Abdullah Khan

MS Computer Science (Gold Medalist) – AI Security, Quantum & Deep Learning Researcher

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Summary

Motivated and research-focused Gold Medalist in MS Computer Science with 6 years of full-stack development experience and a strong foundation in AI, machine learning, and cybersecurity. Experienced in transformer architectures, large language models, and deep learning, with a thesis on zero-shot deepfake voice cloning detection. Seeking a PhD opportunity to advance trustworthy AI systems, specifically in multimodal deep learning defense mechanisms.

Education

• **Master of Science in Computer Science (Gold Medalist)** *University of Wah – CGPA: 3.81/4.0*
Wah Cantt, Pakistan Apr 2023 – Aug 2025

– **Thesis:** Transformer and Rule-Based Zero-Shot Voice Cloning Detection
– **Awards:** Gold Medalist (Ranked 1st in 2023-2025 batch)
– **Relevant Coursework:** Advanced Machine Learning, Network Security, Quantum Computing, Analysis of Algorithms

• **Bachelor of Science in Computer Science** *COMSATS University Islamabad – CGPA: 3.37/4.0*
Wah Cantt, Pakistan Sep 2018 – Sep 2022

– **FYP:** Restaurant QR System (Ranked 1st among Final-Year Projects)

Publications

Published

[1] **Abdullah Khan**, A. Fatima, R. Jamil, H. Ahmed, A. Saba. **Enhancing Social Media Bot Detection with Cross-Feature Gating and Residual Learning**. In *ICCK Transactions on Emerging Topics in Artificial Intelligence*, vol. 3, no. 1, pp. 20–32, 2026. DOI: 10.62762/TETAI.2025.791029.

[2] **Abdullah Khan**, S. Tawfik, H. Kibriya, W. Z. Khan, A. Siddiqa, A. Tahir. **A Dynamic Approach for Detecting Attacks in Controller Area Networks**. In *2025 International Conference on Emerging Technologies in Electronics, Computing, and Communication (ICETECC)*, IEEE, 2025.

[3] M. Bibi, S. Mehmood, **Abdullah Khan**, F. Rehman, M. Danish. **Leveraging Blockchain for Transparent and Trustworthy E-Certificate Verification System**. In *Frontiers of Information Technology (FIT)*, IEEE, 2025.

Submitted / Under Review

[1] **Abdullah Khan**, W. Z. Khan, A. Siddiqa, F. Alanazi, M. Khurram. **Efficient Quantum Neural Networks for Synthetic Voice Identification in IoT-Enabled Holographic Counterparts**. Submitted to *IEEE Transactions on Consumer Electronics*. (2nd Revision).

[2] **Abdullah Khan**, H. Ahmed, H. Khan, J. Iqbal, M. Rehman. **From Analysis to Defense: Benchmarking LLM Jailbreak Vulnerability and Introducing the JBDM**. Submitted to *IET Information Security (Wiley)*.

[3] H. Ahmed, **Abdullah Khan**, A. Mahmood, J. Mir, S. Ahmed. **CAN You Need More Attention? CANformer-XL: Long-Context Intrusion Detection in CAN**. Submitted to *Statistical Analysis and Data Mining (Wiley)*.

[4] **Abdullah Khan**, S. Tawfik, H. Kibriya, W. Z. Khan, A. Siddiqa. **CANShield-X: An Explainable DL-heuristic Framework for the Detection of Automotive Attacks in Controller Area Network**. Submitted to *Mehran University Research Journal (MURJET)*.

[5] **Abdullah Khan**, H. Ahmed, M. Javaid, H. Khan. **Bi-GRU-Based Intrusion Detection for UAV Controller Area Networks**. Submitted to the International Conference on IT and Industrial Technologies (ICIT 2026), IEEE-indexed.

[6] Z. Ali, H. Ahmed, **Abdullah Khan**. **Optimizing Click-Through Rate Prediction Using Ensemble Deep Learning and XAI-Based SHAP Approaches**. Submitted to New Generation Computing (Springer).

[7] H. Ahmed, **Abdullah Khan**, H. Khan. **Urdu to Roman Urdu Transliteration Using Bi-Directional LSTM and Attention Mechanisms**. Submitted to ICCK Transactions on Advanced Computing and Systems.

[8] R. Bilal, H. Ahmed, **Abdullah Khan**. **ARTP: An Autonomous Red-Team Planner for Pentesting**. Manuscript submitted to the 2026 International Conference on IT and Industrial Technologies (ICIT), IEEE-indexed.

In Preparation

[1] **Abdullah Khan**, W. Z. Khan. **A Survey on Voice Cloning Detection: State-of-the-art Challenges and Future Directions**. Finalizing manuscript and looking for a suitable journal to publish.

[2] **Abdullah Khan**, W. Z. Khan, A. Siddiqa. **Quantum Neural-Convolutional Model for Brain Tumor Classification & Segmentation**. Manuscript ready for submission to Scientific Reports

[3] **Abdullah Khan**, W. Z. Khan, A. Siddiqa. **Development of a Large-Scale Fake News Dataset and Transformer-Based Detection Models**. Manuscript ready for submission, looking for a suitable journal to publish.

[4] H. Ahmed, A. Fatima, **Abdullah Khan**, S. Saremi, R. Shibl, M. Mirzaei. **PhishAttn: A Hybrid CNN-BiLSTM-Attention Framework for Phishing URLs Detection**. Manuscript in preparation.

Work Experience

• **Researcher** *Neurasec Lab*
Islamabad, Pakistan Jun 2025 – Present
– Collaborating with a multidisciplinary team on AI security and deep learning projects, resulting in multiple peer-reviewed publications.
– Developing and evaluating models, analyzing experimental results, and contributing to the full research cycle from concept to publication.

• **Research Assistant** *University of Wah (Supervisor: Prof. Dr. Wazir Zada Khan)*
Wah Cantt, Pakistan Oct 2023 – May 2025
– Conducted research in AI, machine learning, and cybersecurity, contributing to projects submitted to IEEE Transactions.
– Assisted faculty in academic duties, including grading assignments, checking quizzes, and invigilating examinations for undergraduate courses.
– Assisted in drafting manuscripts, reviewing literature, and preparing technical reports for top-tier academic venues.

• **Lead Developer** *Gamers and Geek*
Wah Cantt, Pakistan Oct 2022 – Present
– Led the design and development of the blog's front-end and back-end architecture, ensuring performance, scalability, and security.
– Managed content integration, SEO optimization, and analytics tracking to improve site visibility and user engagement.

• **Web Developer** *Etechpk*
Islamabad, Pakistan Jan 2018 – Jun 2022
– Developed and maintained client-facing service modules, including booking systems and CRM integrations.
– Built scalable APIs and dashboards to support operations, analytics, and customer support workflows.

Teaching Experience

• **Instructor – Summer Bootcamp (Web Development)** *University/Community Program*
Wah Cantt, Pakistan May 2019 – Aug 2019
– Taught web development fundamentals (HTML, CSS, JS) to 40+ undergraduate students.
– Mentored students through hands-on projects, enhancing practical coding skills.

• **Instructor – Summer Bootcamp (Kali Linux & Ethical Hacking)** *University/Community Program*
Wah Cantt, Pakistan May 2020 – Aug 2020
– Delivered introductory cybersecurity and ethical hacking training to 40+ students.
– Covered network security fundamentals and practical penetration testing exercises.

Projects

• **An Explainable DL-Heuristic Framework for Automotive Attack Detection** *Feb 2025 – Jun 2025*
Python, TensorFlow, Keras, SHAP, Scikit-learn
– Developed a lightweight intrusion detection framework combining Multi-Layer Perceptron (MLP) and GRU models with heuristic rules to detect replay and flooding attacks.
– Integrated SHAP to provide interpretability for model predictions, enhancing transparency in automotive cybersecurity.
– Achieved 99.73% accuracy with 54μs detection time per sample, enabling real-time deployment in vehicular environments.

• **Quantum Gate Optimization for Audio Deepfake Detection** *Jun 2025 – Sep 2025*
Python, Qiskit, PennyLane, PyTorch

- Developed a hybrid quantum-classical system against deepfake audio threats through optimized gate-level circuit design.
- Identified the CNOT+S gate combination as optimal and demonstrated enhanced detection performance with reduced computational load.

- **A Survey on Voice Cloning Detection: Challenges & Future Directions** *Apr 2025 – Present*
  Systematic Literature Review, LateX, Python
  - Conducted an extensive literature review on deep learning and signal processing methods used in voice cloning detection.
  - Identified limitations in consumer device adaptation and robustness to adversarial attacks.
  - Proposed future directions including explainability, privacy-preserving techniques, and quantum-enhanced detection.

- **Analyzing the Impact of Quantum Gates on Neural Networks** *Aug 2024 – Feb 2025*
  Python, Qiskit, DEEP-VOICE Dataset
  - Investigated the effect of various quantum gates (PhaseShift, SWAP) on the classification accuracy of QNNs for audio deepfake detection.
  - Performed comparative evaluations against classical counterparts, highlighting benefits in resource efficiency.

- **Quantum Neural-Convolutional Model for Brain Tumor Classification** *Mar 2024 – Jul 2024*
  Python, TensorFlow, Qiskit, OpenCV
  - Developed a hybrid quantum-classical CNN for brain tumor classification and segmentation from MRI scans.
  - Achieved high accuracy on the BraTS dataset, demonstrating the potential of quantum computing in medical imaging.

- **Large-Scale Fake News Dataset & Transformer Detection Models** *Aug 2023 – May 2024*
  Python, Hugging Face Transformers, BERT, LLaMA
  - Compiled a dataset of 30,000+ articles and fine-tuned transformer models (BERT, RoBERTa) for misinformation detection.
  - Conducted interpretability analysis using attention mechanisms to explore how models detect fake news.

Honors, Awards & Certifications

- **Certificate of Merit (Gold Medalist)** *Awarded for securing 1st Position in MS Computer Science (Batch 2023-2025)*
  University of Wah Aug 2025
  - Achieved highest academic standing among all graduating students.

- **Certificate of Presentation** *2nd Intl. Conf. on Emerging Technologies in Electronics, Computing and Comm.*
  IEEE ICETECC'25 Apr 2025
  - Awarded for presenting the research paper: "A Dynamic Approach for Detecting Attacks in Controller Area Networks".

- **1st Position in Final Year Project (FYP)** *BS Software Engineering*
  COMSATS University Islamabad Sep 2022
  - Awarded for exceptional technical depth, implementation quality, and evaluation of the project "Restaurant QR System".

Technical Skills

Languages: PHP, Python, SQL, Solidity, JavaScript, React, Node.js, C++, Java
Libraries: NumPy, Pandas, TensorFlow, PyTorch, Scikit-learn, Keras, Matplotlib, Seaborn, Plotly, XGBoost, Qiskit, PennyLane, Cirq
Research Methodologies: Systematic Literature Review, Experimental Design, Hypothesis Testing, Ablation Studies, Model Interpretability (SHAP/LIME), Statistical Analysis
Data & Analysis: Signal Processing (Audio), Time-Series Analysis, Data Augmentation, Feature Engineering, Data Visualization (Matplotlib/Seaborn)
Developer Tools: Git/Github, Docker, Wireshark, Cisco Packet Tracer, Visual Studio, Google Colab, Anaconda
Operating Systems: Windows, Linux (Kali/Ubuntu)

Soft Skills

Communication: Strong written and verbal skills, public speaking, active listening, and concise articulation
Collaboration: Team coordination, relationship building, cross-functional cooperation, and empathy
Analytical Thinking: Creative problem-solving, logical reasoning, and adaptability in dynamic environments
Leadership: Strategic decision-making, task delegation, team motivation, and conflict resolution
Time Management: Effective prioritization, deadline management, goal orientation, and multitasking capabilities

Languages

Urdu: Native
English: Professional Working Proficiency

Conferences & Seminars

- **Intl. Conference on Emerging Technologies (ICETECC)** ***Presenter***
  Jamshoro, Pakistan Apr 2025
- **7th Pak-Turk Intl. Conference on Emerging Technologies** ***Attendee***
  Wah Cantt, Pakistan Dec 2024
- **8th Multi-Disciplinary Student Research Intl. Conference** ***Attendee***
  Wah Cantt, Pakistan Dec 2023

Referees

Prof. Dr. Wazir Zada Khan
Dean, Faculty of Computer Sciences
University of Wah, Pakistan
Email: wazirzadakhan@yahoo.com

Dr. Ayesha Siddiqa
Chairperson, Dept. of Computer Science
University of Wah, Pakistan
Email: ayesha.siddiqa@yahoo.com

Courses & Trainings

2023: Introduction to Blockchain (Udemy)
2023: Mobile Development (Udemy)
2022: Logo Designing Workshop (COMSATS University)
2020: Web Development (Udemy)
2019: Introduction to Cybersecurity (Udemy)
2019: Kali Linux - Hacking Challenges (Udemy)