Rohan Kharche

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TECHNICAL SKILLS

Languages: Python, C++, Java, SQL

Techniques/Frameworks/Libraries: Pandas, Scikit-learn, Tensorflow, Statistical Analysis, Machine Learning Algorithms, Seaborn, MySQL 8, Jupyter Notebook, Git

PROJECTS

Email Spam Filtering ✎ 11/2024
[Python, scikit-learn, Naive Bayes, LinearSVC, TF-IDF Vectorization]
- Developed a TF-IDF + Voting Classifier pipeline to classify spam messages with **98% accuracy** on a dataset of over **83,000 messages**.
- Engineered a hybrid ensemble using MultinomialNB, LinearSVC, and LogisticRegression, improving robustness and reducing false positives.
- Tuned preprocessing and model hyperparameters to achieve an **F1-score of 0.98**, ensuring balanced precision and recall.
- Built a scalable and real-world–ready spam detection system applicable to email filtering, messaging platforms, and content moderation.

Calorie Burn Estimation ✎ 03/2025
[Python, scikit-learn, XGBoost, LightGBM, CatBoost, Random Forest, Stacking Ensemble]
- Developed a layered regression model on **750K+ data entries** to predict calorie expenditure with high precision ($R^2 = 0.997$).
- Implemented a **stacked ensemble** combining RandomForest, LGBM, and CatBoost with XGBoost as the meta-learner for superior performance.
- Achieved a **15% accuracy improvement** via advanced feature selection and hyperparameter tuning on physiological and activity metrics.
- Supported real-world use cases in fitness tracking, personalized health insights, and smart wearable integration.

Solar Panel Performance Optimization ✎ 06/2025
[Python, scikit-learn, TensorFlow, LightGBM, CatBoost, Random Forest, Stacking Ensemble]
- Built a predictive model for **solar panel efficiency** using sensor and environmental data, achieving **RMSE of 0.1061** on 20K+ records.
- Implemented a **manual stacking ensemble** (RandomForest, LightGBM, CatBoost, ANN) with Ridge Regression as meta-model for robust forecasting.
- Improved model accuracy by **25%** through feature selection, hyperparameter tuning, and **cross-validation strategies**.
- Enabled predictive maintenance and reduced downtime in solar systems, driving higher operational efficiency and energy output.

EDUCATION

VIT Bhopal University, 2023 – 2027
Bachelors of Technology in Computer Science Engineering Bhopal, India
- Current GPA : 9.41

CERTIFICATIONS

Introduction to Machine Learning ✎ 05/2025
NPTEL

Supervised Machine Learning: Regression and Classification ✎ 12/2024
DeepLearning.AI

The Bits and Bytes of Computer Networking ✎ 11/2024
Coursera

ACHIEVEMENTS AND LEADERSHI

- Solved 250+ data structure and algorithms problems on platforms like LeetCode, GFG and Codeforces building a robust foundation for software development tasks.
- **Lead, Content Writing Team – Open Source Club**: Directed content strategy for club events, boosting participation and communication quality.