Dr. Baber Khan

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Date of Birth: 17th December 1988
Nationality: Pakistani

EDUCATION:

PhD Electronic Engineering   **(CGPA 3.50/4)**   February 2022
International Islamic University, Islamabad
Research Topic: Multi Cue Robust Visual Object Tracking

MS Electrical Engineering (Digital Techniques)   **(CGPA 3.08/4)**   November 2013
University of Engineering and Technology (UET) Taxila, Pakistan
Research Topic: Motion Vector based Adjustment to Mean-shift Tracking Algorithm for Occlusion Handling

BS Computer Engineering   **(CGPA 3.78/4) Silver Medalist**   November 2010
COMSATS Institute of Information Technology Islamabad Pakistan
Final Year Project: Vision based Object Tracking in Video Signal

PROFESSIONAL EXPERIENCE: (11 Years)

Lecturer (8 Years and 10 Months)   February 2014 to date
Department of Electrical Engineering,
International Islamic University, Islamabad, Pakistan

Theory Courses:
- ✓ Introduction to Programming
- ✓ Data Structures
- ✓ Signals and Systems
- ✓ Control Systems
- ✓ Linear Circuit Analysis
- ✓ Circuit Analysis II
- ✓ Electrical Machines

Taught Programming Languages:
- ✓ Matlab Coding
- ✓ C++
- ✓ Assembly Language

Lab Engineer (1 Year)   March 2013 to February 2014
Department of Electrical Engineering,
COMSATS Institute of Information Technology Abbottabad Campus.

Responsibilities:
Taught the following Lab courses to undergraduate students:
- ✓ Digital Signal Processing
- ✓ Fundamentals of Programming

Research Assistant (18 months)   August 2011 to February 2013
Department of Electrical Engineering
University of Engineering and Technology (UET) Taxila, Pakistan

Responsibilities:
- ✓ Digital Logic Design (DLD) Lab course.
- ✓ Signal and Systems Lab course.
- ✓ Fundamental of programming Lab course.
- ✓ Preparing and conducting Lab assignments and Lab quizzes.

Part Time Teaching (6 Month)   February 2011 to July 2011
Department of Electrical Engineering,
COMWAVE Institute of Information Technology Abbottabad Campus.

Responsibilities:
Taught the following course to undergraduate students:
- ✓ Control Systems

PUBLICATIONS: Journal 10, Conference 4, Book Chapter 1

1. Baber Khan, Ahmad Ali, Abdul Jalil, Khizer Mehmood, Maria Murad, Hamdan Awan, "AFAM-PEC: adaptive failure avoidance tracking mechanism using prediction-estimation collaboration" IEEE Access,8,149077-149092,2020   IEEE

2. Baber Khan,Abdul Jalil, Ahmad Ali, K.Alkhaledi, Khizer Mehmood, Khalid Mehmood Cheema, Maria Murad, H.Tariq, El-Sherbeeny, "Multiple Cues-Based Robust Visual Object Tracking Method" Electronics 2022, 11, 345, 2022, MDPI

3. Aamna Bhatti, Ameera Arif, Waqar Khalid, Baber Khan, Ahmad Ali, Shehzad Khalid, Atiq ur Rehman "Recognition and Classification of Handwritten Urdu Numerals Using Deep Learning Techniques" Applied Sciences 2023, 13 (3), 1624, MDPI

4. Muhammad Azeem, Tahir Nadeem Malik, Hafiz Abdul Muqeet, Muhammad Majid Hussain, Ahmad Ali, Baber Khan "Combined Economic Emission Dispatch in Presence of Renewable Energy Resources Using CISSA in a Smart Grid Environment" Electronics 2023,12 (3), 715

5. Khizer Mehmood, Abdul Jalil, Ahmad Ali, Baber Khan, Maria Murad, Wasim Ullah Khan, Yigang He, "Context-aware and occlusion handling mechanism for online visual object tracking", Electronics,10,1,43,2020, MDPI

6. Khizer Mehmood, Abdul Jalil, Ahmad Ali, Baber Khan, Khalid Mehmood, Cheema, Maria Murad, Ahmad H.Milyani, "Spatio-temporal context, correlation filter and measurement estimation collaboration based visual object tracking", Sensors, 21, 8, 2841, 2021   MDPI

7. M Nouman Tajik, Waleed Khan, Baber Khan, "Texture feature selection using GA for classification of human brain MRI scans," International Conference on Swarm Intelligence, 233-244, 2016   Springer, Cham

8. Fahad Khan, Atiq ur Rehman, Muhammad Arif, Muhammad Aftab, Baber Khan Jadoon, "A survey of communication technologies for smart grid connectivity" 2016, International Conference on Computing, Electronic and Electrical Engineering (ICE Cube), 256-261, 2016, IEEE

9. Atiq ur Rehman, Fahad Khan, Baber Khan Jadoon, "Analysis of adaptive filter and ICA for noise cancellation from a video frame" 2016 International Conference on Intelligent Systems Engineering (ICISE), 250-255, 2016,   IEEE

10. Baber Khan, Ahmad Khalil Khan, G. Raja, M. Yousaf, "Implementation of modified mean-shift tracking algorithm for occlusion handling", Life Science Journal, 10, 11, 337-342, 2013

11. Khizer Mehmood, Abdul Jalil, Ahmad Ali, Baber Khan, Khalid Mehmood, Cheema, Maria Murad, Ahmad H.Milyani, "Efficient Online Object Tracking Scheme for Challenging Scenarios" Sensors, 21, 24, 8481, 2021   MDPI

12. Maria Murad, Abdul Jalil, Muhammad Bilal, Shahid Ikram, Ahmad Ali, Baber Khan, Khizer Mehmood, "Radial undersampling-based interpolation scheme for multislice CSMRI reconstruction techniques", BioMed Research International, 2021, 2021,   Hindawi

13. Maria Murad, Muhammad Bilal, Abdul Jalil, Ahmad Ali, Khizer Mehmood, Baber Khan, "Efficient reconstruction technique for multi-slice CS-MRI using novel interpolation and 2D sampling scheme", IEEE Access   8, 117452-117466, 2020   IEEE

14. Maria Murad, Abdul Jalil, M Bilal, Shahid Ikram, Ahmad Ali, Baber Khan, Khizer Mehmood "Gaussian-Radial Under-Sampling Based CSMRI Reconstruction using a Modified Interpolation

Approach", 2021 International Conference on Electrical, Communication, and Computer Engineering (ICECCE), 01-Jun 2021   IEEE

Book Chapter: 1

Title: Texture Feature Selection Using GA for Classification of Human Brain MRI Scans
Book: Advances in Swarm Intelligence (pp.233-244)
Chapter: Chapter: Advances in swarm intelligence
Publisher: Springer International Publishing

Final Year Projects supervised: 20+

1. Multipurpose Cleaning Robot **(Funded by Pakistan Engineering Council, Pakistan)**
2. Water trash Cleaning Boat **(Funded by Pakistan Engineering Council, Pakistan)**
3. Digital Gym Instructor **(Funded by Ignite National Technology Fund, Pakistan)**
4. Hybrid Heater
5. Smart Green House using IoT **(Funded by Ignite National Technology Fund, Pakistan)**
6. A smart health system for monitoring coronavirus patients for remotely quarantine.
7. Smart energy meter with load management.
8. GPS guided water monitoring and cleaning Boat.
9. Wireless sensor based smart surveillance drone.
10. Intelligent waste management system.
11. Kernel Based Object tracking using mean shift Algorithm.
12. Autonomous smart baking system, Roti Maker
13. Inverter controlled single phase induction motor using renewable energy source.
14. Automatic accident detection and ambulance rescue with intelligent traffic light system
15. Unmanned Ground Vehicle
16. Sign Language Translation using flex sensors.
17. Geo orbital wheel for cycle
18. Smart Energy Meter
19. Sunflower Model Based Automatic Solar Panel with Sun Position Tracking
20. Autonomous Smart Baking System (Roti Maker)
21. Solid State Transformer for Smart Grids
22. Running of single phases AC load with the DC Source using VFD
23. Home Energy Management System (HEMS)

AWARDS and ACHIEVMENTS:

- ✓ Awarded with Full Funded Merit based Scholarship for PhD Electronic Engineering At IIUI.
- ✓ Awarded with Full Funded Merit based Scholarship for MS Electrical Engineering at UET.
- ✓ Awarded with **Institute SILVER medal** (Bs. Computer Engineering) at COMSATS.
- ✓ Awarded with **Campus SILVER medal** (Bs. Computer Engineering) at COMSATS.
- ✓ Awarded with merit-based Laptop by the government of Pakistan.

CURRENT RESEARCH INTEREST:

- ✓ Artificial Intelligence, Computer Vision, Machine Learning, Deep Learning.

REFERENCES:

1. Prof. Dr. Abdul Jalil

International Islamic University Islamabad
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2. Dr. Ahmad Ali
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