Noor Ul Huda Ajmal

Data Scientist - Machine Learning Engineer
Islamabad, Pakistan

Data Scientist with more than 3 years of hands-on professional experience across data analytics, machine learning, deep learning, and data-driven automation. Strong background in Python-based data processing, web scraping, API integration, and dashboard development, with proven ability to design end-to-end data pipelines and ML solutions for real-world industry and research problems. Experienced in working independently with international clients and collaborating with multidisciplinary teams.

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Technical Skills

Programming & Data	Python, SQL, Data Cleaning & Transformation
Machine Learning & AI	Supervised & Unsupervised Learning, Deep Learning, Computer Vision, Object Detection, XGBoost, Classifier Chains, Model Evaluation & Optimization
Data Engineering & Automation	Web Scraping (Selenium, BeautifulSoup), API Development & Integration, Python Automation, ETL Pipelines
Dashboards & Visualization	Plotly, Dash, Streamlit, Interactive Dashboards
Cloud & MLOps	Azure Custom Vision, Azure Container Instances, Azure Container Registry, Docker, GitHub CI/CD

Additional Skills

Statistics, Hypothesis Testing, Large Dataset Handling, Problem Solving, Client Communication

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Work History

Freelance Data Scientist   July 2022 - Present
                                                          3 years 6 months

Delivering high-quality Data Science and Analytics solutions, creating impactful dashboards and data stories that drive insights and informed decision-making. Worked independently on project scoping, implementation, deployment, and maintenance while collaborating remotely with client

teams. Maintained a 4.8 rating ensuring clear communication, collaboration, and excellent client satisfaction.

Key Projects

Driver Drowsiness Detection Using Onboard Camera

Computer Vision - Embedded ML
Developed a real-time driver drowsiness detection system using an onboard camera to monitor eye states and fatigue indicators. Implemented computer vision algorithms optimized for deployment on Raspberry Pi, enabling low-latency inference in constrained hardware environments. The project demonstrated practical feasibility of AI-assisted road safety systems and served as the final year capstone project.

Temporal Analysis of Pallidus MR1 Data

Data Analytics - Statistics - Data Visualization
Collaborated with KravitzLab to analyze temporal activity data of MOUSERAT subjects using the Pallidus MR1 dataset. Conducted the temporal analysis to study the behavioral patterns across light and dark cycles. Applied statistical hypothesis testing and time-based aggregation to compare day versus night activity levels across subjects. Delivered interactive visualizations that enabled efficient data exploration and helped in validating hypotheses regarding behavioral shifts in controlled experimental settings.

Inventory Management Dashboard

Data Analytics - Web Scraping - Automation - Web Applications
Collaborated with Ammonite LLC to build a comprehensive Python-based web application to centralize inventory, sales, cost, and trading data previously managed through spreadsheets. Designed automated data pipelines integrating internal datasets with external sources such as logistics news, commodity prices, port conditions, and market updates via web scraping and APIs. The solution significantly reduced manual reporting effort and improved operational visibility, enabling more informed logistics and trading decisions.

Leads Dashboard - Real Estate Analytics

Data Analytics - Data Visualization
Worked with **R.E.S. Netzwerk** to analyze large-scale real estate lead data generated through the **ImmobilienGuru** platform. Performed feature-level and geographical analysis on property attributes such as location, condition, and size, translating raw transactional data into actionable market insights. The resulting dashboard improved trend identification and supported faster, data-driven property evaluation and lead optimization.

Fiber Cross-Section Analysis

Computer Vision - Python, OpenCV, Deep Learning
Developed an automated computer vision system to analyze microscopic fiber cross-sections where circular regions were highly distorted and non-uniform. Designed image processing and detection logic to estimate ring width, cross-sectional area, and blue-white material ratios for material quality assessment. Implemented ONNX-based object detection with interactive annotation tools, processing blue-white ratio measurements for material quality control applications. The system reduced analysis time from hours to minutes per batch, enabling scalable and objective inspection workflows.

Core Object Detection Pipeline

Deep Learning - Cloud Deployment - Docker - MLOps
Designed and implemented a production-grade object detection and recognition pipeline for Living Image, an immersive visual experience platform. Trained custom models using Azure Custom Vision and deployed them as containerized inference services via Azure Container Instances and Azure Container Registry. Automated training, versioning, and deployment through GitHub CI/CD pipelines, enabling scalable, reliable model updates in a production environment.

Machine Learning Intern   June 2022 - October 2022
Optical Networking Technologies, Research Lab   4 months

Worked as an ML intern, conducting R&D on ML algorithms for optical networking applications. Developed predictive models and optimization algorithms for light pathways in Software Defined Optical Networks (SDON).

Project: Prediction of Lightpath in SDON

Machine Learning - **Data Processing** - **Optical Networking** - **Classifier Chains** - **XGBoost**
Experimented and developed Machine Learning models to optimize control actions for photonic switches in Software Defined Optical Networks. Focused on predicting control states for precise light signal routing, improving system efficiency in high-speed networks. Collected and preprocessed photonics data, trained an 8-feature, 20-label classification model, and achieved a 95% precision and 96% recall through systematic tuning.

The project addressed the challenge of controlling optical switches by building an ML-based model to simplify the prediction of control states. Achieved a low Hamming loss of 4%, enhancing switch control precision and boosting system reliability, contributing to advanced photonic communication efficiencies.

Publications

- Multi-labeled Random-forest Enabled Softwarized Management for Photonics Switching Systems. *Asia Communications and Photonics Conference (ACP - 2022)*, IEEE.

Education

NUST Pakistan, School of Electrical Engineering and Computer Science

BE in Software Engineering, 2019 - 2023