

Akhil Uthappa

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PROFESSIONAL SUMMARY

Results-driven Software Engineer with expertise in software applications, cloud technologies, microservices, machine learning, and analytics. Proven track record in enhancing operational efficiency and reducing costs. Strong problem-solving and leadership skills, with published research in top journals. Adept at developing scalable solutions and optimizing data pipelines using advanced technologies, and an effective project manager with cross-functional teams. Passionate about working towards a sustainable future for the ecosystem.

WORK EXPERIENCE

Manager, Analytics Engineering, American Express

June 2025- Present New York City, NY

- Developed scalable data processing and analytics solutions using Python, SQL, APIs, and cloud-based platforms, transforming complex business requirements into production-ready technical solutions.
- Built automated data workflows and analytical pipelines integrating multiple data sources to improve data quality, reliability, and downstream application performance.
- Designed and implemented ML/AI solutions leveraging predictive modeling, Generative AI, LLMs, RAG, embeddings, vector databases, and agentic AI frameworks to automate analytical and business workflows.
- Collaborated with Product Managers, Software Engineers, and Data Scientists throughout the Agile development lifecycle, translating requirements into technical designs, success metrics, and prioritized engineering initiatives.

Software Engineer, Civera

Mar 2024- June 2025 Boston, MA

- Improved software architecture using Spark & AWS, reducing processing times by 40% & operational costs by 30%, increasing system adoption for 9 states.
- Developed a T3 application for a computer vision model that identifies PII on voting ballots, while concurrently fine-tuning the model on Lightning AI.
- Improved ETL processes & analytics solutions by creating custom Python packages; optimized data structures for political elections

Software Engineering Intern- Machine Learning, Staples Inc.

May 2023 - Sep 2023 Boston, MA

- Engineered an analytics-infused logging system, improving the debugging time of Staples Center devices by 50%.
- Leveraged Spider dataset to create a text-to-SQL LLM on Azure, saving 40% of query generation time, & developed the POC using Gen AI, Streamlit, & Snowpark.

Generative AI R&D Engineer, Cleveland Clinic

Feb 2024 - Present Boston, MA

- Developed and optimized a Med-PaLM model with Retrieval-Augmented Generation (RAG) to answer queries about academic research papers. Optimized model accuracy using Hugging Face Transformers, and a vector database with FAISS for similarity search. Leveraged Elasticsearch for data retrieval.
- Trained the model with parallel training on BU's Shared Computing Cluster, using A100-80G GPUs with CUDA to accelerate LLM training & development.

Machine Learning Research Assistant, Mass General

Jan 2023 - July 2023 Boston, MA

- Collaborated with stakeholders to design, develop, and test data pipelines using Python and SQL, conducting research to identify patterns.
- Implemented scalable classifiers for radiation-treated brain cancers with TensorFlow and optimized pipelines using Apache Spark, cutting processing time by 20% and improving report precision.

Technical Fellowship for Innovative Research, Boston University

Sep 2022 - Dec 2022 Boston, MA

- Developed a web 3.0 VR prototype for a collaborative application using C#, Unity, Open XR, & Solidity, achieving a 20% faster product launch
- Led a cluster analysis of M&A transactions over 250 million USD, resulting in a publication at EAI CSECS 2023 & revealing key data trends & industry patterns.

Software Engineer, Verloop.io

Jan 2020 – Mar 2022 Bengaluru, India

- Developed company-specific AI chatbots within a Kubernetes-powered microservice architecture, incorporating CI/CD practices and leveraging Google Cloud.
- Implemented monitoring systems with Grafana and Sentry, improving team code guidelines and debugging processes.

Software Engineer, DesignString

Jul 2018 - Jan 2020 Bengaluru, India

- Developed an aviation asset management platform with ML capabilities using Django and React. Extracted, Transformed, & Migrated large semi-structured data into structured formats (MySQL, Postgresql) for analysis and consumption.
- Automated database backup and encryption processes using Python and OpenSSL, integrating with AWS S3 for secure cloud storage, resulting in a 50% reduction in manual workload.

LEADERSHIP & VOLUNTEERING EXPERIENCE

Co-founder and Chief Technical Officer, Talkvert

April 2021 – April 2023 Bengaluru, India

- Co-founded & led the development of a virtual stage platform with ML capabilities using Kotlin & Flutter, managing cross-functional teams & overseeing UI/UX

Captain, Indian National Soccer Team

Beijing, China

- Captained the Indian national team at an international tournament in Beijing, China, achieving runner-up status after playing for a top club in India.

Volunteer, One Community Global

Jan 2024 – May 2024 San Gabriel, CA

Conducted operations, code PR reviews, and project management for sustainable city development projects, contributing to innovative urban solutions.

SKILLS

- **Generative AI & LLMs:** LLMs, Generative AI, Retrieval-Augmented Generation (RAG), LangChain, Agentic AI, Prompt Engineering, Embeddings, Vector Databases, Hugging Face Transformers, FAISS, LLM Fine-Tuning, AI/LLM Evaluation
- **Machine Learning:** PyTorch, TensorFlow, Regression, Classification, Predictive Modeling, NLP, Computer Vision, Distributed Deep Learning, Model Training & Inference
- **Data Engineering:** Python, SQL, PySpark, Apache Spark, Pandas, Apache Airflow, ETL/ELT, Data Pipelines, Data Modeling, PostgreSQL, MySQL, MongoDB, Elasticsearch
- **Cloud & MLOps:** AWS (S3, EC2, SageMaker, EMR, RDS, Lambda, Redshift, Athena, Glue), Azure, GCP, Databricks, Docker, Kubernetes, CI/CD, GitHub Actions, Model Deployment & Monitoring
- **Software Engineering:** Java, Python, C++, C#, Go, JavaScript, REST APIs, FastAPI, Flask, Django, Microservices, Apache Kafka, Object-Oriented Design, Distributed Systems
- **Developer Tools:** Git, GitHub, JIRA, Streamlit, Power BI, Tableau, Microsoft Excel

PROJECTS

BU CollaborART

- Developed a collaborative art VR game using C#, OpenXR, and Unity, identifying artist issues in existing applications with Agile methodology

E-commerce ETL Data Warehouse

- Developed a robust e-commerce data warehousing solution using Python for data processing, PostgreSQL for database management, manipulation & extraction, PgEvent Scheduler for job scheduling, and Tableau for insightful data visualization and reporting dashboards

Distributed Deep Learning using TensorFlow

- Optimized a distributed DC GAN model with TensorFlow and AWS SageMaker, using Horovod for parallel training to enhance speed and efficiency.

Analyzing Remote Work Productivity

- Employed classification algorithms like Rpart, J48, KNN, Gradient Boosting, and Naive Bayes for an R-based analysis of remote work productivity, integrating attribute selection methods such as Chi-Square, RFE, Gini Index, Information Gain, and ReliefF to enhance accuracy

EDUCATION

Boston University, Boston MS in Computer Science and Information Systems

2022-2024 Boston MA

Coursework: Distributed Systems, Advanced Machine Learning, Big Data & Analytics, Advanced DB Management, Data Mining, Data Science with Python, IT Strategy & Management, Business Data Communications, networks & Design

Visvesvaraya Technological University, Bachelor of Engineering, Computer Science

2014-2018 Bengaluru India

Coursework: Data Structures & Algorithms, Machine Learning, OOP, Software Engineering, Computer Networks, Database & Mgmt

PUBLICATIONS & AWARDS

- [Published author for EAI Conference on Computer Science and Education in Computer Science EAI CSECS 2023.](#)
- [Published research in eM&Ai. the European M&A Institute.](#)
- Runner-Up representing India in the Great Wall Cup International Soccer Championship held in Beijing, China

INTERESTS

Snowboarding, Sailing, Soccer, Gaming

