# Koustub Raghavendra

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## Summary

I am an Machine Learning Engineer with 3 years of experience in building AI solutions, specializing in NLP and machine learning. I have leveraged cloud platforms like Google Cloud, and I'm skilled in Python, TensorFlow, and model optimization. My focus is on delivering impactful AI-driven insights for various industries.

## Skills

- **Programming Languages**: Python, R, SQL
- **Tools & Frameworks**: TensorFlow, PyTorch, FastAPI, Docker, Kubernetes, Apache Airflow, Git
- **Cloud Platforms**: Google Cloud (GCP), adaptable to AWS, Azure
- **Machine Learning**: Supervised & Unsupervised Learning, NLP, Deep Learning (CNNs, LLMs), Clustering, Model Optimization, A/B Testing, Retrieval Augmented Generation
- **Data Engineering**: Hadoop, PySpark, Big Data Analytics, Feature Engineering
- **Databases**: MySQL, BigQuery, MongoDB
- **ML Ops**: Model Deployment, Monitoring, Hyperparameter Tuning

## Education

**University of Limerick**, Masters in Data Science and Statistical Learning — Sept 2023 – Sept 2024

- GPA: 3.75/4.0
- **Coursework:** AI and Machine Learning, Big Data, Natural Language Processing, Fundamentals of Statistical Modelling, Advanced Data Modelling, Statistical Inference for Data Science, Database Systems

## Experience

**ML Engineer**, Tata Consultancy Services – Bengaluru, India — Sept 2020 – July 2023

**Client : Google**

- Led design and development of AI solutions for 20+ global customers using Google Document AI, driving $124M in revenue
- Designed scalable models and business logic to transform unstructured data (bank statements) into structured formats, contributing to $1.5M in yearly revenue.
- Designed and developed experiments for Model Training for 20+ DocumentAI Parsers that facilitate 100+ customers to migrate their unstructured data stored in forms to BigQuery/Cloud Storages.
- Optimized document processing pipelines by automating the generation of training data, cutting manual effort by 80%.
- Created comprehensive documentation for all processes, reducing onboarding time for new hires by 30%.

## Industry Collaboration Projects

**Nutritional Information Detection and Extraction** — Feb 2024 - July 2024

Food Safety Authority of Ireland

**GitHub Repository**: https://github.com/KoustubR

- **Objective:** Automate the extraction of nutritional data from food labels for regulatory compliance
- **Approach:** Designed and refined CNN models, integrated the selected model into a real-time product using FastAPI and Docker
- **Outcome:** Reduced processing time by 95% through the automated extraction of nutritional data from food labels

## Academic Projects

**Credit Card Fraud Detection** github.com/KoustubR

- **Objective:** Develop a real-time fraud detection system to identify fraudulent credit card transactions
- **Approach:** Utilized PySpark within a scalable framework for efficient training and prediction, processing over 1 million transactions per day and integrating streaming data with Apache Kafka
- **Outcome:** Created a real-time fraud detection pipeline that achieved a fraud detection accuracy of 97% with a latency of under 3 seconds per transaction

**Gemstone Image Prediction** github.com/KoustubR

- **Objective:** Predict gemstone types from image data using computer vision techniques
- **Approach:** Developed a CNN model in R, applying image augmentation to increase training data volume to 150 images per class, enhancing model accuracy and generalization
- **Outcome:** Improved model performance, achieving 80% accuracy in gemstone type prediction by optimizing the CNN architecture through data augmentation techniques

## Achievements & Certifications

- **Star of the Month** – Tata Consultancy Services, 2022
- **On the Spot Award** – Tata Consultancy Services, 2022
- **Python Data Visualization Certification** – LinkedIn Learning, 2022
- **Associate Cloud Engineer** – Google Cloud, 2023
- **Data Science Masters** – Physics Wallah, 2023
- **Python for Data Science and AI** – Coursera, 2024

## Professional Development

Actively engaged with Neural Networks group at the University of Limerick, gaining insights into the latest innovations in ML models and deployment strategies

## Community Engagement

Led community efforts to organize educational initiatives in underserved areas, fostering STEM interest

- **CherYsh Trust**: Volunteered to teach English and Mathematics to students in rural areas with inadequate teaching facilities every Saturday, enhancing educational opportunities for underserved communities.
- **Gnyan Sangram**: Led the planning and organization of a physics quiz and model-making competition for National Science Day, fostering engagement and interest in STEM among participants.

## Soft Skills and Leadership

- Championed a pivotal team initiative to merge data analytics with cloud solutions, boosting team efficiency and elevating project deliverables, earning the Best Team Award
- Demonstrated strong communication skills by presenting my work in the Neural Networks group at the University of Limerick, facilitating knowledge transfer among peers
- Thrive in demanding settings by prioritising my tasks, consistently completing work ahead of schedule and ensuring high-quality outcomes