

# Shawal Khan

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## SUMMARY

*Aspiring AI and ML Engineer with hands on experience building end to end machine learning pipelines, deploying models, and applying regularization and class balancing techniques to biomedical and financial datasets. Seeking entry level opportunities in AI and machine learning engineering roles.*

## WORK EXPERIENCE

### Machine Learning Engineer Intern

May 2025 – June 2025

*CodeClub Software Solutions Peshawar, KP*

- Designed and implemented end-to-end ML pipelines covering data preprocessing, feature engineering, model training, and evaluation using Python, scikit-learn, and pandas.
- Built and deployed a loan default prediction model with a Streamlit front-end, achieving strong cross-validation performance through regularization tuning and SMOTE-based class balancing.
- Explored SVM and KNN classification, conducted hyperparameter sweeps, and produced IEEE-style technical reports; applied EEG-based seizure prediction using deep learning on high-dimensional imbalanced biomedical data.

### Co-Lead

March 2025 – February 2026

*Microsoft Learn Student Ambassador (MLSA) Peshawar Peshawar, KP*

- Organized 4 regional events with 13 ambassadors from 5 universities, including a GitHub workshop and a 5-hour hackathon engaging 43 students; top 3 teams awarded for innovation.
- Mentored new ambassadors and improved event planning structure, increasing participant engagement and content quality across the chapter.

### President

February 2025 – Present

*IM Computing and Innovation Society (IMCIS), IMSciences Peshawar, KP*

- Revived the dormant computing society and restructured operations around coding, innovation, and applied tech learning; led a team of 18 members across 4 events.
- Boosted student engagement by 60% within the first 3 months through consistent activity planning, targeted outreach, and expert talks.

## PROJECTS

### Full-Stack Development

#### IMSstudentPortal — Full-Stack Student Management System

2026

- Built a production-grade MERN application for IMSciences with dual portals: a student dashboard (CGPA, attendance, grades, course registration, finance) and a full admin panel with CRUD, bulk CSV import, and database backup/restore; seeded with 29 real courses and 500+ records.
- Stack: React 18, Vite 5, Tailwind CSS, Node.js, Express, MongoDB, JWT auth, Chart.js.

#### LLaMA-XR Extended - Radiology Report Generation (LLM Fine-tuning)

2026

- Reproduced a 2026 arXiv paper (no code released) fine-tuning LLaMA 3.1 8B with QLoRA for chest X-ray report generation; found the paper's stated learning rate failed to reproduce, diagnosed the cause, and validated a fix across a 590-example test set.
- Built two evaluation methods missing from the original paper: a clinical-accuracy F1 scorer and a hallucination-detection check; used them to quantify a model grounding failure (clinical F1 0.018) and motivate a proposed architectural fix.
- Stack: Python, PyTorch, Unsloth, QLoRA, Hugging Face Transformers/TRL, DenseNet-121, Kaggle/Colab. Public repo: [github.com/shawalkhan09/llama-xr-extended](https://github.com/shawalkhan09/llama-xr-extended)

### ML & Data Science

## EEG Seizure Prediction — Regularisation & Generalisation Study

2026

- Investigated preprocessing strategies, model complexity, and regularisation (L1, L2, Elastic Net) across 3 EEG datasets (5–20% seizure rate); designed two distinct preprocessing pipelines and benchmarked generalisation under class-imbalanced conditions using SMOTE.

- Stack: Python, scikit-learn, pandas, NumPy, matplotlib, imbalanced-learn.

## Loan Default Prediction — ML Pipeline

2025

- Built a complete classification pipeline (EDA, preprocessing, feature engineering) with SMOTE for class imbalance; compared Logistic Regression, SVM, and KNN with regularization sweeps and cross-validation metrics; deployed via Streamlit on GitHub.

## Database & Systems

### UrbanEstate — Real Estate Database System

2024

- Designed relational schema with ER diagrams; implemented SQL queries to manage property listings, client records, and transactions with full integrity constraints.

## LEADERSHIP & CO-CURRICULAR EXPERIENCE

### Member

January 2025 – Present

*Pakistan Youth Parliament Peshawar, KP*

- Represented Peshawar region in policy discussions, awareness campaigns, and community service; contributed to the Esaar-e-Ramazan campaign, distributing food packages to 200+ families across KP.
- Participated in official meetings with KP Assembly members and IG Police to discuss youth-led development initiatives.

### Member, Outreach Team

January 2025 – April 2025

*Microsoft Learn Student Ambassador (MLSA), IMSciences Peshawar, KP*

- Collaborated with 6 ambassadors to organise 2 on-campus events focused on GitHub and Microsoft Learn, engaging 80+ students and increasing interest in open-source tools.

### Head of Outreach Team

March 2023 – September 2023

*Society for Youth (society4youth.org) KP, Pakistan*

- Led a team of 6 to conduct 24 seminars on leadership and problem-solving across 24 institutions, reaching 700+ students and building partnerships with 24 schools.

## EDUCATION

### BS Computer Science

Expected May 2027

*Institute of Management Sciences (IMSciences), Peshawar Peshawar, KP*

*Relevant Coursework:* Machine Learning, HCI & Computer Graphics, Algorithms, Compiler Construction, Data Structures, Software Engineering, Database Systems, Operating Systems, Linear Algebra, Probability & Statistics, Professional Practices

### Intermediate (Pre-Medical)

June 2022

*Karnal Sher Khan Cadet College Swabi Swabi, KP*

## SKILLS

**ML & Data Science:** Python, scikit-learn, pandas, NumPy, Streamlit, SMOTE, EEG/biomedical data, Jupyter/Colab, Kaggle

**Full-Stack Dev:** React.js, TypeScript, JavaScript, Node.js, Express.js, MongoDB, HTML, CSS, Tailwind CSS, SQL, Vite, JWT, Chart.js

**AI & Integrations:** Google Gemini API, Framer Motion, motion/react, Prompt Engineering

**Tools & Platforms:** Git, GitHub, VS Code, Figma, Canva, Microsoft Excel, MS Office, Web Hosting

**Soft Skills:** Leadership, Public Speaking, Event Planning, Project Management, Teamwork, Community Engagement

**Languages:** English (native — written & spoken), Urdu (written & spoken), Pashto (spoken)