

# Tushar Rajput

Data Scientist / Analyst / Python Developer / Mechanical Engineer

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## SKILL STACK

Python (OOP, DSA), C++ | Advanced SQL (MySQL, SQL Server) | K-Means, PCA, Feature Engineering, Hyperparameter Tuning, CNN, LSTM, ANN | TensorFlow, Keras, Scikit-learn, PyTorch, | Pandas 2.0, Polars, Time-Series Analysis, EDA, Data Cleaning, Dimensionality Reduction | Matplotlib, Seaborn, Plotly, Power BI, Looker Studio | AWS, Azure, Oracle Cloud Infrastructure | Flask | Advanced Excel | MATLAB | SolidWorks, Rhino 6, Ansys Fluent, Blender 4.0, 3D Printing

## COURSES and CREDENTIALS

[Oracle Cloud Infrastructure 2025 Certified Data Science Professional](#)

Microsoft Azure Fundamentals

[Management and governance](#) | [Architecture and services](#) | [Cloud concepts](#)

Google Advanced Data Analytics Professional

[Getting started with Python](#) | [Foundations of Data Science](#)

## PROJECTS

[Boston Consulting Group - Data Science Job Simulation \(Forage\)](#)

Conducted churn analysis using Python & Random Forests (85% accuracy) and delivered executive-level actionable insights.

[Customer Segmentation using K-Means & PCA](#)

**Objective:** Identified distinct customer groups for targeted marketing strategies using unsupervised learning.

**Highlights:**

- Performed **feature engineering, scaling, and dimensionality reduction (PCA)** to enhance cluster separability.
- Visualized customer clusters and behavior trends using **Matplotlib** and **Seaborn**.
- Delivered actionable segmentation insights to support customer retention and marketing optimization.

**Tech Stack:** Python, Scikit-learn, NumPy, Pandas, Matplotlib, Seaborn

[Deep Learning Image Classifier \(CNN on CIFAR-10\)](#)

**Objective:** Built and optimized a deep convolutional neural network to classify images across 10 categories.

**Highlights:**

- Designed and tuned CNN architecture using **TensorFlow** and **Keras**, improving validation accuracy by 12%.

- Applied **data augmentation**, **dropout**, and **batch normalization** for better generalization.
  - Explored advanced architectures in a **CNN Deep Dive** for layer visualization and model explainability.

**Tech Stack:** TensorFlow, Keras, NumPy, Matplotlib, CNN

# Airline Passenger Forecasting using LSTM

**Objective:** Predicted future airline passenger traffic using **Long Short-Term Memory (LSTM)** neural networks.

## Highlights:

- Conducted **time-series preprocessing** (lag features, scaling, windowing) to prepare data for sequence modeling.
  - Compared LSTM results with baseline statistical models for trend and seasonality forecasting.
  - Achieved a **mean absolute error reduction of 18%** over classical methods.

**Tech Stack:** Python, TensorFlow, Keras, Pandas, NumPy, Matplotlib

## EMPLOYMENT HISTORY

CAD Drafter at Matrix Window System Inc., Vaughan, ON

December 2021 - January 2024

- Created a library of custom CAD components that could be reused across multiple projects
  - Developed renderings and animations for marketing materials
  - Developed 3D CAD models of a complex mechanical assembly with 10+ components

Injection Molding Press Operator at Quality Models Ltd, Windsor, ON

February 2020 - September 2021

- Optimized semi-automatic injection molding work station by leveraging the Therblig Scoring System, achieving a 15% reduction in resource utilisation.
  - Carried out in-process visual inspection and reported to supervisor and/or quality inspector for deviations.
  - Created detailed trim and molding for kitchen renovation and automotive OEMS

EDUCATION

MEng Mechanical Engineering, University of Windsor

2020-2021

FEA(Composite Structures) | CFD | Engine Testing and Performance | Solar Energy  
Engineering

B.E. Mechanical Engineering, G.T.U