Khiran Kumar Chidambaram Sivaraman

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Education

PhD - Industrial Engineering **August 2025 - Present**
FAMU-FSU College of Engineering

Master of Professional Studies - Data Science **January 2021 - December 2022**
University of Maryland, Baltimore County

Bachelor of Technology - Mechanical Engineering **May 2016 - May 2020**
SRM Institute of Science and Technology

Experience

FAMU-FSU College of Engineering - Graduate Research/Teaching Assistant
Tallahassee, USA | Aug 2025 - Present

- Assist in conducting literature reviews and data collection for ongoing research projects.
- **Support data analysis, interpretation**, and visualization of research findings.
- **Contribute to report writing, presentations**, and preparation of research materials.
- **Assist in grading assignments and class activities**.
- Hold office hours to clarify questions and provide academic support to students.
- **S**upport instructor in classroom management as needed.

Radiance Technologies - Data Scientist, Finance Optimization team
Remote, USA | Aug 2023 - July 2025

- **Enhanced system responsiveness from 4 seconds to 2.4 seconds (40% increase)** in **4 months** by implementing CI/CD practices with Jenkins, Python, and Salesforce integration.
- **Decreased marketing costs from $50,000 to $40,000 (20% reduction)** and reduced manual errors from **5% to 3.75% (25% reduction) in 3 months** using Python (Pandas, Scikit-learn), automated data validation checks, and customer segmentation techniques.
- Improved model **accuracy from 85% to 96% and ROC-AUC from 0.90 to 0.9957** in **4 months** by evaluating models with Random Forest using Python (Scikit-learn) and deploying performance metrics analysis tools.
- **Increased data management efficiency by 30%, reducing query processing time from 5 seconds to 3.5 seconds in 4 months** using optimized SQL queries and ETL jobs on AWS (S3, Redshift) and Snowflake and performed transformations using DBT. Conducted multiple A/B tests for targeted marketing campaigns using SQL and R.
- **Developed notebooks** in Databricks to transform the data using PySpark, also to streamline and curate the data for various business use cases.
- Boosted natural language understanding **accuracy by 25%,** improving task effectiveness in sentiment analysis and entity recognition **over 5 months** using advanced techniques like transformers, GPT, BERT, and PyTorch.

Vanguard - Data Analyst, Integrated Data Optimization Team
Pennsylvania, USA | Mar 2023 - July 2023

- **Extracted and transformed data from CSV, JSON, and Excel into MS SQL Server, reducing data processing time from 12 hours to 2 hours per week (83% reduction)** and saving over 10 hours weekly by automating the workflow with Python and SQL.
- **Developed and maintained finance dashboards in Tableau**, initially providing static reports that took **2 days to compile**. Upgraded to interactive dashboards, tracking 15+ KPIs, which **increased decision-making speed by 25%** and improved reporting accuracy by implementing real-time data updates over a **3-month period.**
- **Led the creation of a predictive model** using Scikit-learn and PyTorch, enhancing resource allocation and investment **accuracy from 70% to 85% (15% improvement)**, with model deployment and performance evaluation completed within **2 months** timeframe.
- Integrated JIRA with Confluence to streamline tracking of database changes, **improving change management efficiency by 30% and reducing issue resolution time by 40%,** while also providing First-Level on-call support on a rotating schedule for timely issue resolution.

Graduate Teaching Assistant - University Of Maryland Baltimore County
Maryland, USA | June 2022 - Sept 2022

- Thoroughly reviewed the code, graded the assignments, and provided feedback to 50 students in the Intro to Data Analysis and Machine Learning course.
- Prepare, execute, and share the final solution key of the assignments to students, and complete multiple projects assigned by the professor.
- Mentoring and clarifying course-related questions
- Work diligently to complete the assigned projects within the deadlines while meeting the priorities and deliverables.

HWASHIN Automotive India Private – Limited - Quality Assurance Team
Chennai, India | May 2020 - Dec 2020

- **Optimized quality control for raw materials** inspections by identifying and addressing issues through **root cause analysis** and statistical tools. **Initially, material waste was 15%**. After implementing these optimizations using **MINITAB and statistical analysis, waste was reduced to 13.5% (10% reduction) within 5 months**.
- **Conducted Process Capability Studies with MINITAB**, starting with a process variation rate of 20%. After analyzing and implementing improvements, **process variation was reduced to 17% (15% improvement)**, leading to a boost in product quality.

- **Leveraged 8D methodology and MATLAB for troubleshooting** and quality enhancements in the manufacturing process. **Initially, warranty claims were 10%** of total units sold. After **5 months** of applying these methods, **warranty claims decreased to 8% (20% reduction)**.
- Ensured new product quality assurance by integrating advanced testing and quality control procedures. **Initially, customer satisfaction was at 75%**. After enhancing quality assurance processes, satisfaction **increased to 88% (18% improvement)**.

Skills

Languages	**Python - Jupyter Notebook, SQL, R, DAX, REST API**,
Data Processing & Streaming	PySpark, Apache Kafka, Pandas, NumPy, Airflow, Snowflake, ETL, Data Modeling,
Machine Learning Algorithms	Random Forest, Regression, SVM, Decision Tree, Xgboost, TensorFlow, Keras, Scikit-learn, PyTorch, LSTM,
Frameworks & Tools	Tableau, Power BI, Excel, JIRA, GitHub, Peoplesoft, Hadoop, DBT, Spark, Matplotlib, Scikit Learn, AWS, GCP, Databricks, Redshift, AWS EC2, AWS S3, Docker, Jenkins, CI/CD Pipelines

Projects

Customer Segmentation and Analysis / Language: Python **July 2023**

- Performed customer segmentation to divide the customer base into distinct groups based on product characteristics and behaviors.
- Prepared data for analysis by handling missing values, removing outliers, and normalizing data for consistency and accuracy.
- Created detailed customer profiles including demographics, preferences, and buying behavior.
- Conducted RFM analysis to identify high-value customers with substantial purchase behavior.

Neural Network Analysis of a heat pipe using hybrid nano fluids / Language: Python **Jan 2020 - May 2020**

- Conducted and automated a comprehensive analysis of a heat pipe charged with hybrid nano-fluids using machine learning techniques in Python.
- Employed a Deep Convolutional Neural Network (DCNN) model written in Python with TensorFlow (Keras), ReLU function to simulate inputs.
- Achieved an accuracy-correlation coefficient (R^2) of 0.991 with the DCNN model.
- Increased heat pipe efficiency by decreasing other parameters (water inlet temperatures).

Publications

[1] Kumararaja, K., **Khiran Kumar, C. S.**, **Sivaraman, B.**, "A convolutional neural network analysis of a heat pipe with hybrid nanofluids," International Journal of Ambient Energy, pp 6284–6296, 2021, Taylor & Francis. [Online]. Available: https://doi.org/10.1080/01430750.2021.2014959.

[2] Vishnu Vardhan Battu, **Khiran Kumar, C. S.**, Kalaiselvi Geetha, M., "Lung disease classification based on lung sounds—a review," in Computational Intelligence in Healthcare Informatics, D. P. Acharjya and Kun Ma, Eds., vol. 1132, Springer, 2024, pp 233–250. [Online]. Available: https://doi.org/10.1007/978-981-99-8853-2_15.

[3] Vishnu Vardhan, B., Kalaiselvi Geetha, M., Syam Prasad, G., **Khiran Kumar, C. S.**, "Abnormal sound detection in lungs using vest-coat stethoscope using deep learning algorithm," in Explainable Artificial Intelligence in Healthcare Systems, A. Anitha Kamaraj and Debi Prasanna Acharjya, Eds., Nova Science Publishers, 2024, pp 125–140. [Online]. Available: https://doi.org/10.52305/GOMR8163.

[4] Chinthala, N. S., Lewis, J., Vuppalapati, S., **Sivaraman, K. K. C.**, Toley, C. V., Ashqar, H., "Impact of covid-19 on taxi industry and travel behavior: A case study on chicago, il," 2024. arXiv: 2411.08168 [physics.soc-ph]. [Online]. Available: https://arxiv.org/abs/2411.08168.

Conferences

1. K. Kumararaja, B. Sivaraman, **C. S. Khiran Kumar**, Aman Pandey and B.Karthikeyan, (2019), "Investigation on Heat Pipe with Hybrid Nanofluid", 2nd International Conference on Recent Trends in Metallurgy, Materials Science and Manufacturing (IMME19), held on December My-28, 2019 at **National Institution of Technology, Tiruchirappalli.**
2. K. Kumararaja, **C. S. Khiran Kumar** and B. Sivaraman, (2022), "Predicting the Outlet Temperature of a Heat Pipe with Hybrid Nanofluid Using Deep Neural Networks*, 2nd International Black Sea Modern Scientific Research Congress, held on December 21-22, 2022 at **Rize, Türkiye.**