Muhammad Waseem Sabir

+92 312 644 8488 • waseemkathia@gmail.com • LinkedIn • Portfolio Website

Research Profile

MSc in Computer Science with a research focus on Deep Learning for medical imaging. Experienced in developing Vision Transformer models for healthcare applications and building interactive systems. Seeking a PhD position to contribute to cutting-edge research in Computer Vision, Medical Imaging, Trustworthy AI and AI in Healthcare.

Research Interests

Deep Learning • Computer Vision • AI in Healthcare and Medicine • Medical Imaging • Interpretability and Trustworthy AI • Generative AI and Foundation Models • Human-Computer Interaction (HCI)

Education

Master of Science in Computer Science, *COMSATS University, Islamabad* *2022–2024*

Result: 3.4 CGPA | 85.5%

Thesis: Vision Transformer-Based Framework for Detection and Classification of Pulmonary Fibrosis from Chest CT Images.

Contribution: Developed and validated a novel Vision Transformer model for a medical diagnostic task, demonstrating expertise in applying Deep Learning to AI in Healthcare challenges.

Master of Computer Science, *COMSATS University, Islamabad* *2013–2015*

Project: Built a Kinect-based **Augmented Reality** system for real-time virtual dress-fitting.

- Implemented real-time human body tracking and gesture interaction (Computer Vision & HCI).
- Integrated cloth simulation physics to create a responsive and immersive user experience.
- Achieved high accuracy (mAP 0.984), showcasing skills in building functional and evaluated interactive systems.

Bachelor of Science (BSc), *Bahauddin Zakariya University, Sahiwal* *2011–2013*

Research and Publications

Peer-Reviewed Journal Articles

FibroVit: Vision transformer-based framework for detection and classification of pulmonary fibrosis from chest CT images

Sabir, M. W., et al.

Frontiers in Medicine, 10, 1282200 (2023). ***(Q1 Journal)*** [Link]

Developed a novel Vision Transformer for a complex Medical Imaging task, demonstrating the ability to build and validate advanced Deep Learning models for AI in Healthcare applications. This work highlights skills in creating impactful technology for scientific and medical discovery.

Manuscripts in Preparation

Unveiling and Mitigating Bias in AI for Breast Cancer Detection: A Review of Explainable AI (XAI) Approaches

Sabir, M. W., et al. (Manuscript in preparation).

A comprehensive review analyzing bias in AI-based diagnostics and how Explainable AI (XAI) can create fairer models, contributing to Interpretability and Trustworthy AI.

Professional Experience

Data Scientist

PetaStorm, Lahore, Pakistan *Aug 2024–Present*

- Develop and optimize deep learning models (Transformers, CNNs) for complex pattern recognition, including Computer Vision and time-series analysis tasks.
- Architect scalable data processing pipelines for efficient ML model training and validation.

- Manage and process large, complex datasets, ensuring robust and reliable model development.

Teaching Assistant

COMSATS University, Islamabad, Pakistan *Feb 2023–July 2024*

- Mentored undergraduate students in Python and machine learning, honing communication skills crucial for interdisciplinary research and collaboration.
- Supported academic research through data preprocessing, literature reviews, and model implementation.

Full Stack Developer

ExamBites, Lahore, Pakistan *Jul 2018–Jun 2022*

- Engineered full-stack e-learning web applications using Django & PostgreSQL and developed RESTful APIs, demonstrating end-to-end system design and development capabilities.

Technical Skills

- **AI & Machine Learning:** Deep Learning (Transformers, CNNs), Computer Vision, Applied Machine Learning, Data Analysis
- **Programming & Frameworks:** Python (Advanced), PyTorch, scikit-learn, Pandas, NumPy, SQL
- **Computer Vision & HCI:** Augmented Reality Development, Interactive System Design, OpenCV
- **Tools & Engineering:** Git, Docker, Data Management Protocols, CI/CD

Projects

FibroVit: ViT-based Web App for Pulmonary Fibrosis Detection

- Developed and deployed a user-facing web application for a real-world healthcare challenge, demonstrating the ability to translate complex **Deep Learning** research into an accessible tool for **AI in Healthcare**.
- Links: **Open-Source Code** (GitHub) | Live Application

Spotify Songs Popularity Predictor

- Predicted song popularity on Spotify using machine learning over audio features, demonstrating skills in feature engineering and building predictive models for user-centric data.
- Links: **Open-Source Code** (GitHub) | Live Application

Conference Presentation

- Attendee, 20th International Conference on Frontiers of Information Technology (FIT), Islamabad, 2023.

Leadership Volunteering

Mentor, Rahbar Youth Mentorship Program

The Citizen Foundation Schools, Lahore *2020–2021*

- Mentored adolescents in critical thinking and life skills, demonstrating strong communication and leadership skills.
- Collaborated with organizers and fellow mentors to create an effective learning environment.

Fundraiser, Baghbaan Programme

The Citizen Foundation Schools, Lahore *2021*

- Raised awareness and funds to support educational initiatives in underprivileged communities.

Volunteer, Computer Science Society

COMSATS University, Sahiwal Campus *2013–2015*

- Organized workshops, hackathons, and networking events for students.

Languages

- **Urdu:** Native • **English:** Proficient (C1) — IELTS Certified • **German:** Basic (A1)