

KAMAL PATEL

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EDUCATION

Rutgers, The State University of New Jersey • New Jersey

September 2024 – June 2026

Doctoral studies in Industrial & Systems Engineering (Completed two years of advanced courses)

Courses: Linear Programming, Computational Methods, Data Mining II, Time-Series Analysis, ML Statistics, Systems Reliability

Certification: Lean Six Sigma Green Belt, Financial Engineering & Risk Management (Columbia University)

WORK EXPERIENCE

Rutgers University – Industrial & Systems Engineering Department

Jan 2025 – June 2026

Teaching Assistant

- Taught and supported **100+ graduate and undergraduate students** in Applied Optimization and Reliability Engineering courses.
- Resolved doubts in reliability and linear programming; managed grading for 15+ assignments and proctored 2 exams per course.

Kismet Technologies

May 2023 – Aug 2023

Industrial Engineer Intern

Orlando, FL

- Revamped batch manufacturing data tracking by building PowerApps application, boosted R&D efficiency by **11%**.
- Built performance dashboard in **PowerBI** to track production KPI's, increased Overall Operation Effectiveness (OEE) by **15%**.
- Initiated the first production schedule for nano-surface coating, ensured quality compliance with ISO 9001 standard.
- Authored **SOPs** for batch acceptance testing, implemented product recall procedures and developed production schedules.
- Implemented Katana MRP software for inventory management, resulting in a 20% improvement in inventory accuracy.

Mareana: Industry Consulting

Nov 2022 – Dec 2022

Project Head

New Brunswick, NJ

- Spearheaded a team of 4 engineers, ensured effective communication and task delegation resulting in timely project completions.
- Analyzed turbine simulation data in **Minitab**, identified production bottlenecks and proposed improvement solutions.
- Evaluated and built **FlexSim** discrete event model, optimized line balancing, reducing production time by 23.5%.

Susha Founders and Engineers

Dec 2021 – May 2022

Manufacturing Engineer Intern

Surat, India

- Conducted time study for assembly processes for 2 production stages, reduced production time by 8%.
- Examined inventory data using **VLOOKUPS** and **Pivot Tables** to forecast new reorder level and EOQ.
- Enforced **5S** principle for tool accessibility and safety, rearranged tool crib for space optimization increasing productivity by 10%.
- Optimized monthly OEE, streamlined production reviews, and improvement reports generated, resulted in a 10% boost in operational efficiency within **six** months.

SKILLS

Data Analytics Tools/Packages	Python(Pandas, NumPy, Scikit-learn), PyTorch, TensorFlow, R, MATLAB, Julia, SQL, Minitab
Software Packages	ANSYS, AutoCAD, Flexsim, Gurobi, AnyLogic, SolidWorks, PTC Creo, MS Project, Visio.
Operational Excellence	Value Stream Mapping, Lean Manufacturing, Six Sigma (DMAIC), Kaizen, Root Cause Analysis

ACADEMIC PROJECTS

Paper Implementation - Barzilai-Borwein Step Size for Stochastic Gradient Descent - [Computational Methods Course](#) Fall 2025

- Implemented the Barzilai-Borwein adaptive step size method for Stochastic Variance Reduced Gradient(SVRG) in Python.
- Compared three algorithms - SGD vs Stochastic Variance Reduced Gradient and SVGR using the Barzilai-Borwein method. Achieved 15% faster convergence on MNIST dataset using the proposed method). [GitHub](#)

Electricity Price Forecasting using Autoregressive and LSTM Model ([GitHub](#)) - [Forecasting Analytics Course](#)

Spring 2025

- Developed and optimized PyTorch LSTM model for forecasting Location Marginal Price and compared with autoregressive models. Implemented feature engineering and time-series analysis. LSTM model outperformed traditional statistical methods, achieving a MAE of 3.92 and RMSE of 9.21—outperforming the benchmark SARIMAX model (MAE: 4.05, RMSE: 9.87).

Building Energy Consumption Analysis ([GitHub](#))

Spring 2024

- Visualized shopping mall energy consumption for energy saving options, accelerated pre-processing and feature engineering on 100K time-series data. Applied **K-means** to cluster daily load profiles and build **K-neighbor** regression model to predict consumption, achieving MAPE of 25%.

Loan Default Risk Prediction ([GitHub](#)) - [Data Mining II Course](#)

Fall 2023

- Preprocessed 300K loan applications addressing missing values, anomalies, and outliers using python exploratory data analysis.
- Built XGBoost and LightGBM model, achieved best leading AUC score of **74.37%** with LightGBM, nearing the top-performing score of **79.5%** on Kaggle competition.

Pattern Analysis of 9 years of US Vehicle Accidents ([GitHub](#)) - [Data Analytics in Systems Engineering Course](#)

Fall 2022

- Investigated 2.8M US accidents from 2016-2022 using EDA and studied impact of environmental stimuli on traffic behavior.
- Performed extensive patterns analysis using **R** & **ggplot2** to identify safety risks and proposed data-driven policies for road safety.
- Developed interactive visualizations in **Tableau** and built a web app using **Streamlit** for 800K data points.

LEADERSHIP

- Served as Lead Mechanical Engineer for NYU's autonomous vehicle project, managed a team of 10 engineers in the design and development of a self-driving vehicle; secured 3rd place in an International Ground Vehicle competition – Oakland University.