

# Ajay Therala

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## SUMMARY

Motivated Software Developer & AI Engineer skilled in Python, end-to-end software development, scalable data pipelines, and advanced ML, Gen AI. Seeking roles in Gen AI, Data Science, SDE, and Data Engineering.

## EDUCATION

### Master of Science, Computer Science

Arizona State University, Tempe, AZ, United States

August 2023 - May 2025

GPA: 4.0/4.0

*Course Work: Topics in Natural Language Processing, Data Mining, Data Visualization, Statistical Machine Learning, Data Processing at Scale, Software Testing, Knowledge Representation and Reasoning, Software Security.*

### Bachelor of Technology, Information Technology

Jawaharlal Nehru Technological University, Hyderabad, TS, India

August 2017 - July 2021

GPA: 9.21/10.0

*Course Work: Data Structures & Algorithms Using C, Java & Python, Operating Systems, Computer Networks, Business Intelligence, Object Oriented Programming, Linear Algebra, Probability & Statistics, DBMS, Design & Analysis of Algorithms.*

## TECHNICAL SKILLS

**Programming Languages :** C, Python, SQL, Java Script, D3.js, **PySpark, Spark SQL.**

**Technologies & Frameworks :** **Generative AI, Machine Learning**, Deep Learning, NLP, Hadoop, Django, **AWS** (S3, Lambda, Athena, EMR, EC2, GLUE, BedRock, API Gateway), Elastic Search, Streamlit, Fast API, **TensorFlow, PyTorch**, Numpy, Pandas, **scikit-learn.**

**Skills :** **Data Structures & Algorithms**, Git, **Databases** (MongoDB, DynamoDB, PostgreSQL), Object Oriented Design, Open Search.

## CERTIFICATIONS

- Microsoft Certified: Azure Data Scientist Associate [Verify Here.](#)
- Oracle Certified : Oracle Cloud Infrastructure 2024 **Generative AI Certified Professional** [Verify Here.](#)

## PUBLICATIONS

[1] Evaluating Multimodal Large Language Models across Distribution Shifts and Augmentations, Publisher : IEEE/CVF Conference on CVPR Workshops [Paper Link.](#)

[2] NetMD- Network Traffic Analysis and Malware Detection, Publisher: IEEE [Paper Link.](#)

## PROFESSIONAL EXPERIENCE

### AI Full Stack Developer, AI Acceleration Team

Arizona State University

August 2024 - Present

Tempe, United States.

- **Optimized Data Ingestion Pipeline** - Spearheaded a **95% reduction** in file chunking times for large datasets (from 1500 s to 4.87s) by integrating an **advanced chunking approach**, enhancing data processing efficiency.
- Containerized & Deployed a Docker image to **AWS ECR**, integrated it with **AWS Lambda** for server-less execution. **Proposed & Led** the implementation of **multiprocessing** to enhance pipeline efficiency and fully leverage AWS Lambda's vCPUs.
- Crafted a script that leverages the **Google Drive API** to extract and index course content into **Open Search**, empowering seamless **Retrieval-Augmented Generation** (RAG) for fast and precise content discovery.
- Developed logic for parsing **JSON** files, achieving a 30% reduction in ingestion time and enhancing **RAG** efficiency.
- **Initiated** an exploration of **Bedrock's Knowledge Bases** to assess their efficiency & potential as a replacement for the current pipeline.

### Systems Engineer (ML Developer), Digital Research & Innovation

Tata Consultancy Services Limited

August 2021 - August 2023

Hyderabad, India

- Engineered core components for a domain-specific search engine (Cognitive Product Support), **enhanced search accuracy by 30%.**
- Crafted Data Lens, a component for training custom NER models, achieving an **impressive 80% - 90% accuracy.**
- Demonstrated expertise in Generative AI, **Prompt Engineering** by developing advanced GPT-powered bots handling over **5,000+ interactions** daily. Delivered **impactful client demos**, earning high praise from esteemed clientele.
- **Automated** document processing using **AWS Textract**, developed a POC for key-value extraction from handwritten forms.

### ML Research Project Intern

Tata Consultancy Services Limited

Jan 2021 - Aug 2021

Hyderabad, India

- Improved detection accuracy by **6%** on NetML, CICIDS2017, and non-vpn2016 datasets through **data refinement techniques**, and **Bagging & Boosting** algorithms.
- **Achieved** a top 5 position in the NetML Network Traffic Analytics Challenge 2020 and presented research findings at **ICAIIC 2022** to over 300 peers and industry professionals.

## PROJECTS

### AI Resume Analyzer

- Developed an **AWS-powered AI Resume Analyzer** leveraging **Amazon Bedrock's LLM**, API Gateway, and Lambda to assess job fit, identify skill gaps, and provide **AI-driven** career insights through a Streamlit-based UI.

### Business & User Level Analysis of YELP Dataset

- **Optimized** Yelp dataset processing by converting JSON to Parquet, leveraging **PySpark & Spark SQL** for scalable **ETL**, data transformations, and complex queries in a distributed environment.

### Data Analyst (Volunteer Research Assistant)

- **Analyzed** GB's of EEG signals, physiological metrics, and sensor data from 32 participants across 6 conditions, using **statistical analysis & visualization** to assess cognitive performance under varying insulation materials & temperatures.

### Text Similarity Model for Answer Validation for Online Learning Platforms

- Engineered a **Text Similarity Model** for Answer Validation using **deep learning**, achieving 87% accuracy by integrating **Siamese Networks & LLM's**, improving accuracy by 6% over baseline.

### Analyzing and Mitigating Hallucinations in Multi modal LLM's

- Evaluated **multi-modal LLM's** like Instruct BLIP on 15,000+ test cases, leveraging **Mistral LLM** to generate 75,000+ QA pairs and identifying 47% hallucinated responses in count and color-based questions.