Asif Ahmad

Lecturer @ GIK Institute
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Education

- **University of Engineering & Technology Peshawar, Pakistan** Mar. 2018 - Apr. 2020
  Master of Science (18-Year) in Applied Mathematics *Supervisor: Dr. Noor Badshah, Ph.D (UK)*
  Thesis Title: **Neural Network for Segmentation of Medical Images**
  GPA: 3.78/4.0
- **University of Peshawar (UOP), Pakistan** Nov. 2014 - Mar. 2017
  Master of Science (16-Year) in Mathematics
  Grade: A
- **Stanford University (Coursera)** Completed Feb. 2022
  Machine Learning
- **NVIDIA Deep Learning Institute** Completed Aug. 2019
  Fundamentals of Deep Learning for Computer Vision

Work Experience

- **Lecturer**, GIK Institute, Pakistan Feb. 2022 - present
  I have been teaching the following undergraduate courses:
  - Machine Learning (ES 442) Fall 2025
  - Calculus I (MT 101) Fall 2023, 2024, 2025
  - Advanced Linear Algebra (ES 205) Spring 2025
  - Complex Variables & Transforms (MT 203) Fall 2024
  - Probability & Statistics (ES 111) Spring 2024
  - Differential Equations & Linear Algebra-I (MT 102/202) S. 2023, F. 2022
  - Engineering Statistics (ES 202) Spring 2022

  Besides teaching, I am co-ordinator of the Learning Management System (LMS) of the Faculty of Engineering Science, GIK Institute.
- **Co-founder and ML Team Lead**, Neural Internet, USA Sep. 2022 - May 2025
  - Led a Machine Learning team focused on developing decentralized applications leveraging various subnets within the Bittensor network.
  - Provided technical guidance and collaborated with the development team on the Compute Subnet (SN-27), contributing technical insights and suggesting improvements.
  - Contributed to the maintenance and operational stability of network validators on the Bittensor network.
  - Collaborating with the Bittensor community to advance decentralized AI capabilities
- **Mathematics Lecturer**, CECOS University, Pakistan Mar. 2020 - Jan. 2022
- **Mathematics Lecturer (Visiting)**, CECOS University, Pakistan Oct. 2019 - Mar. 2020
- **Research Assistant**, UET Peshawar, Pakistan Feb. 2019 - Feb. 2020
- **Mathematics Lecturer**, Govt. Degree College Chitral, Pakistan Aug. 2017 - Aug. 2018

Research Experience

Neural Network for Segmentation of Medical Images *Masters' Thesis Work*
Developed and trained a deep neural network for the segmentation of medical images during masters' degree research. In addition to my thesis, I also collaborated with other graduate students to explore Activate Contour Models integration in neural networks and their application in medical images processing.

Skin Cancer Detection with Deep Neural Networks and Vision Transformers
We used transfer learning for finetuning different convolutional deep neural networks and vision transformers for classification of cancerous skin images.

Solving Partial Differential Equations Using Physics Informed Neural Networks (PINNs)
Worked on developing and training a physics-informed neural network for solving PDEs with a graduate student at GIK Institute as his co-supervisor. We enhanced PINN Performance Through Lie Symmetry Group, and solved Newell-Whitehead-Segel, Allen-Cahn, and Burgers' Equations.

Careem Captain Fraud Detection *CO-PI*
In this project with Careem, a well known ride-hailing services provider company in the Middle East region, we explored different data processing techniques and machine learning algorithms to automate their Captain (driver) fraud detection.

Neural Network for Detection of Hidden Explosives and Narcotics Using Multi-pulse NQR
In this work, we developed a deep neural network-based approach for the rapid detection of hidden explosives and narcotics using Multipulse Nuclear Quadrupole Resonance (NQR).

AI-based Service Request Analysis and Rate Limiting for Fair and Efficient Use of NADRA Resouce *PI*
I am leading this project from the National Database and Registration Authority (NADRA) titled "AI-based Service Request Analysis and Rate Limiting for Fair and Efficient Use of NADRA Resouce", where the goal is to automate anomaly detection followed by rate limiting of requests for different services in NADRA.

Mathematics for Machine Learning *Work in Progress*
We are compiling a book on **Mathematics for Machine Learning**, covering fundamental concepts in Probability, Statistics, Calculus, and Linear Algebra, accompanied by hands-on practice examples implemented in Python.

Publications

Book Chapters

- Muniba Ashfaq, **Asif Ahmad**, *Skin cancer classification with convolutional deep neural networks and vision transformers using transfer learning*, Springer Nature, 2024.

Journal Articles

- Noor Badshah, **Asif Ahmad**, *ResBCU-Net: Deep learning approach for segmentation of skin images*, Biomedical Signal Processing and Control, Elsevier, 2022.
- **Asif Ahmad**, Noor Badshah, Mahmood Hassan, Kamboh Well, *A Modified Memory-Efficient U-Net for Segmentation of Polyps*, International Journal of Engineering Works, 2021.

Conference Papers

- Mehreen Fida, Noor Badshah, **Asif Ahmad**, Abdul Hafeez, Arif Ullah, Yalin Zheng, *Neural Network Integrated with Active Contour Model for Segmentation of Medical Images*, Ahi Evran International

Conference on Scientific Research, 30 November -1-2 December, 2021.

- Arif Ullh, Noor Badshah, **Asif Ahmad**, Abdul Hafeez, Mehreen Fida, *Deep Learning Approach for Segmentation of Medical Images*, Ahi Evran International Conference on Scientific Research, 30 November -1-2 December, 2021.

Preprints

- **Asif Ahmad**, Naveed R Butt, Babar Zaman, *Deep Neural Network Based Accurate and Fast Detection of Hidden Explosives and Narcotics Using Multi-Pulse Nuclear Quadrupole Resonance*, Available at SSRN 4948911.
- Ali Haider Shah, Naveed Razzaq Butt, **Asif Ahmad**, Muhammad Omar bin Saeed, *Enhancing PINN Performance Through Lie Symmetry Group*, arXiv.org e-Print archive, 2025.
- Ali Haider Shah, Naveed Razzaq Butt, **Asif Ahmad**, Muhammad Omar bin Saeed, *Solving Newell-Whitehead-Segel and Allen-Cahn Equations Employing Physics-Informed Neural Networks: A Comparative Analysis with Spline Methods*, arXiv.org e-Print archive, 2025.

Supervision of Graduate Students

- Co-supervised MS thesis titled *Solving PDEs Using Improved Physics-Informed Neural Networks (PINNs) and Lie Symmetry* of Ali Haider (Reg. # ES-2264), at GIK Institute of Engineering Sciences & Technology Topi, Pakistan.

Conferences/Workshops

- 5-Day Training Workshop on **Teaching Statistics & ML using Python** *Instructor* Jan. 2023
- 1st Intl. Conference on Science, Engineering & Technology **(ICSET-21)** *Presenter* Mar. 2021
- National Conf. on Mathematical Sciences in Engrg. Applications **(NCMSEA)** *Organizer* Apr. 2018

Honours and Awards

- MS Studentship at National Center of Big Data & Cloud Computing (NCBC), UET, 2019.

Computer Skills

Programming: Python, MATLAB
Paper Writing: LaTeX, MS Word

References

- **Dr. Naveed Razzaq Butt, Ph.D (LU, Sweden)**, Former Dean FES, GIK Institute
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- **Dr. Noor Badshah, Ph.D (University of Liverpool, UK)**, Professor, UET Peshawar
  email: noorbadshah@uetpeshawar.edu.pk, Ph: +92 3447552462
- **Dr. Siraj Ul haq, Ph.D (University of Liverpool, UK)**, Professor, GIK Institute
  email: siraj@giki.edu.pk, Ph: +92 3349334599
- **Dr. Omer Bin Saeed, Ph.D (KFUPM, Saudi Arabia)**, Associate Professor, GIK Institute
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