# Utwej Sai Nalluri

Senior Data Scientist | Agentic AI Engineer

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## SUMMARY

**Data Science Professional** and **Certified Solutions Architect** with **5+ years of experience** helping enterprises adopt **AI/ML solutions, agentic AI workflows, and establish scalable, cloud-native platforms** across business functions. Recognized for helping enterprises define **AI reference architectures,** establish **governance and guardrails,** and build **enterprise-ready platforms** that balance innovation with compliance and cost efficiency. Skilled at working with **cross-functional teams,** leading **change management,** while partnering with **executives** to align **AI strategy with measurable business outcomes.**

Supported **Big Tech, Fortune 500, and mid-size enterprises in healthcare, banking, insurance, and retail** by delivering **AI solutions, ML-driven workflow automations, audit analytics, and real-time analytics platforms,** driving measurable business outcomes, while partnering with global organizations as a consultant to design **strategic roadmaps,** deliver **proof-of-concepts,** and build **AI/ML solutions** that scaled from **pilot projects into enterprise-wide platforms.**

## WORK EXPERIENCE

### Meta – Enterprise AI Team

Charlotte, NC

Senior Data Science Consultant

Jun 2023 - Present

- Architected an **end-to-end agentic AI marketing workflow** integrating **Salesforce CRM, internal Meta tools, and WhatsApp Business APIs**, enabling **Enterprise AI teams** to identify, qualify, and engage high-propensity customers at scale, contributing to a **67% YOY growth** in **WhatsApp API Ent business**.
- Engineered **AI-driven lead scoring and sentiment analysis models** using **Python, LLMs, and NLP techniques** on top of **Salesforce and Meta's internal CRM data**, surfacing **high-value prospects** and improving **sales team productivity by ~35%** while reducing manual pipeline qualification effort for Enterprise AI.
- Built **customer segmentation and propensity models** using **Python, Scikit-learn, XGBoost, and clustering techniques (K-Means, hierarchical)** on multi-source CRM, product usage, and engagement data, enabling personalized GTM targeting across enterprise verticals and improving **marketing campaign conversion rates by ~28%** for the Enterprise AI organization.
- Led **audience strategy and attendee acquisition** for **Conversations 2026**, Meta's flagship Enterprise AI event, leveraging data-driven targeting and multi-channel outreach workflows to drive the **highest-attended event** in the Enterprise AI team's history and accelerate **enterprise pipeline generation**.

### Bank of America – Corporate Audit Analytics

- Developed and automated **Alteryx, SQL, and Python workflows** to reconcile **millions of financial records** across **AML systems**, reducing **manual audit effort by 40%** and strengthening detection of transactions involving sanctioned entities for the bank's **financial crime prevention program**.
- Engineered **data quality and data lineage testing frameworks** using **SQL, Python, and Tableau**, providing **regulators with full traceability of AML data flows** and improving AML monitoring effectiveness by 25%, directly supporting the bank's compliance with **MRA/MRIA federal mandates**.
- Built scalable **data engineering pipelines on Azure (Azure Data Factory, Azure Databricks, Synapse Analytics, ADLS Gen2)** to ingest and transform high-volume AML and transaction data, improving **pipeline reliability by 35%** and enabling **near real-time audit analytics** for financial crime investigations.
- Contributed to **6 high-priority MRA and MRIA audits** by leading **code reviews, debugging Alteryx/Tableau pipelines, and authoring reconciliation documentation**, cutting **audit cycle time by 30%** and helping the bank meet **federal regulatory deadlines** while avoiding **penalties tied to AML deficiencies**.

### SMBC – Treasury & Loan Systems

- Served as **Data SME and Solution Architect** for the **Treasury Dashboard**, defining **KPIs, data models, and LoanIQ integration architecture** across loan and treasury systems, reducing manual reconciliation errors by 35% and improving **accuracy of daily treasury reporting** for finance and risk stakeholders.
- Deployed **SIA Dash**, an **LLM-powered agentic BI widget** built with **Python, LangChain, and RAG**, enabling **executives to query treasury and loan data in natural language** and auto-generate **visualizations on demand**, cutting **report turnaround time by 40%** and reducing reliance on dedicated reporting teams.

### Conduent – Credit Card Claims Automation

- Designed and implemented a **deterministic rule-based system** combined with **ML-driven workflows** in **Python and SQL** to automate credit card claims resolution and dispute settlement, reducing manual case handling by 50% and accelerating turnaround for the firm's **payment processing division**.
- Built **secure, real-time claims validation pipelines** integrating with **Mastercard and VISA APIs**, embedding audit-ready logic in partnership with compliance and risk teams to strengthen **fraud detection** and reduce **financial losses from erroneous settlements**.

### Ally Financial Group – Enterprise Reporting Migration

- Led migration of **100+ enterprise dashboards from Looker to Power BI** for **risk, compliance, and finance teams**, optimizing **SQL queries, Snowflake data models, and underlying warehouse schemas** to reduce dashboard load times by 30% while standardizing **governance and data validation processes.**

### Amazon Web Services

Herndon, VA

Software Developer Intern

May 2022 - Aug 2022

- Designed and deployed **cloud-native microservices in Python and Java** across **AWS services**, improving **system performance by 25%** and ensuring **scalability** for internal AWS applications supporting **enterprise cloud workloads**.
- Built **automation scripts and REST APIs** for internal engineering tools and enhanced **CI/CD pipelines** in collaboration with cross-functional AWS teams, reducing manual engineering effort by 30% and cutting **release times from days to hours**, improving **production deployment reliability**.

### HCL Technologies

Charlotte, NC

Senior Data Analyst

July 2019 - Aug 2021

- Analyzed **millions of passenger and operational records** using **SQL and advanced analytics** to uncover **revenue leakage, pricing opportunities, and customer behavior patterns**, driving a **15% improvement in revenue management decisions** across the airline's commercial operations.
- Designed and optimized **SQL scripts, Tableau reports, and executive dashboards** to deliver **real-time insights for airline operations**, reducing **dashboard load times by 25%**, and partnered with **presales teams** to build **MVPs** that contributed to **2 new client acquisitions**.

## CONSULTING PORTFOLIO

**United Airlines (with AWS ML Lab) – Cloud-Native OCR Pipeline**

- Partnered with **United Airlines and AWS ML Lab** to design a **serverless OCR and active learning pipeline** using **AWS Lambda, S3, Textract, and SageMaker**, digitizing **millions of flight and operational documents** while reducing **manual processing effort by 60%**, improving **extraction accuracy by 25%**, and cutting **infrastructure costs by 30%** versus traditional OCR systems.

**Sia Dash – Enterprise LLM-Powered BI Platform**

- Built an **LLM-powered, agentic BI platform** on **AWS Bedrock** that generates **charts and dashboards from natural language queries**, with **80+ connector options** for seamless integration across enterprise databases and data warehouses, deployed at **30+ enterprise clients** to enable **self-service analytics** and reduce reliance on dedicated reporting teams.

**SIFMA – AI & GenAI in Asset Management**

- Partnered with **SIFMA** to shape an **AI/GenAI governance model** and deliver **reference architectures and solution roadmaps** for the **asset management industry**, embedding **risk, security, and compliance guardrails** to enable **responsible, auditable AI adoption** across financial operations while maintaining **regulatory alignment**.

**Enterprise Benchmarking of AI-Powered Analytics Platforms**

- Led a **comparative benchmarking initiative** evaluating leading **BI platforms (Tableau, Power BI, AWS Q)** on **scalability, integration capabilities, UX, and LLM-powered report generation performance**, producing an **executive scorecard** that informed **client platform selection strategies** and surfaced actionable recommendations to accelerate **self-service analytics adoption** across enterprise settings.

**Agentic AI Document Intelligence Platform – Enterprise Policy & Compliance Reasoning**

- Built an **end-to-end agentic AI platform** using **Python, LangGraph, LangChain, RAG, and vector databases (Pinecone, FAISS)** on **AWS Bedrock**, orchestrating **multi-agent workflows** (retrieval, cross-reference validation, reasoning, and citation generation) to **ingest and reason over 10,000+ pages of policy, regulatory, and contractual documentation**, achieving **~95% accuracy** on complex multi-hop queries and reducing **manual document review effort by 70%** for enterprise compliance and legal teams.

## SKILLS

**Programming & Scripting:** Python, R, SQL, Scala, Java, Shell Scripting, JavaScript, HTML, PySpark, Pandas, NumPy, FastAPI, Flask
**Generative AI & Agentic AI:** Large Language Models (LLMs), Agentic AI, Multi-Agent Orchestration, Retrieval-Augmented Generation (RAG), LangChain, LangGraph, LlamaIndex, Model Context Protocol (MCP), Prompt Engineering, Model Fine-Tuning (LoRA, SFT), Guardrails.ai, Vector Databases (Pinecone, FAISS, pgvector), OpenAI, Anthropic Claude, AWS Bedrock, Azure OpenAI, Hugging Face, NLP, Semantic Search
**Machine Learning & Data Science:** Scikit-learn, PyTorch, TensorFlow, XGBoost, LightGBM, MLflow, Predictive Modeling, Regression, Classification, Clustering, Time-Series Forecasting, A/B Testing, Feature Engineering, Hyperparameter Tuning, Model Evaluation, Statistical Analysis
**Data Engineering & ETL:** Apache Spark, PySpark, Alteryx, dbt, Apache Airflow, AWS Glue, Informatica, SSIS, ETL/ELT Pipelines, Data Quality Testing, Data Lineage Validation, Data Modeling, Star/Snowflake Schema, Batch & Real-Time Processing
**Cloud Platforms & MLOps:** AWS (Bedrock, SageMaker, Lambda, S3, Textract, Redshift, API Gateway, IAM, CloudWatch), Azure (Synapse, Databricks, Functions, OpenAI Service, Cognitive Search), GCP (BigQuery, Vertex AI, Cloud Functions), Docker, Kubernetes, Jenkins, GitHub Actions, Terraform, CI/CD Pipelines, Model Deployment, Monitoring & Observability
**Databases, BI & Visualization:** Snowflake, Redshift, BigQuery, PostgreSQL, MySQL, Oracle, MongoDB, DynamoDB, Power BI (DAX, Power Query), Tableau, AWS Q, Looker, Excel (Advanced), KPI Dashboards, Data Storytelling
**Consulting & Domain Expertise:** Solution Architecture, Enterprise AI Strategy, AI Governance & Compliance, Risk Mitigation, Reference Architecture Design, Change Management, Cross-Functional Collaboration, Executive Stakeholder Partnership, Agile/Scrum, Code Reviews, Documentation, Training & Enablement; Banking (AML, Treasury, LoanIQ), Insurance (Claims Automation), Big Tech (Enterprise AI, CRM, Marketing), Airlines (OCR, Operations Analytics), Asset Management (GenAI Governance), Healthcare & Non-Profit

## EDUCATION

**University of North Carolina at Charlotte** — Charlotte, NC
Master's in Data Science and Business Analytics — Aug 2021 - May 2023
PhD in Applied AI — Jun 2026 - Present

## CERTIFICATIONS

Claude Certified Architect – Foundations
Certified AWS Solution Architect
Certified - Google Professional Data Analyst

## WORKSHOPS & SPEAKING ENGAGEMENTS

- **Panel Member & Advisory Board | East Carolina University (ECU) – AI Adoption in Higher Education:** Serve as a **panel member** on **university-wide AI adoption** and sit on the **advisory board** shaping **AI curriculum, syllabus design, and tooling for professors and students,** with a focus on responsible and ethical AI integration in academic environments.
- **Prompt Like a Pro – GenAI Prompt Engineering Workshop | Analytics Frontiers Conference 2025, UNC Charlotte (04/2025):** Co-hosted one of the **most attended sessions** of the conference with Joseph Keating and Jerome Dormoy, delivering **hands-on training on context and system prompt design** to help data science professionals improve **accuracy, consistency, and control in LLM-driven enterprise applications.**
- **GenAI & Prompt Engineering Workshop | UNC Charlotte (11/2024):** Co-presented with Khalil Khouy and Lenka Raslova, demonstrating how **prompt engineering techniques** can enhance **AI-driven insights** across **workflow automation, analytics, and intelligent decision-support systems**.