Muhammad Hamza Mehdi

Shiga, Japan | +817091554641 | smhamzamehdi97@gmail.com | LinkedIn | GitHub

Profile

Results-driven Machine Learning Engineer and Technical Writer with 2+ years of experience in AI, Deep Learning, and NLP. Skilled in Python, TensorFlow, PyTorch, and Scikit-learn for developing and deploying scalable ML models (CNN, Fraud Detection, Diabetes Prediction). Experienced in model optimization (Adam, RMSprop), data preprocessing, and visualization (Matplotlib, Seaborn). Proficient in Flask/FastAPI for API development and AWS/GCP for cloud deployment. Strong technical writing background with published research papers and API documentation. Currently pursuing M.E. in Computer Science at Ritsumeikan University. Seeking remote opportunities to innovate in AI/ML solutions while delivering clear, impactful technical content.

Skills & Abilities

- **Programming:** Python, C++, SQL
- **ML/AI Frameworks:** TensorFlow, PyTorch, Scikit-learn, NumPy, Pandas
- **Algorithms & Techniques:** Multinomial Naive Bayes, CNN, Batch Normalization, Feature Engineering
- **Optimizers:** Adam, RMSprop, MS2
- **Model Deployment:** Flask, FastAPI
- **Data Engineering:** Data Preprocessing, Data Visualization (Matplotlib, Seaborn)
- **Technical Writing:** Research Papers, API Documentation, Proposal Writing
- **Tools & Platforms:** Git, Jupyter Notebooks, Docker, Linux (File System Troubleshooting)
- **Databases:** SQL, NoSQL, Peer-to-Peer Networks
- **Cloud Platforms:** AWS, Google Cloud

Projects

Fraud/Spam Email Detection using Multinomial Naive Bayes

- Detects fraudulent emails using Multinomial Naive Bayes ML model
- Preprocesses text by removing URLs, numbers, and punctuation
- Uses CountVectorizer to convert text into numerical features
- Achieves 100% accuracy in the example (potential overfitting)
- Supports PDF text extraction via PyPDF2 and pdfplumber
- Includes interactive tkinter GUI for email input and classification
- Visualizes scam/non-scam distribution with seaborn
- Fixed issues with PDF extraction and text cleaning
- Resolved GUI variable scope problems
- Key libraries: pandas, sklearn, tkinter, PyPDF2, seaborn
- Note: High accuracy suggests need for real-world validation
- Github: Fraud Emai Detection

Diabetes Detection Model using 1D CNN & SVM

- The model uses a 1D CNN and scikit-learn to detect diabetes, targeting 85%+ accuracy with Adam optimizer.
- Dataset: Pima Indians Diabetes (8 features, binary outcome), preprocessed by median imputation, scaling, and reshaping.
- Architecture: Conv1D (64/128/256 filters) → Flatten → Dense (512/256/256) → Sigmoid, trained for 200 epochs (batch=32, early stopping).
- Performance: 74.03% test accuracy (confusion matrix: TN=43, FP=7, FN=13, TP=14).
- Techniques: Median imputation, StandardScaler, Dropout/BatchNorm, early stopping; compared with SVM baseline.
- Public dataset, TensorFlow/Keras/scikit-learn implementation.
- Github: Diabetes Prediction Model

MULTICLASS OBJECT DETECTION USING

Experience

Machine Learning Engineer | MengLab (Ritsumeikan University) | Sep 2024 – Present

- Developed and deployed **ML models** using TensorFlow and PyTorch, improving prediction accuracy by **20%**.
- Authored **technical documentation** and API guides, enhancing usability for developers.
- Designed **REST APIs** with Flask for seamless **ML model integration**.
- Built **data preprocessing pipelines** and optimized feature engineering for performance improvements.
- Collaborated with cross-functional teams to define goals and deliver solutions on time.

Service Engineer (Part-time) | Panasonic | Feb 2025 – Mar 2025

- Assembled and tested **air conditioning units** to ensure quality standards.
- Troubleshot **mechanical & electrical issues** in production.
- Collaborated with engineers to maintain **production efficiency**.

Tutor (Freelance) | GB School Osaka | Mar 2025 – April 2025

- Teach **English, Robotics, and programming** using **LEGO SPIKE** kits.
- Develop **interactive lesson plans** tailored to students' learning levels.
- Guide students in **robot building and block-based programming**, enhancing **problem-solving skills**.
- Foster a **collaborative learning environment** through hands-on projects.

Social Media Coordinator | IBEX Global | Feb 2024 – Sep 2024

- Managed a **team handling customer query** via **email & chat support tools (KMS, Citrix, Infobip)**.
- Streamlined response processes, reducing **average response time by 15%**.

Design Engineer & Technical Writer (Freelance) | Fiverr | Jan 2021 – Mar 2023

- Authored **technical documents & proposals**, leading to a **15% increase in project approvals**.
- Designed **electrical systems** using **AutoCAD, Dialux, and MicroStation**.
- Applied **Linux file system troubleshooting** techniques, enhancing system efficiency.

Education

M.E. in Computer Science | Ritsumeikan University, Japan | Sep 2026 (Expected)

- Focus: **Machine Learning, Deep Learning, NLP, AI, Object Detection**

B.S. in Electrical Engineering | University of Central Punjab, Pakistan | Jul 2020

- **Awarded for thesis** on **Battery Management Systems for Electric Vehicles.**

Certifications

- **Machine Learning Specialization (2023) –** Regression, Classification, Decision Trees, Unsupervised Learning
- **Deep Learning Specialization (2024) –** CNNs, Regularization, Optimization, NLP, TensorFlow
- **TensorFlow Specialization (2024) –** AI, ML, Neural Networks, CNNs
- **AWS Specialization (Ongoing) –** Cloud Essentials, Security, Networking

Languages

- **English:** Fluent
- **Urdu:** Native
- **German:** Ongoing (A1 level)

INTERESTS

- **Sports:** Cricket, Table Tennis, Billiards
- **Music:** Qawwali
- **Exploration:** Food & Travel