documentation, Agile Workflow

WORK EXPERIENCE

Graduate Teaching Assistant

Carleton University | Sep 2025 – Dec 2025

- Assisted in teaching a **3rd-year Math/Computer Science course: Design and Analysis of Algorithms**, supporting **~200 students** with concepts such as time complexity, divide-and-conquer, dynamic programming, and graph algorithms.
- Delivered weekly **in-person tutorial sessions**, breaking down problem-solving strategies and guiding students through algorithmic proofs and coding exercises.

Key Skills : Algorithms, Technical Communication, Stakeholder Interaction, Mentoring & Coaching, Analytical Thinking, Leadership, Cross-Functional Collaboration.

LLM/AI Engineer Intern

DocumentPro | Feb 2025 – Jun 2025

- **Developed a benchmarking framework** to evaluate Large Language Models (LLMs) for text extraction from images such as tables, charts which aided in **identifying optimal models for different document types, directly improving the accuracy by ~ 20%** thereby increasing the reliability.
- **Optimized LLM performance** through advanced prompt engineering, function calling, and fine-tuning techniques. These efforts led to **more consistent structured outputs in formats like Markdown and JSON**, making downstream processing smoother.
- **Reduced customer costs** by about **~ 30%** by testing and integrating open-source OCR and text-extraction libraries, providing **cost-effective alternatives to proprietary APIs** without compromising performance.
- **Leveraged AWS services**, including Lambda Functions, to design scalable and efficient serverless workflows to streamline model evaluation and integration.

Key Skills : LLMs, Prompt Engineering, Text Extraction , AWS, Fine-tuning, Research, OpenAI, Claude.

Data Science Associate

Acies Global | Nov 2023 – May 2024

- Applied **BiLSTM model** on customer reviews and survey responses for a **billion-dollar unified communications client post-merger**, detecting churn and migration risks across multiple products.
- Integrated **sequence-based textual insights** with structured usage data to identify high-value and at-risk customers, enabling targeted retention and migration strategies.
- Supported proactive sales and marketing interventions that contributed to a **15% growth** in cross-sell and up-sell revenue by translating predictive insights into actionable business recommendations.

Key Skills : BiLSTM , Churn Modeling, Predictive Analytics, Python, SQL, Tableau, Salesforce, Snowflake, Stakeholder Collaboration.

PROJECTS

Personalizing-Medical-Assistant-with-Parameter-Efficient-Fine-Tuning-PEFT-and-RAG – *GenAI*

- **Fine-tuned a Mistral-7B model with PEFT (LoRA/QLoRA)** on a medical dialogue dataset to adapt LLMs for clinical Q&A.
- Integrated **Retrieval-Augmented Generation (RAG)** with **Qdrant Vector Database** and **Ollama embeddings**, grounding responses in patient records and reducing hallucinations.
- Built a full-stack system (**React + Flask**) for PDF ingestion, semantic retrieval, and AI-driven responses; evaluated with BLEU, ROUGE, and qualitative safety checks.

Osteoporosis Image Classification using SAM & Transfer Learning – *Image Classification*

- **Applied transfer learning with CNN architectures (DenseNet201, VGG19, ResNet50)** to classify knee X-ray images as normal or osteoporotic, addressing the challenge of early and cost-effective diagnosis.
- **Enhanced performance on small datasets** by integrating the **Segment Anything Model (SAM)** for region-of-interest extraction (femur, tibia), improving classification accuracy from ~54% to **78%**.
- Conducted experiments across combined, raw, and ROI datasets, showcasing how segmentation and transfer learning together **improve diagnostic reliability in resource-limited settings**.

METAR Data Forecasting - *Time Series Analysis*

- Developed **time series models to forecast** hourly airport visibility using **univariate and multivariate approaches**, addressing challenges in aviation scheduling and safety.
- **Applied Facebook Prophet** and benchmarked against **ARIMA/ARIMAX**, achieving **lower prediction error and improved trend/cycle capture**, particularly for sudden visibility drops.

VOLUNTEERING EXPERIENCE

Team Everest NGO

Volunteer & Fundraiser | Jan 2022 - Present

- Volunteered and Fundraised for the "Be the Change" program, successfully **raising funds to support an underprivileged student's initial semester expenses**.

Street Cause Chennai

Fundraiser & Top L1 Member | Feb 2022 - Present

- Awarded "Top L1 Member" in the Chennai zone for raising the highest amount of funds, **contributing to the success of 264 welfare projects**.