

# ROHIT MACHERLA

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## Education

Rutgers University-New Brunswick, NJ

Graduating: May 2024

Master of Science in Data Science

GPA: 3.65/4

**Coursework:** Regression & Time Series Analysis, Data Structures & Algorithms, Probability & Statistics, Data Mining, Statistical Modeling & Computing, Database Management, Statistical Software (NLP), Statistical Learning (DL)

National Institute of Technology Kurukshetra, India

Aug 2016 – May 2020

Bachelor of Technology

GPA: 8.47/10

## Technical Skills

- **Proficient:** Python, SQL, Pandas, Numpy, Sklearn, TensorFlow, PyTorch, Matplotlib, GCP([Certified Data Engineer](#)), BigQuery, Databricks, Colibra, ETL, Statistics, Informatica Cloud
- **Worked with:** R, Unix, MongoDB, Power BI, PySpark, SageMaker, FastAPI, Streamlit, LLMs, A/B testing
- **Basics:** MLflow, Tableau, spaCy, AWS

## Work Experience

Rutgers University, Graduate Research Assistant | [Git](#)

Oct 2022 – Dec 2023

- Optimized data integrity through data standardization across 3 sources and preprocessing using NLP techniques resulting in a **reduction** of the data **by 30%** and **removal** of URLs, HTML tags, and emojis **by 99%**
- Achieved **10x clustering speedup** with FAISS in KMeans, delving into DBSCAN, DP-Means, and ultimately opting for BERTopic, uncovering 150+ clusters
- Analyzed health datasets, designed and implemented Python algorithms to calculate gene-drug interactions, and **identified the top 10%** cases of interest based on estimated **statistical** parameters
- Enforced parallel processing over 64 cores of a remote server, resulting in an **80% reduction** in execution time

Omdena, Machine Learning Engineer | [Git](#)

May 2023 – Aug 2023

- Collected and curated crowdsourced data from over 75+ contributors, conducted EDA, and employed data cleaning and statistical imputation techniques to **enhance data quality** by achieving a **98% completion rate**
- Engineered a **recommendation system** that leveraged content-based, collaborative filtering and NLP techniques. Explored matrix factorization and neural networks, to achieve a **94% f1-score**
- Implemented an ensemble model, to enhance the **click-through rates by 33%**
- Deployed the models to AWS utilizing Streamlit and FastAPI for users to interact and test as a POC

Deloitte Consulting, Data Engineer

Aug 2020 – Jun 2022

- **Led** a team of 4, seamlessly integrated **Databricks** with Colibra Catalog using JDBC simba spark driver. Automated metadata ingestion for 260+ schemas using Python scripting and Tidal jobs to **reduce manual effort by 99%**
- Developed **SQL queries** to extract data from MYSQL, Oracle, and PostgreSQL databases, optimizing efficiency, and seamlessly exposed the results as APIs using MuleSoft proxy for enhanced accessibility and integration
- Engineered an **ETL** pipeline for data processing automation of Qlik Sense data into Informatica Cloud (IICS) and Colibra via REST API calls using Unix Script, parallelized the ingestion for a **66% time reduction**
- Designed **Power BI** Dashboards through Colibra APIs, showcasing asset metrics and metadata completeness, driving a **30% accuracy awareness boost**. Incorporated **3-layer drill-through** for enriched asset lineage comprehension
- Facilitated and actively contributed to the successful execution of **5 production releases**, demonstrating expertise in deploying and maintaining data engineering solutions to ensure operational stability

## Projects

Human Emotion Detection - Computer Vision | [Git](#) | [Demo](#)

Jan 2024

- Implemented image classification using ResNet50 CNN architecture building it from scratch to achieve an f1-score of 78.6%. Performed Transfer Learning on EfficientNetB4 to **improve** the score to **83.3%**
- Fine-tuned the **Vision Transformer** model to obtain an accuracy and f1-score of **90%**. **Deployed** the model to **Heroku** using Streamlit web app

Text Summarization - NLP | [Git](#) | [Demo](#)

Dec 2023

- Performed text summarization on wikiHow dataset from Hugging Face using pre-trained **BART** and **T5 LLMs**
- **Prompt Engineering** techniques were used on the input text to **improve** the BLEU score **by 10%**
- Adopted simple and **LoRA** fine-tuning techniques to **improve the performance** on BLEU score **by 209%**

Twitter Search Application | [Git](#)

Apr 2023

- Extracted and transformed user and tweet data from JSON files, succeeded with **100% accuracy** in storage into MYSQL and MongoDB, leveraging analytics tools for EDA and sentiment analysis
- Developed search functionalities with custom **caching** techniques and attained a **500-fold enhancement**