Muhammad Arshad Awan, Ph.D.

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Research Interest

- Natural language processing especially for Urdu and Arabic
- Human activity recognition using Smartphone sensors
- Context-aware systems for healthcare applications
- Smart homes/cities based on semantic-enabled data/information fusion & integration
- Ontology-based activity recognition and assistive technologies

Employment History

Aug 24, 2016 – · · · · **Assistant Professor,** Department of Computer Science, Allama Iqbal Open University, Islamabad, Pakistan.

May 17, 2004 – Aug 23, 2016 **Lecturer,** Department of Computer Science, Allama Iqbal Open University, Islamabad, Pakistan.

Mar 01, 2004 – May 14, 2004 **Lecturer.** Department of Computer Science, COMSATS Institute of Information Technology, Attock, Pakistan.

Education

Mar 01, 2010 – Feb 23, 2015 **Ph.D. Computer Science,** Yonsei University, Seoul, South Korea.
Dissertation title: *Adaptive Human Activity Recognition System Using Smartphone Accelerometer*. **CGPA: 4.10/4.30**

Mar 2005 – Aug 2009 **M.S. Computer Science,** Allama Iqbal Open University, Islamabad, Pakistan.
Thesis title: *Semantic Search and Retrieval System for Learning Objects through Open Source*. **Percentage: 79% (635/800)**

Sep 1999 – Mar 2002 **M.Sc. Computer Science,** Quaid-i-Azam University, Islamabad, Pakistan.
Thesis title: *An SVG Editor*. **Percentage: 62% (1855/3000)**

Apr 1995 – Mar 1998 **B.Sc. Math A&B, Physics,** University of the Punjab, Lahore, Pakistan.
Percentage: 51% (411/800)

Apr 1993 – Mar 1995 **Higher Secondary School Certificate (HSSC). Pre-Engineering,** Federal Board of Intermediate and Secondary Education, Islamabad, Pakistan.
Percentage: 72% (792/1100)

Apr 1991 – Mar 1993 **Secondary School Certificate (SSC). Science,** Federal Board of Intermediate and Secondary Education, Islamabad, Pakistan.
Percentage: 84% (718/850)

Research Publications

Journal Articles

1. R. M. W. Ashraf, M. A. Awan, A. Kaikobad, and M. Z. Muzaffar, "Multi-label theme-based classification of quranic verses for urdu translations: A case study for surah al-baqarah and aal-e-imran," *AM Research Review*, vol. 4, no. 4, pp. 1–11, 2026, ISSN: 3007-3197. URL: https://amresearchjournal.com/index.php/Journal/article/view/2004

2. K. M. Abbasi, M. A. Awan, and T. Ismail, "A deep learning approach to semantic clarity in urdu translations of the holy quran," *International Journal of Innovations in Science & Technology*, vol. 7, no. 1, pp. 259–271, 2025. URL: https://journal.50sea.com/index.php/IJIST/article/view/1193/2153

3. Y. Aftab, M. A. Awan, D. Khaleeq, and T. Ismail, "Enhancing qur'anic ethics and morality: An nlp-based semantic search model for urdu translation," *International Journal of Innovations in Science & Technology*, vol. 7, no. 1, pp. 651–663, 2025. URL: https://journal.50sea.com/index.php/IJIST/article/download/1255/2181/17891

4. T. Ismail, M. A. Awan, and D. Khaleeq, "Exploring contextual similarity in quranic ayahs: A case study of surah al-baqarah and aal-e-imran in urdu translations," *International Journal of Innovations in Science & Technology*, vol. 7, no. 1, pp. 69–82, 2025. URL: https://journal.50sea.com/index.php/IJIST/article/view/1176/2143

5. D. Khaleeq, M. A. Awan, M. Tariq, and J. Iqbal, "Machine translation of quranic verses: A transformer-based approach to urdu rendering," *International Journal of Innovations in Science & Technology*, vol. 7, no. 2, pp. 702–717, 2025. URL: https://journal.50sea.com/index.php/IJIST/article/view/1258/2186

6. F. Nadeem, M. A. Awan, M. Tariq, and D. Khaleeq, "Developing an arabic-urdu ontology of quranic concepts: A semantic approach," *International Journal of Innovations in Science & Technology*, vol. 7, no. 1, pp. 637–650, 2025. URL: https://journal.50sea.com/index.php/IJIST/article/view/1254/2180

7. N. Nawaz and M. A. Awan, "Comparative sentiment analysis of urdu qur'anic translations: A machine learning approach," *Journal of Space Technology*, vol. 15, no. 1, pp. 7–17, 2025. URL: https://apiweb.ist.edu.pk/media/documents/comparative-sentiment-analysis-of-urdu-quranic1-.pdf

8. M. Tariq, M. A. Awan, and D. Khaleeq, "Developing a qur'anic qa system: Bridging linguistic gaps in urdu translation using nlp and transformer model," *International Journal of Innovations in Science & Technology*, vol. 7, no. 1, pp. 493–505, 2025. URL: https://journal.50sea.com/index.php/IJIST/article/view/1216/2170

9. S. Hamid and M. A. Awan, "Assessment of ml classifiers in complex human activity recognition using wearable sensors data," *International Journal of Innovations in Science & Technology*, vol. 6, pp. 104–117, 2024. URL: https://journal.50sea.com/index.php/IJIST/article/view/1088/1637

10. M. Saeed and M. A. Awan, "Complex human activities recognition using smartphone sensors: A deep learning approach," *International Journal of Innovations in Science & Technology*, vol. 6, pp. 172–184, 2024. URL: https://journal.50sea.com/index.php/IJIST/article/view/1076/1642

11. M. Hasnain, A. Sajid, A. Ayeb, and A. Awan, "Predicting the price of used electronic devices using machine learning techniques," *International Journal of Computing and Related Technologies*, vol. 4, no. 1, pp. 13–19, 2023. URL: https://ijcrt.smiu.edu.pk/index.php/smiu/article/view/152/48

12. Z. Noreen, M. Ajmal, and A. Awan, "Impact of authentic learning on the satisfaction, knowledge and skills of distance learners in context-aware ubiquitous learning environment," *Global Regional Review*, vol. 4, no. 2, pp. 115–125, 2019. URL: https://www.grrjournal.com/article/Impact-of-Authentic-Learning-on-the-Satisfaction-Knowledge-and-Skills-of-Distance-Learners-in-Context-Aware-Ubiquitous-Learning-Environment

13 M. A. Awan, "Adaptive har system to improve recognition accuracy," *Mehran University Research Journal of Engineering & Technology*, vol. 37, no. 3, pp. 467–482, 2018. URL: https://search.informit.org/doi/pdf/10.3316/informit.677618023782422

14 S. N. Khan, K. Mir, A. Tahir, A. Awan, Z. U. Nisa, and S. A. Gillani, "Allocation of tutors and study centers in distance learning using geospatial technologies," *ISPRS International Journal of Geo-Information*, vol. 7, no. 5, p. 185, 2018. URL: https://www.mdpi.com/2220-9964/7/5/185

15 Z. un Nisa, K. Mir, H. Fatimah, S. M. Batool, S. Atif, M. A. Awan, et al., "Application of satellite remote sensing in forest change detection and its environmental impacts in district abbottabad, pakistan," *Journal of Pure and Applied Agriculture*, vol. 3, no. 1, 2018. URL: https://drive.google.com/file/d/16V5ycmt-aiIbJD6n3fr_sQPmnjH6OTlv/view

16 T. Javed, M. A. Awan, and T. Hussain, "Recognition of arm & elbow exercises using smartphone's accelerometer," *NFC-IEER Journal of Engineering & Scientific Research*, vol. 5, no. 1, 2017. URL: https://www.prdb.pk/article/recognition-of-arm-elbow-exercises-using-smartphone-s-acce-4595

17 A. A. Soofi and A. Awan, "Classification techniques in machine learning: Applications and issues," *Journal of basic & applied sciences*, vol. 13, pp. 459–465, 2017. URL: https://pdfs.semanticscholar.org/2678/e213cec548d278879ceaf01582ee8913cc3f.pdf

18 M. A. Awan, Z. Guangbin, H.-C. Kim, and S.-D. Kim, "Subject-independent human activity recognition using smartphone accelerometer with cloud support," *International Journal of Ad Hoc and Ubiquitous Computing*, vol. 20, no. 3, pp. 172–185, 2015. URL: https://www.inderscienceonline.com/doi/abs/10.1504/IJAHUC.2015.073170

19 M. A. Awan, Z. Guangbin, C.-G. Kim, and S.-D. Kim, "Human activity recognition in wsn: A comparative study," *International Journal of Networked and Distributed Computing*, vol. 2, no. 4, pp. 221–230, 2014. URL: https://link.springer.com/content/pdf/10.2991/ijndc.2014.2.4.3.pdf

20 Z. Guangbin, M. A. Awan, and S.-D. Kim, "An extensible healthcare context engine based on smart phones," *Lecture Notes on Software Engineering*, vol. 2, no. 1, p. 81, 2014. URL: https://www.researchgate.net/profile/Muhammad-Arshad-Awan/publication/266396055_An_Extensible_Healthcare_Context_Engine_Based_on_Smart_Phones/links/5cab07d0299bf118c4ba8d6a/An-Extensible-Healthcare-Context-Engine-Based-on-Smart-Phones.pdf

21 M. Tahir, T. M. Madani, S. Ziauddin, M. A. Awan, and W. H. Rana, "Wiimote squash: Comparing dtw and wfm techniques for 3d gesture recognition.," *Int. Arab J. Inf. Technol.*, vol. 11, no. 4, pp. 362–369, 2014. URL: https://iajit.org/PDF/vol.11,no.4/5096.pdf

22 M. A. Awan, Z. Guangbin, and S.-D. Kim, "A dynamic approach to recognize activities in wsn," *International Journal of Distributed Sensor Networks*, vol. 9, no. 4, p. 385 276, 2013. URL: https://journals.sagepub.com/doi/10.1155/2013/385276

23 M. Tahir, M. A. Awan, A. Hafeez, M. Yazdanie, and S. Ziauddin, "Interactive slide navigation: An approach for manipulating slides with augmented reality markers," *SmartCR*, vol. 2, no. 2, pp. 138–148, 2012. URL: https://www.dbpia.co.kr/Journal/articleDetail?nodeId=NODE02467449

24 M. A. Awan, C. G. Kim, C.-P. Hong, J.-H. Lee, and S.-D. Kim, "A survey of augmented reality on handheld devices," *IEMEK Journal of Embedded Systems and Applications*, vol. 5, no. 4, pp. 195–205, 2010. URL: https://www.researchgate.net/publication/266396091_A_survey_of_augmented_reality_on_handheld_devices

Conference Proceedings

1 T. Hussain et al., "A step forward in learning during pandemic: Emerging technologies and innovative pedagogies," in *International Conference on Studies in Engineering, Science, and Technology*, 2022, pp. 82–90. URL: https://www.researchgate.net/publication/367127829_A_Step_Forward_in_Learning_during_Pandemic_Emerging_Technologies_and_Innovative_Pedagogies

2. A. Sajid and M. A. Awan, "Monitoring, tracking and diagnosing dengue fever using smartphone, gps and machine learning," in *2021 16th International Conference on Emerging Technologies (ICET)*, IEEE, 2021, pp. 1–6. URL: https://ieeexplore.ieee.org/document/9689785

3. M. A. Awan, G. Zhang, X. Yu, and S.-D. Kim, "An adaptive context engine based on activity recognition using smartphone sensors," in *Proceedings of the FTRA International Conference on Advanced Computing and Services (ACS-14)*, Jeju Island, South Korea: Future Technology Research Association (FTRA), 2014. URL: https://www.researchgate.net/publication/266396055_An_Extensible_Healthcare_Context_Engine_Based_on_Smart_Phones#fullTextFileContent

4. M. A. Awan, Z. Guangbin, and S.-D. Kim, "Activity recognition in wsn: A data-driven approach," in *2012 7th International Conference on Computing and Convergence Technology (ICCCT)*, IEEE, 2012, pp. 15–20. URL: https://ieeexplore.ieee.org/abstract/document/6530291

5. M. A. Awan, A. Sattar, C. G. Kim, C. P. Hong, and S. D. Kim, "Semantic search and retrieval system for learning objects," in *Proceedings of the International Conference on IT Convergence and Security 2011*, Springer, 2011, pp. 129–143. URL: https://link.springer.com/chapter/10.1007/978-94-007-2911-7_11

6. C.-P. Hong, M. A. Awan, C.-G. Kim, and S.-D. Kim, "An efficient live stream community management scheme for the mobile," in *Proceedings of the International Conference on IT Convergence and Security 2011*, Springer, 2011, pp. 281–293. URL: https://link.springer.com/chapter/10.1007/978-94-007-2911-7_24

Research Projects

Feb 2018 – Jan 2019 — **SDSS for open and distance learning – a case study of AIOU**, National Research Program for Universities (NRPU-5229) – Higher Education Commission, Islamabad, Pakistan.

Research Theses Supervised

PhD
- Effectiveness of Indigenous Context-Aware Ubiquitous Learning Application on Distance Learners (Zubia Noreen, RN: AN869173, December 20, 2019)

MS
- Recognition of Arm Exercises for Stroke Patients using Smartphone Accelerometer (Fahad Aslam, RN: BD759178, April 22, 2019)
- AHEM: Hybrid Approach for Elderly Monitoring (Fatima Kayani, RN: BD759168, July 19, 2019)
- Smart Wearable Infant Monitoring System (SWIMS) for Seizure Disease (Naila Firdos, RN: BI788448, August 23, 2019)
- CARE: An Engine for the Interpretation of Eye Blink (Roohi Bano, RN: BD760935, September 26, 2019)
- Orientation Independent Approach for Human Activity Recognition Using Smartphone (Manzoor Hussain, RN: BD761359, October 02, 2019)
- Career Counselor: An Approach to Guide Secondary Level Students in Pakistan (Surriya Bibi, RN: BD760932, September 15, 2020)
- Complex Human Activity Recognition using Smartphone Sensors: A Deep Learning Approach (Mubashar Saeed, RN: BN735624, March 24, 2021)
- Monitoring and Tracking of Dengue Fever using Smartphone Via GPS (Abdul Sajid, RN: BN735751, November 25, 2021)
- MOTHER: Monitoring of Teenagers' Habits Embodied in Routine Activities (Nadia Mehnaz, RN: BS708361, January 18, 2022)

Research Theses Supervised (continued)

- Exercise Monitoring of Senile Osteoporosis by Smartphone Sensors (Asma Rasul, RN: BR787346, January 18, 2022)
- Smartphone Surveillance System for Enhancement of Government Employees Work Productivity - A Case Study of Pakistan (Muhammad Adnan, RN: BR786753, April 01, 2022)
- Elderly Monitoring using Deep Learning to Optimize the Tradeoff between Recognition Accuracy & Response Time (Afifa Mushtaq, RN: BN735582, November 16, 2022)
- Predicting the Price of Used Electronic Devices using Machine Learning (Muhammad Hasnain, RN: BN735499, November 23, 2022)
- User Independent Human Activity Recognition using Smartphone (Shehla Habib, RN: BN735696, January 09, 2023)
- Detection of Smartphone Position on Human Body: A Position Independent Approach in HAR (Saba Shehzad, RN: BR787349, November 23, 2023)
- Ball Based Approach to Predict Cricket Outcome Using Machine Learning (Muhammad Nauman Sajid, RN: BR787353, December 22, 2023)
- Development of an NLP-Based Quranic Chatbot for Urdu-speaking Users (Muhammad Tariq, ID: 0000411841, April 22, 2025)
- Multi-Label Theme-Based Classification of Quranic Verses for Urdu Translations: A Case Study for Surah Al-Baqarah and Aal-e-Imran (Rao Muhammad Waseem Ashraf, ID: 0000426340, May 14, 2025)
- Enhancing Clarity in Urdu Translations of the Holy Quran through Word Sense Disambiguation (Kashif Masood Abbasi, ID: 0000418564, May 15, 2025)
- Analyzing the Emotional Tone in Urdu Translations of the Quran: A Comparative Study (Nimra Nawaz, ID: 0000294672, May 15, 2025)
- Development of an Ontology for Quranic Concepts with Arabic-Urdu Annotation (Fouzia Nadeem, ID: 0000412116, June 5, 2025)
- Machine Translation of Quranic Verses into Urdu Using the Transformer Model (Danish Khaleeq, ID: 0000418566, July 22, 2025)
- Understanding Ethics and Morality from Urdu Translation of the Quran Using NLP (Yasir Aftab, ID: 0000291788, July 22, 2025)
- Identification of Contextual Similarity Among Quranic Ayahs for Urdu Translations: A Case Study for Surah Al-Baqarah and Aal-e-Imran (Tehmima Ismail, ID: 0000412064, August 15, 2025)
- Enhancing Quranic Question Answering in Urdu using Knowledge Graphs and Retrieval-Augmented Generation (Syeda Sadia Batool, ID: 0000684927, October 20, 2026)

BS

- OneWindow: An Ecommerce Platform (Spring, 2023)
- FashionNova: An Online Clothing Store (Spring, 2023)
- Urdu Dictation: A Speech-to-Text Application (Spring, 2023)
- Urdu Quranic Dictionary (Spring, 2024)
- Land Ventures Rental Mobile Application (Spring, 2024)
- Course Folder Management System (Fall, 2024)
- A Centralized System for Managing Final Year Projects (Spring, 2026)
- Emotion Detection in Social Media Posts using Large Language Models (Spring, 2026)
- HACKFORGE: An AI-Powered Cybersecurity Training Platform (Spring, 2026)

Skills

Languages	Reading, writing, and speaking competencies for English and Urdu.
Courses Taught	Theory of Automata/Computation/PL, Compiler Construction, ML/DL, Operating System, Programming in (C/C++, C#, Java, Python), Data Structures, DBMS, KMS, ML & AI, and Analysis of Algorithms.
Coding	Java, KOTLIN, C/C++, C#, PYTHON, …
Web Dev	DJANGO, AND WORDPRESS.
Misc.	Academic research, teaching, training.

Miscellaneous Experience

Awards and Achievements

- 2026 — **Certificate of Appreciation**, Awarded by the Academic Staff Association, AIOU, Islamabad. In recognition of Program Coordinator for efforts in ensuring the success and smooth operation of ***MS Computer Science***.
- Aug 2022 — **Certificate of Appreciation**, Awarded by the Department of Computer Science, AIOU, Islamabad. The one-day workshop on ***Introduction to Java Application and Applet***.
- 2010 – 2015 — **Merit Scholarship for Higher Education**, Awarded by Higher Education Commission, Islamabad, Pakistan to pursue PhD studies.
- Dec 2007 — **Certificate of Appreciation**, Awarded by the Government of Pakistan, Cabinet Division, Pakistan Telecommunication Authority (PTA), Islamabad. The development of bilingual (English & Urdu) ***Multimedia Instructional Material*** for the Rabta Ghar Scheme of Pakistan Telecommunication Authority (PTA).

Certification

- Jun 13 – Sep 9, 2006 — **Teaching and Learning in Higher Education**. "**7th Faculty Development Program**" organized by and held at the Learning Innovation Division, Higher Education Commission, Islamabad, Pakistan.
- Oct 12 – 24, 2009 — **Teaching and Learning in Higher Education**. "**Advance Specified Course for MT-FPDP Alumni**" organized by and held at the Learning Innovation Division, Higher Education Commission, Islamabad, Pakistan.
- Aug 29 – Sep 02, 2022 — One-week international training workshop on **Natural Language Processing (NLP)** organized by Center for Languages and Translation Studies & ORIC, AIOU, Islamabad, in Collaboration with Kohsar University, Murree.
- Aug 21 – Sep 29, 2023 — **LISAN-UL-QURAN**. **Instructor: "Amir Sohail Sb"** organized by and held at Baseerah Institute (Islamic Education with Modern Approach), Chaklala Campus, Rawalpindi, Pakistan.
- Apr 1, 2024 — **Introduction to Generative AI**. An online non-credit course authorized by Google Cloud and offered through **Coursera**.
- Jan 15, 2025 — **AI For Everyone**. An online non-credit course authorized by DeepLearning.AI and offered through **Coursera**.
- May 23, 2025 — **AI Enhancement with Knowledge Graphs - Mastering RAG Systems**. An online non-credit course authorized by Packt and offered through **Coursera**.
- Jun 23, 2026 — **Knowledge Graphs for RAG**. An online non-credit course authorized by DeepLearning.AI and offered through **Coursera**.
- **Generative AI for Everyone**. An online non-credit course authorized by DeepLearning.AI and offered through **Coursera**.

Miscellaneous Experience (continued)

- **Arabic for Beginners: Arabic Alphabet and Phonology**. An online non-credit course authorized by Khalifa University and offered through **Coursera**.

Jun 27, 2026
- **AI Python for Beginners**. An online non-credit course authorized by DeepLearning.AI and offered through **Coursera**.

Jul 01, 2026
- **Generative AI with Large Language Models**. An online non-credit course authorized by AWS & DeepLearning.AI and offered through **Coursera**.

Jul 04, 2026
- **Supervised Machine Learning: Regression and Classification**. An online non-credit course authorized by DeepLearning.AI & Stanford|ONLINE and offered through **Coursera**.

Jul 08, 2026
- **Advanced Learning Algorithms**. An online non-credit course authorized by DeepLearning.AI & Stanford|ONLINE and offered through **Coursera**.
- **Generative AI: Introduction and Applications**. An online non-credit course authorized by IBM and offered through **Coursera**.

Jul 10, 2026
- **Unsupervised Learning, Recommenders, Reinforcement Learning**. An online non-credit course authorized by DeepLearning.AI & Stanford|ONLINE and offered through **Coursera**.
- **Machine Learning Specialization**. An online non-credit course authorized by DeepLearning.AI & Stanford|ONLINE and offered through **Coursera**.

Jul 12, 2026
- **LangChain for LLM Application Development**. An online non-credit course authorized by LangChain & DeepLearning.AI & Stanford|ONLINE and offered through **Coursera**.

Aug 05, 2026
- **Natural Language Processing Essentials**. An online non-credit course authorized by *edureka!* and offered through **Coursera**.

Sep 16, 2026
- **Introduction to Agents**. An online non-credit course authorized by *Mercor*.

Sep 17, 2026
- **Advanced Tokenization and Sentiment Analysis**. An online non-credit course authorized by *edureka!* and offered through **Coursera**.

Sep 23, 2026
- **Neural Models and Machine Translation**. An online non-credit course authorized by *edureka!* and offered through **Coursera**.
- **Mastering NLP: Tokenization, Sentiment Analysis & Neural MT**. An online non-credit course authorized by *edureka!* and offered through **Coursera**.

Sep 24, 2026
- **Start Writing Prompts like a Pro**. An online non-credit course authorized by *Google* and offered through **Coursera**.
- **Design Prompts for Everyday Work Tasks**. An online non-credit course authorized by *Google* and offered through **Coursera**.

Sep 25, 2026
- **Speed Up Data Analysis and Presentation Building**. An online non-credit course authorized by *Google* and offered through **Coursera**.
- **Use AI as a Creative or Expert Partner**. An online non-credit course authorized by *Google* and offered through **Coursera**.
- **Google Prompting Essentials**. An online non-credit course authorized by *Google* and offered through **Coursera**.
- **Google Certified Educator Level 1**. An online non-credit course authorized by *Google for Education* and offered through **Google**.

References

Dr. Ayyaz Hussain
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