

# BHARATHRAAJ NAGARAJAN

Buffalo, NY

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<https://github.com/BharathraajNagarajan?tab=projects>

## SUMMARY

Graduate Data Science student with 2.5+ years of experience delivering scalable AI/ML models in production settings. Skilled in developing end-to-end machine learning pipelines and applying GenAI innovations to optimize performance. Known for leading agile teams and leveraging cloud platforms to drive real-world solutions.

## EDUCATION

**University at Buffalo, The State University of New York**

**Aug 2024 - Dec 2025**

*Master of Professional Studies, Data sciences and Applications (GPA: 3.9/4.0)*

**Anna University - Sri Sivasubramaniya Nadar College of Engineering**

**Aug 2017 - May 2021**

*Bachelor of Engineering, Minor in Computer Science*

## PROFESSIONAL EXPERIENCE

**Tata Consultancy Services | SYSTEMS ENGINEER 3 - BigData AI Developer**

**Feb 2023 - Apr 2024**

- Developed AI models leveraging supervised, unsupervised, and semi-supervised learning, improving predictive accuracy by 18% and demonstrating proficiency in programming languages such as Python.
- Designed and implemented end-to-end machine learning pipelines—including data ingestion, preprocessing, model training, and evaluation—to enhance deployment speed and efficiency by 28%, reflecting robust software development practices.
- Optimized deep learning models with TensorFlow and PyTorch, increasing classification accuracy by 15% and supporting model evaluation and optimization efforts.
- Applied NLP and computer vision algorithms to complex data analytics challenges, reducing manual processes and reinforcing the use of GenAI concepts in innovative solution development.
- Maintained and optimized big data workflows using the Cloudera suite, ensuring seamless integration with AI models and reducing operational bottlenecks in line with ML infrastructure requirements.
- Enhanced data retrieval efficiency using Kafka, HDFS, HBASE, and Kudu, reducing query latency by 40% while ensuring data processing reliability.
- Deployed ML models using Kubernetes and cloud-native technologies, ensuring 99.9% uptime in production and addressing core aspects of model deployment and debugging.

**Tata Consultancy Services | SYSTEM ENGINEER 2 - BigData Python Developer**

**May 2022 - Feb 2023**

- Developed and optimized PySpark jobs, reducing ETL processing time by 47% and reinforcing strong programming language proficiency.
- Designed scalable data pipelines for real-time analytics using AWS and Google Cloud, reducing processing lag by 31% and demonstrating expertise in cloud platforms and data processing.
- Automated data ingestion, transformation, and validation processes, improving data quality by 25% and supporting robust ML infrastructure development.

**Tata Consultancy Services | SYSTEM ENGINEER 1 - Data Analyst**

**Oct 2021 - May 2022**

- Analyzed complex financial datasets (100M+ records), uncovering insights that improved fraud detection accuracy by 15% and endorsed data processing best practices.
- Optimized SQL queries, reducing data retrieval time by 45%, and effectively reported project progress to UK clients.
- Built predictive models for banking risk analysis, increasing loan approval efficiency by 20% and utilizing statistical modeling techniques.
- Designed 10+ dashboards in Power BI and Tableau, improving business reporting efficiency by 30% and contributing to detailed documentation and visualization practices.

## PROJECTS

### AI Insights Engine

- Developed AI-driven analytics models for real-time decision-making, improving data processing efficiency by 40%.
- Implemented ML pipelines with TensorFlow, PyTorch, deployed models via Kubernetes, reducing deployment time by 35%.
- Optimized big data workflows using Spark-ML & cloud platforms, enabling scalable AI solutions.

## TECHNICAL SKILLS

- **Programming Languages:** Python, SQL (PostgreSQL, MySQL, T-SQL, SparkSQL, HiveQL), R, Bash, Scala, MATLAB
- **Data Visualization:** PowerBI, Tableau, Looker, Excel, Matplotlib, Plotly
- **Data Science:** Statistical & Risk Modeling, Inferential Statistics, A/B Testing, Data Mining, Data Modeling, Loss Prevention
- **BigData:** Hadoop, Apache Spark, Apache Flink, Apache Kafka, HDFS
- **Machine Learning & AI Techniques:** TensorFlow, PyTorch, Keras, Scikit-learn, OpenCV, CNN, FlinkML, NLP, Kubernetes, LLM Agents, LangChain, RAG, Reinforcement Learning, Prompt Engineering, Diffusion models
- **Cloud/Data Platforms:** AWS, Azure, GCP, Microsoft Fabric, Databricks, Snowflake, Docker, PySpark, Hadoop, Git, BigQuery
- **Tools:** SSIS, SSAS, SSRS, Power Automate, Airflow, dbt, Alteryx, GIT, Docker
- **Certifications:** AWS Certified Solutions Architect - Associate (In Progress)