

ABDULLAH NAWAZ

Phone: (+92) 3349613166 — Email: nawazabdullah18@gmail.com — Location: Hafizabad, Pakistan

LinkedIn — GitHub — Portfolio

Education

BS in Computer Science

Nov 2020 – Jul 2024

University of Gujrat, Gujrat, Pakistan

- **Final Year Project:** “Readorama” – A web-based MERN stack & ML application for extracting visual text from video data (**Grade: A+**)

Work Experience

AI/ML Engineer

Dec 2, 2024 – Sep 30, 2025

SmartZoneLeaders

Kharian, Pakistan

- Designed, engineered, and deployed AI-featured full-stack web applications.
- Integrated high-performance FastAPI backend services with ReactJS frontends.
- Delivered intelligent, production-ready web apps for global platforms like “mindmeta.co.uk”.

Research Assistant

Jul 2024 – Dec 2024

Dr. Zahid Iqbal Lab, University of Gujrat

Gujrat, Pakistan

- Initiated core institutional research and authored a comprehensive, multi-author manuscript from initial drafting through to its formal international publication.
- Managed data workflows and executed extensive primary technical experiments under the continuous supervision of Dr. Zahid Iqbal.
- Coordinated project timelines, structured documentation using standard typesetting formats, and bridged communication between institutional stakeholders.

University Teaching Assistant (Decentralized Learning)

Nov 2023 – Mar 2024

University of Gujrat

Gujrat, Pakistan

- Assisted students in implementing decentralized learning concepts using Python.
- Provided hands-on guidance for applying theory in professional lab environments.
- Supported students with final projects, providing leadership in architectural design, coding, and debugging.

University Teaching Assistant (Programming Fundamentals)

Nov 2022 – Mar 2023

University of Gujrat

Gujrat, Pakistan

- Mentored first-semester students with C++ concepts and managed practical laboratory assignments.
- Provided targeted one-on-one debugging sessions to help students understand core object-oriented and foundational programming principles.
- Supported students in strengthening practical, real-world coding skills.

Projects

1. Readorama - Full-Stack Video-to-Text Recognition Engine (Grade: A+)

- Developed a scalable full-stack application using MERN Stack alongside an automated pipeline for text extraction from dynamic video content.
- Engineered a high-accuracy pipeline using a region-based approach and Tesseract.js to localize and extract text from complex backgrounds and varying font styles.

2. MindMeta - AI Powered Cognitive Care Assistant

- Built real-time patient-bot calling, call scheduling by care home admin, platform super admin modules, sub-admin handling, notification architectures, and automated platform subscriptions.
- **Backend:** FastAPI, PostgreSQL, Redis, LangChain, OpenAI API, Deepgram (STT, TTS), WebSockets, WebRTC, Alembic.
- **Frontend:** ReactJS, MUI-x, Prettier, ESLint, Yup, Axios, Formik, ContextAPI, i18next, react-speech-recognition.

3. AI Chatbots for parchem.com

- Built an AI-powered chatbot using LangChain and GPT-4o-mini to provide instant information on chemical safety, product data, and environmental regulations.

- Created an automated sales workflow that identifies buying intent directly from chat, collects required customer details, and generates purchase orders using Firebase and SMTP.

4. Friends Ledger (Desktop Application)

- Developed a cross-platform desktop application using Electron, React, FastAPI, and PostgreSQL to automate inventory, sales, and financial reporting for second-hand mobile selling businesses.
- Built advanced features including barcode/IMEI scanning, multi-investor profit-sharing algorithms, and thermal printer integration for automated receipt generation and inventory tracking.

5. PrimeFlow POS - Retail Management & Point of Sale System

- Developed a full-stack retail platform using FastAPI and React to manage real-time inventory, sales tracking, and automated customer credit systems.
- Built an analytics dashboard using Chart.js and Zustand for business insights, featuring secure JWT-based role management and automated PDF receipt generation.

6. Uxpedit - Live AI Business Automation Platform

- Developed and launched a production-ready SaaS platform using Next.js 14 to provide global AI automation services for Mindmeta.co.uk.
- Implemented multilingual support and AI-driven conversion optimization, successfully scaling the application to serve international customers.

7. HomeCam - Real-Time Smart Doorstep Monitoring System

- Developed a localized residential security system using Python and TensorFlow/Keras to detect and classify human presence via live RTSP feeds.
- Engineered a custom classification model using Transfer Learning (MobileNetV2), trained on a self-curated dataset of environment-specific frames to eliminate false positives.

8. Google Cloud Vision Lab Projects - Cloud-Native Image Intelligence

- **Automated Feature & OCR Engine:** Deployed an image analysis pipeline using Cloud Vision API to automate facial recognition, landmark detection, and OCR from unstructured data.
- **Custom AutoML Inspection:** Developed an industrial-grade classifier for Automated Damage Detection using Vertex AI AutoML, managing workflows from labeling to cloud deployment.
- **Optimized CNN Architectures:** Architected and trained custom CNNs & DNNs in TensorFlow/Keras, improving accuracy through Data Augmentation, Dropout, and Batch Normalization.
- **Scalable Cloud ML Ops:** Utilized Vertex AI Workbench and pre-built containers to streamline image preprocessing and distributed model training.

9. AI Research & Experimentation Lab (30+ Colab Notebooks Projects)

- Created and maintained comprehensive experimental setups including: *vidTxtExtraction hybrid model*, *clipFine-Tuning.ipynb*, and *AI-Powered Mobile Phone Object Detection, Identification, and Background Segmentation*.

Publications

- Ahmed, N., Iqbal, Z., **Nawaz, A.**, Chan, H. Y., AL-Aswadi, F. N., & Zia, H. U. (2025). *Efficient Region-Based Video Text Extraction Using Advanced Detection and Recognition Models*. IJIST, 7, 31-45.
(Contribution: Co-First Author, Initiated core research and authored the complete manuscript from initial draft to final submission).

Technical Skills

- **Programming Languages:** Python (Advanced), JavaScript/ES6+ (Advanced), C/C++ (Intermediate/Strong Foundation).
- **Web App Development:** MERN Stack (MongoDB, Express.js, React, Node.js), FastAPI, Next.js, State management via Redux and Zustand, System Architecture (WebSockets, WebRTC).
- **Machine Learning & Deep Learning:** TensorFlow, TensorFlow.js, Pandas, NumPy, Keras.
- **Computer Vision & NLP:** Object Detection (YOLO), OpenCV, Vision-Language Embeddings (CLIP), Scene Text Detection (CRAFT, DBNet), Text Recognition (CRNN, Transformers), NLTK, spaCy.
- **Generative AI:** AI Agents and multi-agent workflows using LangChain, CrewAI, and LLM APIs (OpenAI, Gemini, Groq).
- **Data Engineering & Databases:** Relational (MySQL, PostgreSQL), NoSQL (MongoDB), Web Scraping (Selenium, Playwright, Scrapy).
- **Cloud, DevOps & Tools:** AWS (EC2), Railway, Netlify, Apache Airflow, Git, GitHub, CI/CD (GitHub Actions), VS Code, Cursor, Google Colab.

- **Scientific Writing:** Technical documentation and professional academic typesetting using LaTeX (Overleaf).

Certifications

- **OpenCV for Python Developers** – *LinkedIn Learning*
Focused on applying OpenCV with Python for practical computer vision, image processing, pixel manipulation, and face detection using pre-trained models.
- **Skill Up with Python: Hands-On Data Science and Machine Learning Projects** – *LinkedIn Learning*
Project-based certification covering data analysis, web scraping, and end-to-end practical ML implementation.
- **Computer Vision Fundamentals with Google Cloud** – *Google Skills*
Explored ML strategies ranging from pre-built APIs and AutoML Vision on Vertex AI to structuring custom DNN/CNN architectures.
- **Machine Learning Crash Course** – *Google for Developers*
Practical introduction to ML fundamentals, regression models, neural networks, data preparation, and responsible AI.
- **LangChain for LLM Application Development** – *DeepLearning.AI*
Learned LangChain framework to build production-ready applications, RAG pipelines, chatbots, and autonomous agents.
- **Generative AI with Large Language Models** – *DeepLearning.AI & AWS*
Comprehensive training on the generative AI lifecycle, transformer architectures, RLHF fine-tuning, and model optimization.

Languages

- **Urdu:** Native or Bilingual Proficiency
- **Punjabi:** Native or Bilingual Proficiency
- **English:** Full Professional Proficiency