SYED IBAD HASNAIN

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Registered Engineer (Pakistan Engineering Council License No. Biomedical/002773)

PROFILE SUMMARY

PhD Scholar in Electrical Engineering (NUST) with a strong foundation in Artificial Intelligence, Deep Learning, and Machine Learning, and a background as a Biomedical Engineer applying AI to complex healthcare challenges. Building broader expertise in Artificial Neural Networks, Computer Vision, Advanced Robotics, and Natural Language Processing to develop novel, generalizable AI models with real-world impact across healthcare and intelligent systems. Seeking academic and research opportunities to contribute to impactful, interdisciplinary AI research.

KEY ACHIEVEMENTS

- Secured Merit-based Scholarships throughout undergraduate and postgraduate studies.
- Registered Scientist — National Scientists Directory (NSD), PASTIC, Ministry of Science & Technology, Govt. of Pakistan (NSD-MultiDisc-0012428)
- Secured National Funding by IGNITE (Ministry of IT) on our final year design project "*Portable Health tracking system for COVID19 Era*". Project Code: *NGIRI-2021-9948*
- Serving as Reviewer for International Journals (Biosensors & Bioelectronics and Current Psychology).
- Elected and Served as Vice-chairperson IEEE EMBS SSUET Student Chapter, Karachi, Pakistan. Membership No. 98015228, (2021-2022)
- Finalist (Ranked 2nd) – MSCA COFUND PhD Programme, University of Bologna, Italy (2025)
- Ranked 41st globally for PhD in Bioengineering – Politecnico di Milano (2025)

EDUCATION

PhD in Electrical Engineering (Artificial Intelligence)
National University of Sciences & Technology (NUST) (in progress)

Postgraduate Diploma in Data Science with Artificial Intelligence
NED University of Engineering & Technology (*Jul 2024 – Dec 2025*) ***cGPA: 3.44/4.0***
Project Supervisor: Prof. Dr. Najeed Ahmed Khan
Project Title: "A Hybrid Deep Learning Approach for Multi-Class Classification of Renal Lesions in CT Imaging."

Masters of Science in Biomedical Engineering
Sir Syed University of Engineering & Technology (*Sep 2022 – Oct 2025*) ***cGPA: 3.58/4.0***
Thesis Supervisor: Prof. Dr. Darakhshan Saleem
Thesis Title: "Evaluation and Implementation of Machine Learning Algorithms for Prediction of Kidney and Heart Diseases in Diabetic Patients."

Bachelors of Science in Biomedical Engineering
Sir Syed University of Engineering & Technology (*Jan 2018 – Mar 2022*) ***cGPA: 3.27/4.0***
FYDP Supervisor: Engr. Nageen Shahid Co-Supervisor: Engr. Nadia Sikandar
FYDP Title: "Portable health tracking system for COVID19 Era".
[Funded by IGNITE]

RESEARCH INTERESTS

Digital Image and Signal Processing, AI for Healthcare & Clinical Decision Support (Multimodality & Explainable AI), Deep Learning, NLP and Agentic AI, Robotics & Human-Robot Interaction for Clinical/Assistive Applications, and Computer Vision for Medical & Real-World Systems.

TECHNICAL SKILLS

- **Programming:** Python, MATLAB, R, SQL, C++.
- **Machine Learning:** Regression, Classification, Clustering; Model Evaluation, Cross-validation
- **Deep Learning:** CNNs, RNNs, LSTM; Time-Series & Sequence Modeling

- **Libraries & Frameworks:** PyTorch, TensorFlow, Keras, Scikit-learn, Pandas, NumPy
- **Computer Vision:** OpenCV, Roboflow
- **AI Tools & Deployment:** Hugging Face, Chainlit
- **Simulation & Circuit Tools:** COMSOL Multiphysics, Proteus, Multisim , ROS2 Gazebo
- **Embedded Systems / IoT:** Raspberry Pi, Arduino, ESP32, Pixhawk
- **Automation & Workflow:** n8n
- **Technical Writing:** LaTeX, Mendeley, EndNote

WORK EXPERIENCE

Lecturer, *Hamdard University- (Faculty of Engineering, Sciences and Technology.*) **(*Aug 2025 – Present)***

- Deliver lectures and lab sessions (BME-422 Medical Image Processing, EE-221 Digital Logic Design, EE-311 Microprocessor & Interfacing, BME-312 Biomedical Signal Processing, BME-326 Telemedicine Systems and CSOP-3202 Objected Oriented Programming, Software Project Management, Application of ICT, Statistics and Probability, Programming Fundamentals).
- Supervised undergraduate student semester projects in AI and biomedical applications.
- Assigned duties as Internship Coordinator.
- Contribute to departmental research initiatives in deep learning for healthcare.

Cambridge IGCSE/GCE Educator, *The Next School-Alpha Education Network* (***Aug 2024 – Jul 2025)***

- Taught Computer Science, Physics, and Additional Mathematics to IGCSE/GCE students.
- Designed and delivered STEM-focused curriculum integrating computational thinking.

Mathematics & Robotics Head,
Army Public School & College System (***Sep 2022 – Jul 2024***)
(administered by Ordnance Centre Malir Cantt)

- Led robotics club activities and trained students in robotics and programming.
- Taught Mathematics to senior secondary students and served as FBISE Coordinator.
- Served as an External Examiner for the Federal Board of Intermediate and Secondary Education (FBISE).
- Conducted teacher training sessions and contributed to curriculum development in Mathematics.

Biomedical Engineer, *Radiant Medical Pvt Ltd (**Jan 2022- Aug 2022)***

- Performed installation, calibration, and maintenance of medical equipment across critical care and radiology departments
- Gain hands-on training on numerous medical equipment: Ultrasound, X-ray, Ventilator, Defibrillator, ECG and Anesthesia machine.

Intern, *Sindh Institute of Urology and Transplantation* (***Jan 2021 – Feb 2021***)

- Attended workshops that highlighted different techniques to resolve malfunctioning issues in medical devices.
- Worked under the supervision of a biomedical engineer to grasp the techniques of installation, calibration, and maintenance of equipment.

PUBLICATIONS

- **Hasnain, S. I**., & Saleem, D. (2025). Impact of aging on glycemic control: A gender-differentiated analysis of random blood sugar levels. *Rawal Medical Journal*, *50*(3), 569-569. ***[Scopus, WoS , ESCI (IF 0.7)]*** **[HEC X-Category]**
- **Hasnain, S. I.**, Israr, H., Faris, M., Kamal, R., & Tirmizi, H. S. Y. (2025). Evaluation of Machine Learning–Based Methods to Detect Bipolar Disorder in Individuals With Mental Health Conditions. *VFAST Transactions on Software Engineering*, *13*(3), 129-139. ***[Scopus Indexed Q4]*** **[HEC Y- Category]**
- Faris, M., Khalid, S., **Hasnain, S. I.**, Jamil, M., Yasmeen, H., & Arif, M. (2025). Scalable Hybrid Deep Learning-Based Architecture for Glaucomatous and Healthy Eye Classification in Retinal Fundus Images. *VFAST Transactions on Software Engineering*, *13*(4), 01-12. ***[Scopus Indexed Q4]*** **[HEC Y- Category]**
- **Hasnain, S. I.**, Faris, M., Tirmizi, H. S. Y., Kamal, R., & Javid, T. (2025). Simulation-Based Machine Learning Approach to Classify Accelerated Biological Aging Using Telomere and Epigenetic Markers. *Sir Syed University Research Journal of Engineering & Technology*, *15*(2), 23-31. **[HEC Y- Category]**

- Faris, M., Khalid, F., Shahid, M., Haque, Z. U., **Hasnain, S. I.,** & Ali, M. F. (2026). An Ensemble Deep Learning Framework for Automated Multi Class Skin Lesion Classification Using ConvNeXt-Tiny, EfficientNetV2-S, and MobileNetV3. *VFAST Transactions on Software Engineering*, *14*(1), 60-72. ***[Scopus Indexed Q4]*** **[HEC Y-Category]**
- **Hasnain, S. I.,** & Faris, M. (2026). *"Deep Learning in Lung Cancer Imaging: A Narrative Review of CT, MRI, PET, and X-Ray-Based Diagnostic Models"* – IMAGING ***[Scopus, WoS Q3, ESCI (IF 1.0)]*** **[HEC X- Category]**

CONFERENCES

- **Hasnain, S. I.,** Saleem, D., Israr, H. & Syed, S. A. "A Machine Learning Approach for Risk Stratification of Cardiovascular Disease in Type 2 Diabetic Cohort." *2026 Global Conference on Wireless and Optical Technologies (GCWOT)*. IEEE, Malaga, Spain, 2026.
- Israr, H., Saleem, M. F., Syed, S. A., **Hasnain, S. I.,** & Saleem, D. "BENCHMARKING SUPERVISED AND UNSUPERVISED MACHINE LEARNING MODELS FOR EARLY DETECTION OF BREAST CANCER " *2026 Global Conference on Wireless and Optical Technologies (GCWOT)*. IEEE, Malaga, Spain, 2026.
- **Hasnain, Syed Ibad,** Faris, Muhammad, Crescenzo Pepe, Mir Farooq Ali, and Silvia Maria Zanoli. "AI-Driven Ensemble Approaches for Early Prediction of Cardiovascular Disease Risk " In *2026 27th International Carpathian Control Conference (ICCC)*, IEEE, Miskolc-Szilvásvárad, Hungary, 2026.
- **Hasnain, Syed Ibad,** Rabail Khowaja**,** Faris, Muhammad, Crescenzo Pepe, Mir Farooq Ali, and Silvia Maria Zanoli. "Hybrid MobileNetV2–Vision Transformer Framework for Automated Multi-Class Renal Lesion Classification in CT Imaging", *2026 34th Mediterranean Conference on Control and Automation (MED)*, IEEE, Ancona, Italy, 2026.
- **Hasnain, Syed Ibad &** Nauman Ali Khan "Hybrid ConvNeXt-ViT Architecture for Automated Multi-Classification of Kidney Lesions in CT Imaging", *Future Cities Conference 2026, LNCS Springer*, Petaling Jaya, Malaysia 2026. **(Accepted, to be appear in Springer)**

POSTER/ABSTRACT PRESENTATION

- "Simulation-Based Multimodal Fusion of ECG Signals and Laboratory Data for Cardiovascular Disease Prediction" -5th International Biomedical & Digital Health Conference (IBDC) 2026
- "Machine Learning–Based Early Detection of Polycystic Ovary Syndrome (PCOS)" -5th International Biomedical & Digital Health Conference (IBDC) 2026
- "Data-Driven Discovery of Glycemic Aging Patterns: An Unsupervised Machine Learning Approach" - 5th International Biomedical & Digital Health Conference (IBDC) 2026
- "Smart Stethoscope with Explainable AI"- 2026 2nd International Conference on Emerging Trends in Biomedical Engineering, Science and Technology
- "Deep Learning Based Automated Contouring of MR Images for MRI-Guided Radiotherapy"- 2026 2nd International Conference on Emerging Trends in Biomedical Engineering, Science and Technology
- "Wearable ECG with AI Integration" - 2026 2nd International Conference on Emerging Trends in Biomedical Engineering, Science and Technology
- "Unsupervised Learning- Clustering Approach to Social Media and Mental Health of Teenagers"- 2026 2nd International Conference on Emerging Trends in Biomedical Engineering, Science and Technology
- "Predictive Modeling of Natural Medicinal Compounds for Alzheimer's Disease Using Cheminformatics"- 8th International Conference on Energy, Environment and Sustainable Development (EESD-2026)

PROJECT PRESENTATION

- "JigarScan AI CirroDetect Liver Cirrhosis Detection & Medical Intelligence System" -2nd International Conference on Emerging Trends in Biomedical Engineering, Science and Technology 2026 (ICETBEST 2026) Members: Esha Sabir, M. Ashar, Mariam Asif, ***Syed Ibad Hasnain***, M. Faris ***[Bronze Winner 3rd Position]***

HONORS & RECOGNITION

- Received Appreciation Certificate for Outstanding Teaching Performance – Army Public School & College System (2023)

- Received Appreciation Certificate for Active Teacher Participation in Co-Curricular Activities – Army Public School & College System (2024)
- Received Appreciation Certificate for conducting Python coding class in Summer Camp – The Next School (2025)
- Received Appreciation Certificate for conducting a workshop on "Design Thinking for Educators" – The Next School (2025)
- Received Recognition for STEM Event Coordination – Alpha Education Network (2024)
- Received Recognition Certificate as THE NEXT SCHOOL Coordinator, Pakistan – International kangaroo Mathematics Contest, (2024)
- Received Appreciation Letter for Outstanding Teaching Performance – The Next School (2025)

CERTIFICATION & TRAINING

- Cybersecurity in Healthcare and Biomedical Engineering - BIOMED5.0
- Natural Language Processing with Classification and Vector Spaces - DeepLearning.AI
- Object Localization with TensorFlow – Coursera
- Deep Learning Specialization – Coursera (Andrew Ng)
- Python for Machine Learning – IBM (Coursera)
- Cybersecurity Fundamentals – Google
- Data Analysis Using Python – 10Pearls University
- Object-Oriented Programming (Advanced) – 10Pearls University
- IoT System Development & Applications – NAVTAC (Government of Pakistan)
- Received training on "Design Thinking" at Alpha Education Network, Karachi, Pakistan.
- Received hands on training on "Power Lab Equipment" at Faculty of Health and Medical Science, Hamdard University, Pakistan.

REFERENCES

AVAILABLE UPON REQUEST