

UTKARSH MATHUR

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PROFILE

Machine Learning enthusiast with experience in ML & Deep Learning models, LLMs, Data Pipelines (ETL/ELT), MLOps, Data Analysis and developing end-to-end solutions with Front-end & Back-end systems.

EXPERTISE

- Train **Machine Learning** model and deploy on **cloud** (AWS, GCP) using **ETL/ELT** pipelines, **MLOps**, **CI/CD** pipelines, and Monitoring.
- Fine-tune **GenAI models** (LoRA & QLoRA), **RAG** with **Knowledge Graphs** and vector database augmentation for **Agentic AI**.
- **ML Skills**: Computer Vision, Gen AI, RAG, Knowledge Graphs, NLP, Regression, Classification, XGBoost, Recommender Systems

ACHIEVEMENTS

- **ImagoAI**: Automated camera calibration with scripting to **increase efficiency by 80%, reduce manual efforts by 95%, & save \$30000**
- **Quinbay**: Developed AI pipeline for counterfeit product screening **reducing manual effort by 30% & accelerating process by 70%**
- **Hono**: Deployed automated ML model training pipeline for **6 predictive analytics features** generating **\$120000 revenue in 2022**

EDUCATION

University at Buffalo, State University of New York (UB) | New York, USA January 2023 – June 2024

Master of Science in Data Science | Capstone Project: “Graph Neural Networks and Large Language Models: A Literature Review”

Indian Institute of Technology Roorkee (IIT Roorkee) | Uttarakhand, India

July 2018 – July 2022

Bachelor of Technology in Polymer Science (Chemical Engineering) | Capstone Project: “Production of Sustainable Aviation Fuel”

EXPERIENCE

Machine Learning Engineer | Atriano | Remote, CA September 2024 – Present

- Building a generative storytelling web app for an **EdTech** client using the **LLaMA 3.2 (LLM)**, fine-tuning with **LoRA (Python, Hugging Face & AWS)** by utilizing a custom dataset, and integrating evaluation for toxicity filtering & age-appropriate vocabulary.
- Engineering a collaborative filtering **recommendation system** to suggest personalized story topics based on user demographics.

Machine Learning Engineer, Imaging | ImagoAI | Milpitas, CA

October 2024 – January 2025

- Deployed Galaxy (**Food Quality Testing**) for **10 clients** by fine-tuning ML models (**Python**) on client samples hyperspectral images.
- Automated (**Python & Shell**) camera calibration to **increase efficiency by 80%, reduce manual efforts by 95%, and saving \$30000**.

Data Scientist | Quinbay | Bengaluru, India

May 2022 – October 2022

- Spearheaded deployments (**E-commerce**) using **Python, PyTorch, Node, React, & SQL** and analytics with **GCP & Tableau**.
- Developed object detection model to automate order return approvals **reducing processing time from 6 hours to 15 seconds**.
- Developed a pipeline to flag counterfeit products (**key brands like Apple & Samsung**) leveraging **Computer Vision & Natural Language Processing** for product screening. This feature **reduced manual efforts by 30% and accelerated the process by 70%**.

Machine Learning Engineer | Hono | Gurugram, India

July 2021 – April 2022

- Deployed Predictive Analytics pipelines (**Django & JavaScript**) to automate production of client specific services (**HR Tech**) using ETL/ELT pipelines (**Python, AWS, SQL**), Machine Learning (**Python**), & A/B Testing (**VWO**) **generating \$120000+ revenue in 2022**.
- Developed **Employee Attrition, Promotion Suggestion, Hike Estimation, and Leave Prediction** features for **12 clients**.
- Optimized data infrastructure to **reduce update latency from 45 to 10 minutes** by leading **ETL redesign** with **cross-functional teams**.

Research Intern | Department of Physics, IIT Roorkee | Roorkee, India

September 2020 – June 2021

- Experimented on Deep Learning models (**TensorFlow**) for semantic segmentation to estimate ocular tumor growth and trends.
- Developed an image annotation tool (**MATLAB**) **reducing annotation time by 85–90%** (from 30 to 3 days), eliminating dependence on external services, and enabling faster & more accurate model training across multiple ongoing projects of the lab.

SKILLS

Programming Languages: Python, C, C++, SQL, JavaScript, Java, C#, HTML, CSS, R, MATLAB, Perl

Data Tools: PyTorch, TensorFlow, Keras, Tableau, PowerBI, PySpark, Databricks, Qlik, Snowflake, Hadoop, Streamlit, Scikit Learn

Software Skills: Node, React, MongoDB, Django, Kafka, Jenkins, Selenium, Git, Kubernetes, Docker, AWS, GCP, Jira, Confluence

Courses: **Deep Learning Specialization** (Coursera), **Artificial Intelligence Nano-degree** (Udacity)

PROJECTS

Metaheuristic Optimization vs Backpropagation | Computer Vision, University at Buffalo

January 2024 – May 2024

- Developed (**PyTorch**) Metaheuristic optimizers using **Particle Swarm Optimizer** and **Grey Wolf Optimizer** for Convolutional Neural Networks training and contrasted their performance with backpropagation (**Stochastic Gradient Descent** and **Adam Optimizer**).

Top Spotify Tracks Database | Data Models Query Language, University at Buffalo

August 2023 – December 2023

- Built a web application (**Flask app**) to showcase an intuitive dashboard for “Top 50” Spotify playlists across 67 countries.
- Engineered a pipeline (**Python**) to aggregate real-time data from Spotify Web API in a normalized relational database (**SQL**).