

Dr Danish Mahmood Khan

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Google Scholar:

<https://scholar.google.com/citations?user=oOz6jgoAAAAJ&hl=en&oi=ao>



RESEARCH INTERESTS

- Brain Connectivity
- Electroencephalogram (EEG)
- Signal Processing
- Machine & Deep Learning Techniques
- BCI & Mental Disorders
- Image Processing & Computer Vision

EXPERIENCE

WORKING EXPERIENCE: 13+ YEARS

| Name of Institution | Position | Period | |
|--|----------------------------|------------|-----------|
| | | From | To |
| NED University of Engineering & Technology, Pakistan | Assistant Professor | July 2023 | Till date |
| Universiti Teknologi PETRONAS, Malaysia | PG Research Student | July 2015 | June 2021 |
| NED University of Engineering & Technology, Pakistan | Senior Laboratory Engineer | March 2010 | July 2023 |

TEACHING EXPERIENCE

- AI in Telecommunications
- Programming with C-language
- MATLAB
- Engineering Drawing and Workshop
- Digital Logic Design
- Computer & Programming (C++)
- Digital Signal Processing
- Communication Systems
- Image Processing & Computer Vision
- Signal & Systems

SESSION CHAIR

Chaired session on Artificial Intelligence in 2nd International Conference on Emerging Trends in Electronics and Telecommunications Engineering, 2023

COMMITTEE MEMBERSHIP

- Organizer of the International Conference on Technology Driven Climate Actions (CLIMATECH-2023)
- Member, Health Safety Environmental Committees at departmental level, NEDUET
- Team-lead for Logistics committee in 2nd International Conference on Emerging Trends in Electronics and Telecommunications Engineering, 2023

EDUCATION

PhD in Electrical & Electronic Engineering (26/08/2021)

Universiti Teknologi PETRONAS, Malaysia

Area of Specialization: Neuroscience, Signal Processing, Deep Learning

Thesis Title: Efficient effective connectivity in cortical default mode network for diagnosis of alcoholism

Masters in Telecommunications Engineering (31/12/2012)

NED University of Engineering and Technology, Karachi Pakistan

CGPA: 3.74/4.0

Independent Study Project: Recognition of activities taking place in kitchen by robots using image processing.

Bachelors in Telecommunications Engineering (31/12/2009)

NED University of Engineering and Technology, Karachi Pakistan

Percentage = 88.12 % Equivalent CGPA = 4.0/4.0

Senior Design Project: Target locking and tracking system

PUBLICATIONS

JOURNALS

- **Danish M. Khan**, Yahya N, Kamel N, Faye I. *A Novel Method for Efficient Estimation of Brain Effective Connectivity in EEG*. **Computer Methods and Programs in Biomedicine**. 2023 Jan 1; 228:107242. (JCR IF 2021 = 7.027)
- **Danish M. Khan**, K. Masroor, M. F. M. Jailani, N. Yahya, M. Z. Yusoff, and S. M. Khan, “Development of wavelet coherence EEG as a biomarker for diagnosis of major depressive disorder,” **IEEE Sensors Journal**, vol. 22, no. 5, pp. 4315–4325, 2022. (Q2. JCR IF 2020 = 3.301)
- **Danish M. Khan**, Norashikin Yahya, Nidal Kamel, and Ibrahima Faye. "Effective Connectivity in Default Mode Network for Alcoholism Diagnosis," **IEEE Transactions on Neural Systems and Rehabilitation Engineering**, 29:796–808, 2021. (Q1. JCR IF 2019 = 3.34)
- **Danish M. Khan**, Norashikin Yahya, Nidal Kamel, and Ibrahima Faye. *Automated diagnosis of major depressive disorder using brain effective connectivity and 3d convolutional neural network*. **IEEE Access**, 9:8835–8846, 2021. (Q1. JCR IF 2019 = 3.745)
- **Danish M. Khan**, Nidal Kamel, Mustapha Muzaimi, and Timothy Hill. *Effective connectivity for default mode network analysis of alcoholism*. **Brain Connectivity**, 11(1):12–29, 2021. (Q1. JCR IF 2019 = 5.26)
- Muhammad Ahsan, Mohd Zuki, **Danish M. Khan**, Norashikin Yahya and Mansoor Ebrahim. *Effective Connectivity for Decoding Electroencephalographic Motor Imagery Using a Probabilistic Neural Network*. **Sensors**, 2021. (Q1. JCR IF 2020 = 3.576)
- M. W. Sabir, Z. Khan, N. M. Saad, **Danish M. Khan**, M. A. Al-Khasawneh, K. Perveen, A. Qayyum, and S. S. A. Ali, “Segmentation of liver tumor in ct scan using resu-net,” **Applied Sciences**, vol. 12, no. 17, p. 8650, 2022. (Q2. JCR IF 2021 = 2.838)
- A. Sadiq, M. I. Al-Hiyali, N. Yahya, T. B. Tang, and **Danish M. Khan**, “Non-oscillatory connectivity approach for classification of autism spectrum disorder subtypes using resting-state fMRI,” **IEEE Access**, vol. 10, pp.14 049–14 061, 2022. (Q2. JCR IF 2020 = 3.367)

CONFERENCES

- **Danish M. Khan**, Norashikin Yahya, and Nidal Kamel. “Optimum Order Selection Criterion for Autoregressive Models of Bandlimited EEG Signals”. In 2021, **IEEE-EMBS Conference on Biomedical Engineering and Sciences (IECBES 2020)**.
- H Almahasneh, N Kamel, and **Danish M. Khan**. “Variation in brain’s effective connectivity due to driving using partial directed coherence”. In 2018, **IEEE International Conference on Automatic Control and Intelligent Systems (I2CACIS)**, pages 67–70. IEEE, 2018.

BOOK CHAPTER

- Aslam, F., Khan, Z., Tahir, A., Parveen, K., Albasheer, F. O., Ul Abrar, S., & **Khan, D. M.** (2022). *A Survey of Deep Learning Methods for Fruit and Vegetable Detection and Yield Estimation*. In **Big Data Analytics and Computational Intelligence for Cybersecurity** (pp. 299-323). Cham: Springer International Publishing.

EDITORIAL ACTIVITIES

PEER REVIEW FOR JOURNALS

- | | |
|--|---|
| • Nature - Translational Psychiatry (ISSN: 2158-3188) | • Nature – Scientific Reports (ISSN: 2045-2322) |
| • Springer Nature - BMC Neurology (ISSN: 1471-2377) | • Springer Nature - BMC Public Health (ISSN: 1471-2458) |
| • Springer Nature - BMC Psychiatry (ISSN: 1471-244X) | • Springer Nature - BMC Neuroscience (ISSN: 1471-2202) |
| • IEEE - Journal of Translational Engineering in Health & Medicine (ISSN: 2168-2372) | • Springer Nature - BMC Medical Imaging (ISSN: 1471-2342) |
| • IEEE - Access (ISSN: 2169-3536) | • Mary Ann Liebert - Brain Connectivity (ISSN: 2158-0014) |
| • T&F - Journal of Clinical and Experimental Neuropsychology (ISSN:13803395) | |
| • World Scientific- Biomedical Engineering-Applications Basis Communications (ISSN: 1016-2372) | |

INVITED SPEAKER

- Brain Effective Connectivity using EEG Signals for Early Prediction of Epileptic Seizure, Asia Pacific Neuro-Biofeedback Conference Kuala Lumpur, Malaysia, 2017.
- Drug Addiction Severity Grading using Magnetic Resonance Spectroscopy, Workshop on Intelligent Signal and Imaging for Biomedical Applications, Kuala Lumpur, Malaysia, 2016.

PROFESSIONAL TRAININGS

- QEC Training Programme: Managing Health and Safety, NEDUET (18/07/2023)
- Training on OBE framework: Psychomotor Domain Assessment, NEDUET (06/06/2023)
- QEC Training Programme: Technical Computing using MATLAB, NEDUET (31/03/2023)
- Negotiation Skills, UTP, Malaysia (10/10/2018 – 11/08/2018)
- IP Awareness Program: What Every Researcher Should Know About Intellectual Property?, UTP, Malaysia (12/12/2018)
- Summer School on Biomedical Imaging 2017, Malaysia (18/09/2017 – 22/09/2017)
- Outcome-Based Education for Technologist & Graduate Assistant, Malaysia (20/08/2015)
- Discovery EEG Acquisition & Neurofeedback, Malaysia (27/07/2015 – 31/07/2015)

PROFESSIONAL CERTIFICATIONS

- “*Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization*” by DeepLearning.AI offered through Coursera (29/07/2023)
- “*Neural Networks and Deep Learning*”, by DeepLearning.AI offered through Coursera (20/06/2023)
- “*Python Functions, Files, and Dictionaries*”, by University of Michigan offered through Coursera (27/03/2023)
- “*Python Basics*”, by University of Michigan offered through Coursera (23/02/2023)

ACADEMIC HONORS & AWARDS

- Higher Education Commission (HEC), Pakistan approved PhD supervisor for “Engineering and Technology”. Registration Ref: HEC/HRD/ASA/2023/194254.
- Department’s Best Postgraduate Student Award from Dean of Centre of Graduate Studies, Universiti Teknologi PETRONAS, Malaysia, 2021.

GRANTS & FUNDINGS

- Won Graduate Assistantship Scheme from Universiti Teknologi PETRONAS, Malaysia for PhD.
- Travel grant to present in IEEE International Conference on Automatic Control and Intelligent Systems (I2CACIS), Shah Alam, Malaysia.
- Travel grant to present in Asia Pacific Neuro-biofeedback Conference Kuala Lumpur, Malaysia, 2017.
- Travel grant to present Workshop on Intelligent Signal and Imaging for Biomedical Applications, Kuala Lumpur, Malaysia, 2016.
- Travel grant to attend 24th Annual Meeting and Exhibition of International Society for Magnetic Resonance in Medicine (ISMRM), Singapore. (07/05/2016 – 13/05/2016)
- IEEE Access publication funding from Yayasan Universiti Teknologi PETRONAS under Grant YUTP-FRG 015LC0-031 and Grant YUTP-FRG 015LC0-292.
- IEEE Transactions on Neural Systems and Rehabilitation Engineering publication funding from Yayasan Universiti Teknologi PETRONAS under Grant YUTP-FRG 015LC0-031 and Grant YUTP-FRG 015LC0-292.

RECENT SUPERVISING & MENTORING

- Neurobiological Decoding of Motor Imagery through Network-Based Brain Mapping and Advanced Machine Learning Techniques (Co-Supervisor: PhD-In progress).
- Automated Diagnosis of Autism Spectrum Disorder using Deep Learning and Resting-State functional MRI Biomarkers (FYDP: In progress)
- A Deep Learning and Cloud Based IoT Integrated System for Decoding Speech Imagery EEG Signals (FYDP: In progress)
- Development of an EEG-Based Deep Learning Model for Automated Diagnosis of Depression: Unveiling Biomarkers for Effective Intervention (FYDP: In progress)

- Brainwave-Driven Robotics: Decoding Motor Imagery EEG Signals for Robotic Arm Control using Deep Learning (FYDP: In progress)
- Development of Emotion Detection Framework using EEG (Co-Supervised, Completed: 16/08/2023)

LANGUAGE SKILLS

- English: Read, Write, Speak, Understand
- Urdu: Read, Write, Speak, Understand
- Bahasa Melayu: Understand (Very Basic)

COMPUTER SKILLS

- MATLAB
 - Python
 - C/C++ language
 - Microsoft Office
 - EEGLab
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