

Aamir Arsalan, Ph.D.

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Employment History

- 2022 – Present **Assistant Professor**, Department of Software Engineering, Fatima Jinnah Women University, Rawalpindi, Pakistan.
Courses Taught: Machine Learning, Data Science, Artificial Neural Networks, and Deep Learning
- 2012 – 2022 **Lab Engineer**, Department of Computer Engineering, University of Engineering and Technology, Taxila, Taxila, Pakistan.
Courses Taught: Computing Fundamentals, Computer Programming, Digital Logic Design, Data Structures, Digital Signal Processing, Digital Image Processing, Digital Communication, and Machine Learning

Education

- 2015 – 2021 **Ph.D. Computer Engineering**, University of Engineering and Technology, Taxila, Taxila, Pakistan.
Thesis title: *Human Stress Assessment Using Physiological Signals*
- 2010 – 2014 **MS. Communication System Engineering**, National University of Science and Technology, Islamabad, Pakistan.
Thesis title: *Panoramic Video Stabilization Based on Rotational Damping Filter*.
- 2006 – 2010 **B.Sc. Computer Engineering**, University of Engineering and Technology, Taxila, Taxila, Pakistan.
Thesis title: *Implementation of JPEG Image Compression Standard using MATLAB*.

Research Publications

Journal Articles (Total Impact Factor: 71.18)

- 1 S. Khan, S. H. Noorani, J. Frnda, U. Rauf, A. Arsalan, and S. M. U. Saeed, "A transfer learning-based framework for enhanced classification of perceived mental stress using eeg spectrograms," *IEEE Access*, 2025. DOI: <https://doi.org/10.1109/ACCESS.2025.3571437>.
- 2 J. Ma, H. Li, B. Fang, *et al.*, "Assessing physical and mental fatigue in construction workers: Validating sweat lactate as a biomarker," *Ain Shams Engineering Journal*, vol. 16, no. 8, p. 103 484, 2025. DOI: <https://doi.org/10.1016/j.asej.2025.103484>.
- 3 S. Khan, S. M. Umar Saeed, J. Frnda, *et al.*, "A machine learning based depression screening framework using temporal domain features of the electroencephalography signals," *Plos one*, vol. 19, no. 3, e0299127, 2024. DOI: <https://doi.org/10.1371/journal.pone.0299127>.
- 4 M. Majid, A. R. Butt, I. F. Nizami, A. Arsalan, and J. Ryu, "Proper: Personality recognition based on public speaking using electroencephalography recordings," *IEEE Access*, 2024. DOI: <https://doi.org/10.1109/ACCESS.2024.3395434>.
- 5 S. H. Noorani, A. Arsalan, J. Frnda, S. Khan, A. Raheel, and M. Ehatisham-ul-Haq, "A novel framework for daily life activity and context recognition in-the-wild using smartphone inertial sensors," *IEEE Access*, 2024. DOI: <https://doi.org/10.1109/ACCESS.2024.3498852>.

- 6 I. Mehmood, H. Li, W. Umer, *et al.*, "Multimodal integration for data-driven classification of mental fatigue during construction equipment operations: Incorporating electroencephalography, electrodermal activity, and video signals," *Developments in the Built Environment*, vol. 15, p. 100 198, 2023.  DOI: <https://doi.org/10.1016/j.dibe.2023.100198>.
- 7 A. Arsalan and M. Majid, "A study on multi-class anxiety detection using wearable eeg headband," *Journal of Ambient Intelligence and Humanized Computing*, vol. 13, no. 12, pp. 5739–5749, 2022.  DOI: <https://doi.org/10.1007/s12652-021-03249-y>.
- 8 I. Mehmood, H. Li, W. Umer, A. Arsalan, M. S. Shakeel, and S. Anwer, "Validity of facial features' geometric measurements for real-time assessment of mental fatigue in construction equipment operators," *Advanced Engineering Informatics*, vol. 54, p. 101 777, 2022.  DOI: <https://doi.org/10.1016/j.aei.2022.101777>.
- 9 A. Arsalan and M. Majid, "Human stress classification during public speaking using physiological signals," *Computers in biology and medicine*, vol. 133, p. 104 377, 2021.  DOI: <https://doi.org/10.1016/j.compbiomed.2021.104377>.
- 10 M. Ehatisham-ul-Haq, A. Arsalan, A. Raheel, and S. M. Anwar, "Expert-novice classification of mobile game player using smartphone inertial sensors," *Expert Systems with Applications*, vol. 174, p. 114 700, 2021.  DOI: <https://doi.org/10.1016/j.eswa.2021.114700>.
- 11 T. Hafeez, S. M. Umar Saeed, A. Arsalan, S. M. Anwar, M. U. Ashraf, and K. Alsubhi, "Eeg in game user analysis: A framework for expertise classification during gameplay," *Plos one*, vol. 16, no. 6, e0246913, 2021.  DOI: <https://doi.org/10.1371/journal.pone.0246913>.
- 12 A. R. Butt, A. Arsalan, and M. Majid, "Multimodal personality trait recognition using wearable sensors in response to public speaking," *IEEE Sensors Journal*, vol. 20, no. 12, pp. 6532–6541, 2020.  DOI: <https://doi.org/10.1109/JSEN.2020.2976159>.
- 13 S. Tahir, A. Raheel, M. Ehatisham-Ul-Haq, and A. Arsalan, "Recognizing human-object interaction (hoi) using wrist-mounted inertial sensors," *IEEE Sensors Journal*, vol. 21, no. 6, pp. 7899–7907, 2020.  DOI: <https://doi.org/10.1109/JSEN.2020.3044315>.
- 14 A. Arsalan, M. Majid, A. R. Butt, and S. M. Anwar, "Classification of perceived mental stress using a commercially available eeg headband," *IEEE Journal of Biomedical and Health Informatics*, vol. 23, no. 6, pp. 2257–2264, 2019.  DOI: [10.1109/JBHI.2019.2926407](https://doi.org/10.1109/JBHI.2019.2926407).

Conference Proceedings

- 1 H. Ashraf, S. M. U. Saeed, S. Khan, S. H. Noorani, A. Arsalan, and U. Rauf, "Optimal feature-centric approach for eeg-based human emotion identification," in *2024 5th International Conference on Advancements in Computational Sciences (ICACS)*, IEEE, 2024, pp. 1–6.  DOI: <https://doi.org/10.1109/ICACS60934.2024.10473276>.
- 2 M. H. Khan, M. Maiid, and A. Arsalan, "Exploring the diagnostic potential of heart sound spectrograms in depression identification," in *2024 19th International Conference on Emerging Technologies (ICET)*, IEEE, 2024, pp. 1–6.  DOI: <https://doi.org/10.1109/ICET63392.2024.10935193>.
- 3 S. H. Khan, A. Raheel, M. Majid, S. M. Anwar, and A. Arsalan, "Eeg-based emotion recognition during mobile gameplay," in *2024 International Conference on Engineering & Computing Technologies (ICECT)*, IEEE, 2024, pp. 1–6.  DOI: <https://doi.org/10.1109/ICECT61618.2024.10581280>.
- 4 S. Khan, S. H. Noorani, A. Arsalan, A. Mahmood, U. Rauf, and Z. Ali, "Classification of human physical activities and postures during everyday life," in *2023 18th International Conference on Emerging Technologies (ICET)*, IEEE, 2023, pp. 98–103.  DOI: <https://doi.org/10.1109/ICET59753.2023.10374573>.

- 5 S. Khan, S. M. A. Shah, A. Arsalan, and W. Ahmed, "User recognition based on gait pattern via smartwatch accelerometer in unrestricted environment," in *2023 International Conference on Communication, Computing and Digital Systems (C-CODE)*, IEEE, 2023, pp. 1–6.  DOI: <https://doi.org/10.1109/C-CODE58145.2023.10139875>.
- 6 S. Khan, S. M. A. Shah, S. H. Noorani, *et al.*, "A framework for daily living activity recognition using fusion of smartphone inertial sensors data," in *2023 4th International Conference on Computing, Mathematics and Engineering Technologies (iCoMET)*, IEEE, 2023, pp. 1–6.  DOI: <https://doi.org/10.1109/iCoMET57998.2023.10099271>.
- 7 M. S. Khaquan, M. Ehatisham-ul-Haq, F. Murtaza, A. Raheel, A. Arsalan, and M. A. Azam, "Using smartphone sensing for recognition of game player attributes during gameplay," in *Science and Information Conference*, Springer, 2023, pp. 26–38.  DOI: https://doi.org/10.1007/978-3-031-37963-5_3.
- 8 S. H. Noorani, A. Raheel, S. Khan, A. Arsalan, and M. Ehatisham-UI-Haq, "Identification of human activity and associated context using smartphone inertial sensors in unrestricted environment," in *2023 International Conference on Communication, Computing and Digital Systems (C-CODE)*, IEEE, 2023, pp. 1–6.  DOI: <https://doi.org/10.1109/C-CODE58145.2023.10139909>.
- 9 A. Raheel, A. Arsalan, S. H. Noorani, S. Khan, M. Ehatisham-UI-Haq, and Z. Ali, "Motorbike driving activity recognition using smartphone motion sensors," in *2023 25th International Multitopic Conference (INMIC)*, IEEE, 2023, pp. 1–6.  DOI: <https://doi.org/10.1109/INMIC60434.2023.10465839>.
- 10 A. Raheel, N. Liaqat, M. Dua, A. Zaidi, S. H. Noorani, and A. Arsalan, "A neurocognitive approach to evaluate mobile game player's experience using eeg," in *2023 25th International Multitopic Conference (INMIC)*, IEEE, 2023, pp. 1–5.  DOI: <https://doi.org/10.1109/INMIC60434.2023.10466105>.
- 11 B. Fatima, A. Raheel, A. Arsalan, M. Majid, M. Ehatisham-UI-Haq, and S. M. Anwar, "Gender recognition using eeg during mobile game play," in *2021 International Conference on Information Technology (ICIT)*, IEEE, 2021, pp. 634–639.  DOI: <https://doi.org/10.1109/ICIT52682.2021.9491673>.
- 12 A. Iqbal, A. Iqbal, H. Ali, M. Ehatisham-ul-Haq, A. Arsalan, and A. Raheel, "Fall detection of riders using inertial sensors: A smart helmet," in *2021 International Bhurban Conference on Applied Sciences and Technologies (IBCAST)*, IEEE, 2021, pp. 620–624.  DOI: <https://doi.org/10.1109/IBCAST51254.2021.9393170>.
- 13 A. Bashir, F. Malik, F. Haider, M. Ehatisham-ul-Haq, A. Raheel, and A. Arsalan, "A smart sensor-based gesture recognition system for media player control," in *2020 3rd International Conference on Computing, Mathematics and Engineering Technologies (iCoMET)*, IEEE, 2020, pp. 1–6.  DOI: <https://doi.org/10.1109/iCoMET48670.2020.9073934>.
- 14 S. Tahir, A. Raheel, M. Ehatisham-ul-Haq, and A. Arsalan, "Object based human-object interaction (hoi) recognition using wrist-mounted sensors," in *2020 IEEE 23rd International Multitopic Conference (INMIC)*, IEEE, 2020, pp. 1–6.  DOI: <https://doi.org/10.1109/INMIC50486.2020.9318198>.
- 15 M. Taimoor, H. Butt, T. Khadim, M. Ehatisham-UI-Haq, A. Raheel, and A. Arsalan, "Realme: An approach for handwritten signature verification based on smart wrist sensor," in *2020 IEEE 23rd International Multitopic Conference (INMIC)*, IEEE, 2020, pp. 1–6.  DOI: <https://doi.org/10.1109/INMIC50486.2020.9318184>.
- 16 M. Usman, Z. Noor, I. Farooq, A. Arsalan, M. Ehatisham-ul-Haq, and A. Raheel, "A smart chair design for recognizing human-object interactions using pressure sensors," in *2020 IEEE 23rd International Multitopic Conference (INMIC)*, IEEE, 2020, pp. 1–6.  DOI: <https://doi.org/10.1109/INMIC50486.2020.9318102>.
- 17 A. Arsalan, M. Majid, S. M. Anwar, and U. Bagci, "Classification of perceived human stress using physiological signals," in *2019 41st Annual International Conference of the IEEE Engineering in Medicine*

and Biology Society (EMBC), IEEE, 2019, pp. 1247–1250.  DOI: <https://doi.org/10.1109/EMBC.2019.8856377>.

- 18 A. Arsalan, M. Majid, and S. M. Anwar, “Panoramic video stabilization based on rotational damping filter,” in *2016 13th International Bhurban Conference on Applied Sciences and Technology (IBCAST)*, IEEE, 2016, pp. 286–290.  DOI: <https://doi.org/10.1109/IBCAST.2016.7429891>.

Books and Chapters

- 1 A. Arsalan, M. Majid, and S. M. Anwar, *Electroencephalography based machine learning framework for anxiety classification*. 2020, pp. 187–197.  DOI: https://doi.org/10.1007/978-981-15-5232-8_17.

Post-Graduate Research Supervision

On-Going:

PhD Thesis:

- 2025-onward  Quantification of Perceived Mental Stress using EEG Signals (Maria Andleeb)
- 2024-onward  A Comprehensive Framework for characterizing Major Depressive Disorder (MDD) using Electroencephalography Signals (Tariq Javed)

MS Thesis:

-  An Improved Framework for Fine-Grained Emotion Recognition Using EEG Signals (Sana Iftikhar)
-  Decoding the Neural Effects of Sleep Deprivation via EEG Signal Analysis (Hina Sadiq)
-  An EEG-Driven Approach for Profiling Multi-Level State Anxiety in Response to Cognitive Behavioral Therapy (Maheen Fatima).
-  Deep Learning-based Anxiety Detection Using Electroencephalography Signals (Muhammad Shahzaib Aziz).
-  Analysis of Impact of Mobile Games on Human Emotion Recognition Using Brain Signals (Shehryar Hassan Khan).
- 2023-onward  A Multi-modal Approach for Pediatric Sleep Staging (Hareem Khan).

Completed

MS Thesis:

- 2025  Multimodal Depression Detection Using Physiological Signals (Muhammad Hamza Khan)
-  Self-help Mobile Application in Mental Health Education: Health-related Self-Efficacy and Resilience in Young Adults (Tahreem)
-  Stress and drug usage in young adults: efficacy of self-report measure and wearable device in predicting stress levels (Syeda Hadia Qudrat)
- 2024  Investigating the Role of EEG Activity across different brain regions for the quantification of Major Depressive Disorder (MDD) (Maryam Khan Afridi)
- 2023  A Novel Framework for Human Activity and Context Recognition using Smartphone Sensors (Shehryar Khan)
-  Context-Aware User Identification Based on Activity Pattern Using Smartphone Sensors (Saddam Hussain)
- 2022  Gender Recognition Using EEG Signals in Response to Video Game Play (Bushra Fatima)

Post-Graduate Research Supervision (continued)

- 2021  A Framework for Expertise Classification during Game Play using EEG Signals (Tehmina Hafeez)

Final Year Project Supervision

- 2024-25  Development of an EEG-driven Approach for the Quantification of Alzheimer's and Frontotemporal Dementia Using Deep Learning.
-  Design of a Framework for Human Emotion Recognition Using Electroencephalography Signals in Response to Video Clips.
-  Design of an Automated Scheme for Pain Recognition Using Physiological Signals in Response to a Heat Stimulus.
- 2023-24  BaatCheet: An AI-Enhanced Online Communication Framework for the Differently abled Individuals.
-  Campus Ride: Your Trusted Travel Companion.
-  Mentor Me: Paving the Way to Personal and Professional Growth.
-  Mind Gym: Strengthening Mental Resilience.
- 2022-23  TrashBot: An Artificial Intelligence-based Framework for Automated Waste Segregation
-  FireEye: A Smart Solution for Real-Time Forest Fire and Smoke Detection
-  Air Quality Monitoring and Control System Using IoT
-  MeriZuban: An Artificial Intelligence-Based System for Individuals with Speaking Disabilities
-  Shanakht: An Automated Scheme for Handwritten Signature Fraud Detection
- 2020-21  SmartPlay: Design of a Mobile Game Controlled via Real-Time Gesture Recognition using Inertial Sensors.
- 2019-20  RealMe: An approach for handwritten signature verification based on smart wrist sensor
-  A Smart Sensor-based Gesture Recognition System for Media Player Control.

Skills, Administrative Tasks, and Funded Projects

- Languages  Strong reading, writing, and speaking competencies in English and Urdu.
- Coding  Python, MATLAB, C++, $\text{\LaTeX}$

Administrative Tasks

- 2023  Departmental OBE Coordinator, Department of Software Engineering, FJWU, Rawalpindi.
- 2022-Present  Member, Board of Studies (BOS), Department of Software Engineering, FJWU, Rawalpindi.
- 2022-23  Developed the MS Software Engineering Curriculum for launching of MS Degree Program, FJWU, Rawalpindi.
- 2022  Taught a Short Summer Course titled "Introduction to NumPy and Pandas" in the Department of Software Engineering, FJWU.
- 2012-21  Organizer of Open House and Job Fair at Department of Computer Engineering, UET Taxila.

Skills, Administrative Tasks, and Funded Projects (continued)

Funded Projects

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| 2025 | ■ | Development of an Artificial Intelligence based Mental Health Support and Counseling Application by Using Electroencephalography Signals. (National Grassroots ICT Research Initiative (NGIRI), 2023-24, Amount Rs: 66, 194/-) |
| 2024 | ■ | BaatCheet: An AI-Enhanced Online Communication Framework for the Differently abled Individuals, (PEC Financing of Final Year Design Projects, 2023-24, Amount Rs: 100,000/-) |
| | ■ | Campus Ride: Your Trusted Travel Companion, (PEC Financing of Final Year Design Projects, 2023-24, Amount Rs: 100,000/-) |
| | ■ | Mind Gym: Strengthening Mental Resilience, (PEC Financing of Final Year Design Projects, 2023-24, Amount Rs: 100,000/-) |
| 2023 | ■ | Trashbot - An Artificial Intelligence-based Framework for Automated Waste Segregation. (National Grassroots ICT Research Initiative (NGIRI), 2022-23, Amount Rs: 74, 455/-) |
| | ■ | Fire Eye: A Smart Solution for Real-Time Forest Fire and Smoke Detection, (National Grassroots ICT Research Initiative (NGIRI), 2022-23, Amount Rs: 67, 348/-) |
| | ■ | Air Quality Monitoring and Control System Using IoT, (National Grassroots ICT Research Initiative (NGIRI), 2022-23, Amount Rs: 17, 723/-) |

Misc

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| 2024 | ■ | Member of the Peer Reviewer Committee for AI Integration in Transforming Higher Education, Research, and Entrepreneurship, 2024, FJWU, Rawalpindi. |
| 2023 | ■ | Online Session Manager, Virtual Sessions Management Committee, International Conference CPEC, Sustainable Tourism Development for Women Empowerment in Pakistan, 2023, FJWU, Rawalpindi and KIU, Gilgit. |
| | ■ | Member of the Reviewer Committee for IEEE International Conference in Emerging Trends in Science and Technology (ICETST), 2023, FJWU, Rawalpindi. |
| | ■ | Evaluated Final Year Design Projects at Department of Computer Engineering, HITEC University, Taxila. |
| | ■ | Member of Learning Management System Technical Committee constituted for the development/installation of a complete Enterprise Resource Management and Automation of Fatima Jinnah Women University, Rawalpindi processes. |
| 2022-23 | ■ | External Examiner for Undergraduate and Post-Graduate Research Viva Examination at UET Taxila, Bahria University, and Air University, Islamabad. |
| | ■ | Mentor, Microsoft Student Learn Ambassador (MLSA), Women Tech Hub Community, Department of Software Engineering, FJWU, Rawalpindi. |
| 2022 | ■ | Taught a Short Summer Course titled "Introduction to NumPy and Pandas" in the Department of Software Engineering, FJWU. |
| | ■ | Member of the Reviewer Committee for IEEE ICoDT2 2022 Conference, NUST, Islamabad. |
| 2012-21 | ■ | Organizer of Open House and Job Fair at Department of Computer Engineering, UET Taxila. |

Trainings and Workshops

Conducted

- 2025
 - One-day Seminar on "AI and its Application in IoT and Embedded Systems" on 20th May, 2025 at the Department of Information Technology, Rawalpindi Women University, Rawalpindi.
 - One-day Seminar on "Role of AI in Media Warfare" on 19th May, 2025 at the Department of Communication and Media Studies, Fatima Jinnah Women University, Rawalpindi.
 - One-day Seminar on "Emerging Technologies & International Relations" on 30th April, 2025 at the Department of International Relations, National University of Modern Languages (NUML) Islamabad.
- 2024
 - A One-day Workshop on "Hands-on Workshop for Data Analysis and Manipulation with Python" on 19th August, 2024 at the Department of Business Administration, Rawalpindi Women University, Rawalpindi.
 - A One-day Seminar on "The Use of Artificial Intelligence (AI) in Academics: Challenges and Opportunities" on 27th February, 2024, at the Department of International Relations, National University of Modern Languages (NUML) Islamabad.
 - A One-day Workshop on "Artificial Intelligence in Academic Writing" on 22nd May, 2024 at the Department of International Relations, National University of Modern Languages (NUML) Islamabad.
- 2023
 - A One-day Seminar on "Data Analytics and Business Intelligence" on 31st May, 2023 at the Department of Business Administration, Rawalpindi Women University, Rawalpindi.
 - A Panel Discussion on "Social Media and Artificial Intelligence as Tools of Hybrid Warfare" on 14th June, 2023 at the Department of Communication and Media Studies, Fatima Jinnah Women University, Rawalpindi.
- 2022
 - A seminar on "An Introduction to the Paradigm of Machine Learning" on 1st September, 2022, Department of Electrical Engineering at the University of Engineering and Technology, Taxila.

Attended

- 2024
 - A 4-Day Training Workshop on "Research Administration and Productivity" organized from 16th to 19th December, 2024 by USAID HESSA.
- 2023
 - A "Faculty Capacity Building Training for BPS and TTS" from 28th February to 05th March 2022, organized by the Center of Learning Excellence, Fatima Jinnah Women University, Rawalpindi.
- 2022
 - A Workshop on "How to Write a Winning Grant Proposal" from 15th to 18th March, 2022, organized by the Office of Research Innovation and Commercialization (ORIC), Fatima Jinnah Women University, Rawalpindi.
 - A Workshop on "Emerging Need of Outcome-Based Education (OBE) for Continual Improvement and System Control" on 24th February, 2022, organized by Quality Enhancement Cell, Fatima Jinnah Women University, Rawalpindi.

Miscellaneous Experience

Awards and Achievements

- 2023
 - **Research Performance Award for the Year 2022-23**, Fatima Jinnah Women University, Rawalpindi.
- 2010
 - **Outstanding Talent Scholarship (OTS)**, Govt of Punjab, 2008 for studying B.Sc Computer Engineering, UET Taxila.

References

Dr. Muhammad Majid

Associate Professor and Director, Signal Image Multimedia Processing and LEarning (SIMPLE) Research Group,
Department of Computer Engineering,
Faculty of Telecom and Information Engineering,
University of Engineering and Technology, Taxila.
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Dr. Syed Muhammad Anwar

Associate Professor of Radiology and Pediatrics,
George Washington University School of Medicine and Health Sciences,
Principal Investigator, Children's National Research and Innovation Lab,
Washington D.C, United States of America.
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