

# SIVARAM SENTHILKUMAR

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## Experience

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### University of Massachusetts Amherst

Jan 2026 – Present

*Graduate Teaching Assistant – Predictive Analytics & Statistical Learning*

*Amherst, MA*

- Led weekly office hours for **60+ students** in predictive modeling, statistical learning, and machine learning algorithms, helping them apply concepts to AI Engineering projects and increasing course satisfaction
- Facilitated communication between students and the professor, managed course correspondence, and coordinated assignment timelines to ensure **timely feedback** and fewer missed deadlines
- Collaborated with faculty to refine coursework, improve assignment clarity, and align curriculum with industry-relevant AI Engineering and analytics practices, strengthening **student engagement** and **career readiness**

### University of Massachusetts Amherst

Sep 2024 – Present

*Graduate Student – Academic Projects*

*Amherst, MA*

- Designed six pretrained CNNs on 253 grayscale MRI scans using transfer learning; achieved **94.5% validation AUC** and **95% tumor recall** with **MobileNetV2**, supported with Grad-CAM explainability [Link](#)
- Developed an interpretable neural network predicting food insecurity across **3,000+ U.S. counties** using **38 socio-economic features**; applied EDA, SHAP, and correlation analysis to identify policy-relevant drivers [Link](#)
- Engineered a CNN-LSTM forecasting model on multi-channel image sequences; achieved **R<sup>2</sup> 0.87** and reduced **3D printing defect-related failures 15%** [Link](#)

### Housing Development Finance Corporation Bank – Data Strategy Department

Jun 2023 – Jun 2024

*Data Scientist*

*Bangalore, India*

- Spearheaded **AI/ML solution design** on **Azure Data Lake** and **SQL Data Warehouse**, applied transformer NLP models **BERT** and **GPT-4** for insights, delivered **20% acquisition growth** and generated **\$33M** across PayZapp
- Led predictive modeling using **Random Forest**, **XGBoost**, and **Logistic Regression**; applied contextual multi-armed bandits to optimize retention, reducing **customer churn 10%** and increasing **revenue 12%**
- Optimized customer behavior analytics using **Python** and **SQL**; engineered semantic features with Sentence-BERT embeddings and reusable pipelines aligned with a centralized **feature store**, improving **decision efficiency 15%**
- Delivered KPI dashboards using **Power BI** and **Tableau**; integrated outputs from **XGBoost classifiers**, neural networks, and GPT-assisted summaries, increasing **analytics adoption 35%**
- Revamped data pipelines using **DBT**, **Apache Airflow**, and SQL debugging; established **MLOps pipelines** deploying **Prophet**, **ARIMA**, and **LSTM** forecasting models with monitoring, reducing **forecast error 18%**

### Vodafone Group Public Limited Company – Technology Department

Jul 2019 – Jul 2022

*Data Analyst*

*Ahmedabad, India*

- Integrated CRM, billing, and network usage data using **SQL** and **Python** to deliver customer analytics for a **10M+ subscriber base**, enabling data-driven decisions across acquisition, retention, and fraud domains
- Analyzed promotional code performance on **multi-million-record campaign data** and defined post-acquisition metrics (early churn, 30-day ARPU, recharge frequency, usage stability), achieving a **10% uplift in plan adoption**
- Executed controlled **A/B experiments** on promotional offers and eligibility rules; compared treatment and control cohorts on conversion rate, early churn, and recharge behavior, improving **campaign efficiency 12%**
- Built churn models using **XGBoost** and **Cox survival analysis** on 24 months of lifecycle data; engineered tenure momentum, recharge latency, and usage variance features, improving **retention 8%** in high-risk segments

### Siemens – Technology Innovation & Analytics Department

May 2017 – Jun 2017

*Data Insights Analyst Intern*

*Chennai, India*

- Standardized and maintained **100K+ ERP and transactional records** into consistent business process metrics, enabling reliable operational monitoring across enterprise teams
- Presented exploratory variance analysis and KPI validation findings, contributing to a **20% reduction in manual reporting effort** and improved process transparency

## Technical Skills

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**Languages:** Python, SQL, PySpark, C, HTML/CSS, JavaScript

**Databases and Data Warehousing:** PostgreSQL, MySQL, Google BigQuery, Snowflake, Oracle SQL, Amazon Redshift

**Big Data & Analytical Tools:** Hadoop, Hive, Spark, DBT, SparkSQL, PowerBI, Tableau, Looker Studio, Elasticsearch

**Cloud Computing:** AWS S3, EC2, EMR, Google Cloud Storage, Azure Data Factory, Azure Databricks

**Technologies & Orchestration:** Linux, Jenkins, GitHub, WordPress, Talend, Alteryx, Airflow, AWS Glue, Kubernetes

## Education

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University of Massachusetts Amherst MS Engineering Management (**AI Engineering**), MA

Sep 2024 – May 2026

Jio Institute | Nanyang Technology Univ PGP in **AI & Data Science**, Mumbai, India | Singapore

Jul 2022 – May 2023

Vellore Institute of Technology, Bachelor of Technology, Chennai, India

Jun 2015 – May 2019