

# Praveen Chandrasekaran

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## EDUCATION

### Rochester Institute of Technology

*Master's in Data Science - Machine Learning Specialization*

New York, U.S.A

08/2021 - 05/2024

### Anna University

*Bachelor's in Mechanical Engineering - Statistics Specialization*

Chennai, India

06/2013 - 04/2017

## MACHINE LEARNING EXPERIENCE

### BMW Financial Services

05/2023 - 12/2023

*Data Scientist - Intern*

Ohio, U.S.A

#### Financial Statement Analysis with LLM Powered ChatBot

- Developed a chatbot on AWS to generate BI summaries from financial reports to save 40 man-hours per month.
- The app loads and splits PDFs, creates an embedding database, and defines a model with prompt templates.
- Tools and Algorithms: AWS SageMaker, LangChain, GPT, Vector Databases, Semantic Search with MMR.

#### Customer Pain Points Analysis using Hugging Face Language Models

- Built + deployed a customer feedbacks analyzer to deliver automated analytics for the Marketing team.
- Fine-tuned LDA to extract salient topics and sentiments for automated topic visualization using PyLDAvis.
- Tools and Algorithms: JupyterHub, Pandas, Scikit-learn, NLTK, Hugging Face, RoBERTa, LDA.

#### Language Model Innovations for Comprehensive Customer Feedback Analysis

- Enhanced the customer feedbacks analyzer using OpenAI's GPT models to generate full-scale analytical inferences.
- Incorporated, Reterival Augmented Generation with multi-agent systems to create graphs saving manual efforts.
- Tools and Techniques: AWS Sagemaker, OpenAI GPT models, Agents, Prompt Engineering.

### BMW of North America

01/2023 - 05/2023

*Data Science - Intern*

New Jersey, U.S.A

#### BMW's Highway Assistance: Advanced Telematics Data Interpretation

- Deployed QuickSight app on AWS to analyse near real-time customer usage metrics aiding issue discovery.
- Designed and built ETL pipelines with Apache Spark enabling efficient processing to identify impactful signals.
- Tools and Algorithms: AWS EMR, S3, Glue, Kinesis, Random Forest, XGBoost.

### Mercedes Benz Asia

04/2018 - 03/2021

*Machine Learning - Senior Engineer*

India

#### Batch Deployment of Fine-tuned Language Model for User Review Analysis

- Fine-tuned RoBERTa on customer reviews to perform multi-class classification with custom model training script.
- AWS SageMaker Debugger was used to capture training metrics and to profile system resources utilized.
- Technologies: AWS SageMaker Endpoint, S3, IAM, Step Functions, Glue

#### Serverless Cloud Deployment of Image Classifier for Manufacturing Engineering

- Developed and operationalized multiple Image Classifiers as REST API services.
- Performed 3 month AB test and tracked the model and data drift to generate auto alerts on AWS.
- Technologies: AWS SageMaker, EC2, S3, API Gateway, Lambda, AutoScaling, CloudWatch, Postman

#### Driver Behavior Analysis with Unsupervised Computer Vision

- Performed dimensionality reduction with PCA and fine-tuned a deep learning model to cluster unlabeled images.
- Experimented with RestNet, VGG-16, Inception V3 models and used DBSCAN for clustering.
- Technologies: TensorFlow, OpenCV, Docker, MLflow, Git, Apache Airflow

## PROJECT MANGEMENT EXPERIENCE

### Ongoing Steering of DataRobot Installation for ML Model Governance

BMW, 2023

- Collaboratively managed the operationalization of the DataRobot platform on BMW's AWS cloud server.
- Coordinated with DataRobot development team to work on bugs and app advancements.

### Contributions to AI Research & Applications

RIT, 2022

- Assisted in RIT and Toyota's Explainable-AI research, focusing on enhancing safety in autonomous driving.
- Led a team of 4 analysts in deploying a deep learning model for a bio-informatics research project.

### Continuous Monitoring of Operationalized ML Models

Mercedes, 2021

- Generated baseline statistics, detected data and model drifts to send automated alarms to admins.
- SageMaker Model Registry and Monitor were used to maintain model inventory and trigger model re-training.

## PROFESSIONAL CERTIFICATIONS

- AWS Machine Learning Speciality, AWS Cloud Practitioner, Google TensorFlow Developer, Google Analytics Professional
- **Tools:** Python, SQL, Scikitlearn, Tensorflow, AWS, MLFlow, Spark, Git, Docker, Kubernetes, JIRA, LangChain, Hugging Face