

# ESHAAN MINOCHA

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ML Engineer | 40% accuracy improvements | \$40K cost saving | 30% compute time saving | Classical ML, DL, Optimization

## SUMMARY

Machine Learning Engineer with 2+ years of experience, driving **30-50%** performance improvements through classical ML optimization and demand forecasting. Passionate about leveraging data and ML to generate actionable insights and inform strategic decision-making.

## SKILLS

**Programming/Tools:** Python, SQL, Java, C, Bash, Git, Poetry, Airflow, Snowflake, DASK, Ray

**Cloud Technologies:** AWS (Lambda, Sagemaker, S3, Athena, DynamoDB), GCP

**Machine Learning:** Gaussian Processes, Ensemble Learning, Conformal Inference, Optimization, Time Series Forecasting

**Libraries:** PyTorch, Kedro, GPFlow, XGBoost, LightGBM, Pyomo, FastAPI, Pandas, Scikit-Learn, Seaborn, Matplotlib, Plotly

## PROFESSIONAL EXPERIENCE

### The Goodyear Tire and Rubber Company

Cleveland, OH

Data Scientist

June'24 - Present

- Improved predictive confidence by **40%** by engineering a scalable codebase for an end-to-end pipeline of linear trees
- Integrated conformal inference for uncertainty quantification to improve trustworthiness of ML models
- Reduced optimization costs by **\$40,000** annually by integrating HiGHs solver as an open-source alternative to Gurobi
- Optimized inference compute time by **30%** using inducing points in Gaussian Processes with detrimental point processes
- Increased accuracy by **10%** using multivariate time series models for demand planning on multiple granularities

### The Goodyear Tire and Rubber Company

Cleveland, OH

Data Scientist Intern

May'23 - Aug'23

- Ensured a minimal downtime of **0.1%** by performing migration of ML applications from on-prem VM to the cloud
- Managed a DynamoDB database on AWS to efficiently store and retrieve ML payloads for application endpoints
- Reduced querying complexities by **50%** by designing schemas using index strategies and partition key optimization
- Conducted extensive benchmarking of outlier detection modules to automate anomaly detection in ML workflows
- Reduced release cycles by **40%** by implementing CI/CD pipelines for ML deployment

### Echostar – Hughes Network Systems

Gaithersburg, MD

Software Engineering Intern

May'22 - Aug'22

- Developed a real-time data streaming module using WebSockets to efficiently transmit telemetry data with ~1 ms latency
- Designed and optimized JSON-based data structures to facilitate asynchronous communication for backend services
- Built and deployed an Express-based REST API to serve real-time analytics dashboards for monitoring system performance

## EDUCATION

Purdue University | MS, Computer Engineering | GPA: 3.75

West Lafayette, IN | Aug'23 - May'24

Purdue University | BS, Computer Engineering | GPA: 3.83

West Lafayette, IN | Aug'19 - May'23

Relevant coursework: Machine Learning, Data Mining, Software Engineering, Probabilistic Methods, Statistics

## PROJECTS

### Learning to Reweight Examples for Robust Deep Learning | Code available - [here](#)

Jan'23 - May'23

- Tested vulnerabilities of Deep Neural Networks (DNNs) to training set biases and noisy labels
- Improved accuracy of detection of outliers by **5%** employing multiple activation functions
- Successfully implemented the label detection trend from original paper with **60%** accuracy

### Trustworthy Registry of Modules | Code available - [here](#)

Jan'23 - May'23

- Implemented a CLI which takes as input a registry of npm packages and returns their "trustworthiness"
- Developed APIs using Typescript and Python for functionalities of "upload", "download" and "update"
- Stored package modules on GCP Firebase and deployed the entire system

### Deep Image Prior | Code available - [here](#)

Sept'22 - Dec'22

- Modified the architectures (CNN) for the "inpainting" experiments on different images using PyTorch
- Replicated results of the "restoration" experiments with **40%** accuracy
- Evaluated the results on the modified model using unique machine learning techniques like GMM clustering

## PUBLICATION – CLOUD COMPUTING

### Workload Characterization & DAG Transformation for Serverless Workflows | Paper - [here](#)

Mar'21 - Aug'21

- Implemented Singular Value Decomposition (SVD) algorithm on AWS Lambda to test latency requirements
- Integrated lambda functions on AWS Step functions and implemented the DAGs (Directed Acyclic Graphs)