

Kushal Vajrala

ML/AI Eng, SWE, Data Scientist

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Professional Summary

5 years of experience in machine learning, data analysis, and statistical modeling. Proficient in Python, SQL, TensorFlow, etc. Certified in using AWS cloud computing services for model training and inference. Deeply interested in both AI theory and novel applications of the field.

Programming Skills

Languages: Python, R, SQL, Java, JavaScript, C, C++, ARM Assembly, MATLAB

Technologies: TensorFlow, PyTorch, Tableau, OpenCV, Fast.AI, Flask, React, Linux, Excel, PIL, Hyperledger Fabric, Snowflake, Plotly/Matplotlib, Pandas, SciKitLearn/sklearn, AWS Sagemaker

Tools: Jupyter Notebook/Lab, Git, Docker, Linux

Professional Experience

Senior Data Science Analyst (*Capital One*)

Chicago IL 05/2025 - Present

- Took on forecasting for an additional line of business with a multi-input, rolling-average methodology, along with 7 lines migrating after the acquisition, and built a Python automation that converts Excel forecasts to XML uploads, cutting a 30-minute weekly process to seconds.
- Core contributor to Destination Forecasting, an internal effort to replace spreadsheet forecasting with Prophet and XGBoost ensemble models showing 5–15% relative MAPE improvement. Responsible for data extraction, cleaning, and normalization, with a stakeholder-facing interface currently in development.
- Engaging in adhoc analysis with Python and SQL in Snowflake on different company initiatives, capturing trends that have shown increased volume up to 30% from baseline and addressing them accordingly.
- Reviewing forecasting and reporting tools across lines of business at both companies to help guide consolidation after the merger.
- Technologies Used: Python, SQL, Tableau, Excel, VBA, Prophet, XGBoost.

Senior Data Science Analyst (*Discover Financial Services*)

Chicago IL 12/2024 - 05/2025

- Forecasted 200K–250K monthly call and message volumes for 2 lines of business using Snowflake, Excel, and ratio-based decomposition, holding daily and monthly variance to $\pm 3\%$ against a team target of $\pm 10\%$.
- Automated recurring data work, including an Airflow pipeline from Freshworks into Snowflake and Tableau that replaced a 1–2 hour daily manual pull, a Python script that cut a weekly upload from 10 minutes to seconds, and VBA macros that refresh a Tableau dashboard covering 11 lines of business.
- Investigated volume anomalies with spikes up to 30% variance using intent-level SQL analysis, then reforecasted and briefed schedulers, who adjusted staffing based on the findings.
- Volunteered for professional development programs by working as a Python TA for junior cohorts and representing my team at an internal career fair of 40+ people to recruit freshly graduated talent.
- Technologies Used: Python, SQL, Tableau, Excel, VBA, Prophet.

Data Science Analyst (*Discover Financial Services*)

Chicago IL 08/2023 - 12/2024

- Conducted backtesting, validation, and benchmarking on 5+ production Workforce Management (WFM) models according to SR 11-7 using Python, statsmodels module, improving model accuracy by 15%. These models include Exponential Smoothing, SARIMAX, and Prophet models. These were written utilizing Pandas, Plotly, and the statsmodels Python libraries.
- Regularly collaborated with clients to select and refine backtesting and benchmarking methodologies. Validated model assumptions with tests (such as Kolmogorov-Smirnov, Shapiro-Wilks, etc.) to reduce MAPES from up to 30% to 7%.
- Developed two Tableau Dashboards to track the progress and status of 18 internal automations, reducing time spent on manual tracking by 50%. Engaged with stakeholders to refine dashboard requirements and ensure project alignment.
- Utilized Blue Prism RPA software to automate data extraction from Excel files updated daily.
- Technologies Used: Python, SQL, Tableau, Excel, Blue Prism, Pandas, Plotly.

Software Engineering Intern ([Discover Financial Services](#))**Chicago IL** 06/2022 - 08/2022

- Created a form to handle both Windows and Linux server decommission requests, reducing missed SLAs by 72%.
- Migrated legacy software into new form modules, streamlining the decommission request process.
- Participated in daily standups and sprints, fulfilling user stories on Jira within Agile SDLC.
- Technologies Used: JavaScript.

Software Engineer ([Dadimii](#))**Houston, TX** 09/2022 - 07/2023

- Wrote Python scripts to automate CSV generation for procurement applications, improving efficiency by 25%.
- Wrote automation suites for different clients using Python and Playwright, reducing the daily time spent on manual web actions by anywhere from 20 minutes to 1 hour.

Software Engineering Intern ([Discover Financial Services](#))**Chicago IL** 06/2022 - 08/2022

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Research Intern ([The University of Texas at Austin](#))**Austin, TX** 01/2021 - 12/2021

- Developed an object detection program in Python to crop images from a human bones dataset for a deep learning model.
- Executed data-heavy algorithms on university computing clusters, reducing processing time by 30%.
- Collaborated with Ph.D. students on human pose estimation software and analysis using coco-annotator and Docker.
- Technologies Used: Python, OpenCV, PIL.

Personal Projects

AutoML ([Python](#))**Chicago, IL** 06/2024

- Wrote a Python script using SKLearn that takes in tabular data and automates finding the best possible model and its parameters to use, outputting a separate script containing the code to run that model.
- Iterates through multiple regression and classification models including: XGBoost, Decision Tree/Random Forest, Linear/Logistic Regression, MLP, etc.
- The script also conducts StratifiedKFold and GridSearch hyperparameter tuning, ensuring the best possible model given.
- Technologies Used: Python, SKLearn.

Kanji to Hiragana ([Chrome Extension](#))**Chicago, IL** 06/2024

- Created a chrome extension that allows users to insert furigana into any Japanese kanji they encounter on the web but don't know, allowing for a smooth, uninterrupted reading and learning experience.
- Technologies Used: JavaScript, HTML, CSS.

Hackathon Project ([Text Simplifier](#))**Austin, TX** 06/2020 - 08/2020

- Developed and trained a natural language processing program to summarize Wikipedia articles.
- Improved text simplification accuracy by 20% through iterative model training and validation.
- Technologies Used: Python, TensorFlow.

Education

BS Electrical and Computer Engineering [University of Texas at Austin](#)**Austin, TX** 2019-2023

Relevant Courses: Software Engineering Lab, Statistical Modeling, Algorithms, Linear Algebra, Discrete Mathematics, Embedded Systems Lab, Financial Valuation, Operating Systems, Computer Architecture, Predictive Analytics

Online Courses & Certifications

- AWS Machine Learning Specialty (2025) - [AWS](#)
- Convolutional Neural Networks in TensorFlow (2022) - [Coursera](#)
- Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning (2022) - [Coursera](#)