



Name Abdul Samad
Designation Associate professor
Department Computer science
Faculty Dhanani School of Science and Engineering
Linkedin <https://www.linkedin.com/in/abdul-samad-bb727533/>
Github <https://github.com/abdulsamadkhan>

E-mail address
 Official abdul.samad@sse.habib.edu.pk
 Personal Asamad.khan@yahoo.com,
samad19472002@gmail.com

Telephone Number
 Office 081-111-717-111 (676)
 Extension
 Mobile +92 340-8308173

Qualification

August 2013	MS leading to PhD	University of Georgia, USA.	Computer Science
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Honors:

Fulbright scholar

Work Experience

S. No	From (year)	To (year)	Name of the Institution/ Organization	Position held
1	May 2006	Dec 2008	BUIEMS	RA-Lecturer
2	September 2013	July 2018	BUIEMS	Assistant Professor
3	2016	July 2018	BUIEMS	Graduate Coordinator
4	August 2018	December 2022	Habib University	Assistant Professor
5	December 2022	Continuing	Habib University	Associate Professor
6	August 2021	Continuing	Habib University	Program Director
7	August 2023	Continuing	Habib University	Assistant Dean DSSE

Grants

- NCRA (Control Automotive robotics) 100 million PKR
- Predicting student performance at higher level using data mining techniques (2015)
- Summer Tehqiq 2022 : Exploring transformer for urdu language
- Introduction to Large Language model : January 2024 (850000 PKR)

Publications

- Syeda Duae Zehra, Kushal Chandani, Muhammad Khubaib, Ahmed Ali Aun Muhammed, Faisal Alvi and Abdul Samad. Checker Hacker at CheckThat! 2024: Detecting Check-Worthy Claims and Analyzing Subjectivity with Transformers. **Accepted at CLEF 2024**
- Areeb Adnan Khan, Mohit Rai, Khuzaima Ali Khan, Syed Jahania Shah, Faisal Alvi and Abdul Samad Team Gladiators at PAN: Improving Author Identification: A Comparative Analysis of Pre-Trained Transformers for Multi-Author Classification. **Accepted at CLEF 2024**
- Syed Muhammad Ali, Hammad Sajid, Owais Aijaz, Owais Waheed, Faisal Alvi and Abdul Samad Team Sharingans at SimpleText: Fine-tuned LLM based approach to Scientific Text Simplification. **Accepted at CLEF 2024**
- Dad, I., He, J., Noor, W. et al. Cross Classification Matrix to Evaluate the Performance of Machine Learning Algorithms in Predicting Students Performance of Developing Regions. SN COMPUT. SCI. 5, 621 (2024)
<https://doi.org/10.1007/s42979-024-02909-y>
- Mohammad Affan Habib, Shehryar Amin, Muhammad Oqba, Sameer Jaipal, Muhammad Junaid Khan, & Abdul Samad. (2024). TaxTajweez: A Large Language Model-based Chatbot for Income Tax Information In Pakistan Using Retrieval Augmented Generation (RAG). The International FLAIRS Conference Proceedings, 37(1).
<https://doi.org/10.32473/flairs.37.1.135648>
- Muneeb Shafique, Abdul Majid, Sajeel Alam, Abdul Samad: Does your robot know when to cross the road? : INMIC 2023 25th International Multi Topic Conference
<https://doi.org/10.1109/INMIC60434.2023.10465985>
- Saad Fahim, Iqra Siddiqui, Sameer Pervez, Sandesh Kumar, Faisal Alvi and Abdul Samad : Generation of Urdu Ghazals using Deep Learning, FIT'23: 20th International Conference on Frontiers of Information Technology
<https://doi.org/10.1109/FIT60620.2023.00058>
- Maqdoom, M. H., Najam, S. A., Ali, S., Fatima, S., Momin, A., Samad, A., & Jamshed, H. (2023). Inclusiveness in Food Data Sets: Development of a Food Composition Dataset for South Asian Recipes With Focus on Pakistan. *Journal of Nutrition Education and Behavior*, 55(7), 98.
<https://doi.org/10.1016/j.jneb.2023.05.212>
- Rashid, H. A., Malik, T., Siddiqui, I., Bhatti, N., & Samad, A. (2023). DYSIGN: Towards Computational Screening of Dyslexia and Dysgraphia Based on Handwriting Quality. *Proceedings of the 22nd Annual ACM Interaction Design and Children Conference*, 532–536.
<https://doi.org/10.1145/3585088.3593890>
- Siddiqui, I., Rubab, F., Siddiqui, H., & Samad, A. (2023). Poet Attribution of Urdu Ghazals using Deep Learning. *2023 3rd International Conference on Artificial Intelligence (ICAI)*, 196–203.
<https://doi.org/10.1109/ICA158407.2023.10136675>

- Mughal, S. F., Aamir, S., Sahto, S. A., & Samad, A. (2022). Urdu Music Genre Classification Using Convolution Neural Networks. *2022 International Conference on Emerging Trends in Smart Technologies (ICETST)*, 1–6. <https://doi.org/10.1109/ICETST55735.2022.9922934>
- Hussain, S. M. F., Hamza, S. M., & Samad, A. (2022). Image Segmentation for Autonomous Driving Using U-Net Inception. *2022 7th International Conference on Signal and Image Processing (ICSIP)*, 426–429. <https://doi.org/10.1109/ICSIP55141.2022.9885809>
- Khan, N., Bakht, M. P., Khan, M. J., Samad, A., & Sahar, G. (2019). Spotting Urdu Stop Words By Zipf's Statistical Approach. *2019 13th International Conference on Mathematics, Actuarial Science, Computer Science and Statistics (MACS)*, 1–5. <https://doi.org/10.1109/MACS48846.2019.9024817>
- Siddiqui, M. A., Khan, A. S., & Witjaksono, G. (2020). Classification of the factors for smoking cessation using logistic regression, decision tree & neural networks. *AIP Conference Proceedings*, 2203(1), 020036. <https://doi.org/10.1063/1.5142128>
- Khan, N., Bakht, M. P., Khan, M. J., & Samad, A. (2019). Complex Network of Urdu Language. *2019 13th International Conference on Mathematics, Actuarial Science, Computer Science and Statistics (MACS)*, 1–6. <https://doi.org/10.1109/MACS48846.2019.9024791>
- Baber, J., Bakhtyar, M., Uddin Ahmed, K., Noor, W., Devi, V., & Sammad, A. (2020). Facial Expression Recognition and Analysis of Interclass False Positives Using CNN. In K. Arai & R. Bhatia (Eds.), *Advances in Information and Communication* (pp. 46–54). Springer International Publishing. https://doi.org/10.1007/978-3-030-12385-7_5
- Nadeem, Z., Samad, A., Abbas, Z., & Massod, J. (2018). A Transfer Learning based approach for Pakistani Traffic-sign Recognition; using ConvNets. *2018 International Conference on Computing, Electronic and Electrical Engineering (ICE Cube)*, 1–6. <https://doi.org/10.1109/ICECUBE.2018.8610979>
- Mina Gul and Kasi, B. and S. A. and U. R. (2019). Analysis of Twitter Usage in Educational Institutions of Pakistan. In F. and C. A. Bajwa Imran Sarwar and Kamareddine (Ed.), *Intelligent Technologies and Applications* (pp. 251–261). Springer Singapore. https://doi.org/10.1007/978-981-13-6052-7_22
- Khan, Y., Samad, A., Iftikhar, U., Kumar, S., Ullah, N., Sultan, J., Ali, H., & Haider, M. L. (2018). Mathematical Modeling of Photonic Crystal based Optical Filters using Machine Learning. *2018 International Conference on Computing, Electronic and Electrical Engineering (ICE Cube)*, 1–5. <https://doi.org/10.1109/ICECUBE.2018.8610986>
- Ding, L., Xue, X., LaMarca, S., Mohebbi, M., Samad, A., Malmberg, R. L., & Cai, L. (2015). Accurate prediction of RNA nucleotide interactions with backbone k-tree model. *Bioinformatics*, 31(16), 2660–2667. <https://doi.org/10.1093/bioinformatics/btv210>
- Masood, J., Samad, A., Abbas, Z., & Khan, L. (2016). Evolution of locomotion controllers for snake robots. *2016 2nd International Conference on Robotics and Artificial Intelligence (ICRAI)*, 164–169. <https://doi.org/10.1109/ICRAI.2016.7791247>
- Ayub, L., Khan, A. samad, Ayub, J., Ayub, S., Akram, U., Irshad, S., & Basit, I. (2016). Differentiation of blood vessels in retina into arteries and veins using neural network. *2016 International Conference on Computing, Electronic and Electrical Engineering (ICE Cube)*, 301–306. <https://doi.org/10.1109/ICECUBE.2016.7495242>
- Ding, L., Samad, A., Xue, X., Huang, X., Malmberg, R. L., & Cai, L. (2014). Stochastic k-Tree Grammar and Its Application in Biomolecular Structure Modeling. In A.-H. Dediu, C. Martín-Vide, J.-L. Sierra-Rodríguez, & B. Truthe (Eds.), *Language and Automata Theory and Applications* (pp. 308–322). Springer International Publishing. https://doi.org/10.1007/978-3-319-04921-2_25

- Ding, L., Xue, X., LaMarca, S., Mohebbi, M., Samad, A., Malmberg, R. L., & Cai, L. (2014). *Ab initio Prediction of RNA Nucleotide Interactions with Backbone k-Tree Model*. <https://doi.org/10.48550/arXiv.1407.7080>
- Ding, L., Samad, A., Xue, X., Huang, X., & Cai, L. (2013). *Polynomial kernels collapse the W-hierarchy*. <https://doi.org/10.48550/arXiv.1308.3613>

Book Chapters Published

- Muhammad Mobeen MOVANIA and Abdul SAMAD and Syeda Saleha RAZA:5 Exploring the Mozilla® Hubs® platform for Virtual Final Year Project Exhibition, MREdu2022: Mixed Reality for Education, Springer
https://doi.org/10.1007/978-981-99-4958-8_7

Local Publications

- Adnan Ali Memon, Abdul Samad, Sikander Khan, Imran: Sindhi Parts of Speech Tagging Using Neural Networks. Balochistan Journal of Engineering & Applied Sciences (BJEAS) – (p-ISSN: 2518-2706) Volume 4, No. 1
- Abdul Samad, Zahid Rauf, Liaquat Ali Chana, Barkat Hussain Jamali and Engr. Ahmed Farooq Bazai: Quality Education and Teachers' Evaluation: The role of a valid and reliable evaluative instrument. QCon'17, LUMHS, JAMSHORO
- Effects of Layers of Artificial Neural Networks for Locomotion Control of Snake Robots IEEC 2017 (Held in NED University of Engineering Technology Karachi)
- Taqia Manzoor, Abdul Samad, Imran Qureshi: Automatic Detection of Tuberculosis in chest radiographs using machine learning IEEC 2017 (Held in NED University of Engineering Technology Karachi)

Teaching

- A Introduction to Deep learning
- Introduction to Large Language Models
- Probability and Statistics
- Mathematics of Machine Learning
- Discrete Mathematics
- Nature of Computation
- Algorithm Analysis and Design
- Programming Fundamentals etc

Selected Undergraduate Projects Supervised

I have supervised many undergraduate capstone projects; I am listing few updated ones here.

- HabibChatBot: A chatbot designed for prospective students.
- TaxGPT: Assists consultants in filing income tax in Pakistan.
- Mai: A Transformer-based domain-specific chatbot for menstrual health.

- A project focused on developing a Deep Learning-based screener for signs of dyslexia in Pakistani children's handwriting.
- Nutrify: A recipe-based nutrition recommender system for Pakistani cuisine.

MS thesis supervised

- Graph structure of all Pakistan's Accredited universities (Mr.Arsalan ul-haq)
- Predicting smoking cessation among adults using machine learning techniques (Mr.Adil siddiqui)
- PREDICTION OF STUDENT'S PERFORMANCE IN B.A / B.SC, USING DATA MINING TECHNIQUES (Mr.Imam dad)
- Hypertensive Retinopathy Detection through Arteiovenous Ratio by Differentiation of Blood Vessels into Arteries and Veins (Ms. Lubna Ayub)
- Factors affecting mathematics performance among secondary schools students, a data mining approach (Mr. Sheikh Meer Ahmed)
- Improving Teachers Evaluation Using Machine Learning Algorithms (Mr.Barkat Jamali)
- Machine Learning helping in predicting Jaundice (Mr. Owais Ahmed)
- Automatic Detection of Tuberculosis in Chest Radiographs using Machine Learning (Taqia Manzoor)

Selected Workshops attended:

- CUDA and GPU programming workshop for 3-days in Univervsity of Georgia, 2013.
- One day training workshop in Karachi on NCEAC accreditation process (2017).
- Three day training workshop in Karachi on NCEAC accreditation process (2015).
- Participated in NCEAC 5th Program Evaluators Workshop at HEC Regional Center Karachi on April 8, 2019
- Data science boot camp 9-14 January 2017.
- Five days' workshop on ASP-LUMS "Project management".
- One-day training workshop in Karachi on NCEAC accreditation process (2019).
- NYUAD Writing Workshops
- Transparency workshop Dr. Darryl Yong, August 2018
- Student Centered Design workshop, August 2018
- Co-creating Norms for the Online University Experience, July 2020
- Springing into Online Pedagogy, , July 2020
- Series of workshop on online teaching using Canvas, zoom, and Peneppto, , August 2020
- Designing transparent syllabus, August 2020

Workshops conducted:

- 5-day training workshop on deep learning and its usage (BUITEMS-2018).
- Mathematics of Machine Learning (BUITEMS-2019)
- Designing Course Syllabi (BUITEMS- 30 December 2021)
- Prompt Engineering for Researchers and entrepreneurs (BUITEMS- 14 July 2023)
- Generative AI for improving Services (NIMS Quetta- Friday 23 June 2023)
- Gen AI in public secotor (NIMS Quetta- October 2023)

Other Activities:

- CLEF 2024 Reviewer
- Reviewer of SIGCSE TS 2024
- "Mathematical Foundations of Machine Learning". June 20th , 2022. STEM Undergraduate Workshop sponsored by British Council Pakistan
- "HIGHER EDUCATION IN PAKISTAN: WHERE DO WE STAND?" penalist : Quetta Literary Festival 2022
- 2022 7th International Conference on Signal and Image Processing (ICSIP), Technical Program committee
- ICeCube 2017, Technical Program Committee
- NCEEAC Evaluator
- Technical committee member International Data Science Conference at MAJU
- Reviewer ICeCube 2019
- Delivered a talk on pytorch: Python Karachi meet up 27th October 2018
- Evaluator for Innovative and Collaborative Research Grant (ICRG) under Pak-UK Education Gateway
- Evaluator for Grand challenge fund HEC
- Reviewer ICoMT2020
- SIGCSE TS 2021 (PC member of Paper - Computing Education Research)
- IT and Cs board of study external member , University of Turbat.

Certificates:

- C++ programming for game developers Game Institute(www.gameinstitute.com)

Udacity

- Nano-degree on self-driving car engineer (1 year) -continue

EDX

- LLMOps with Azure
- Introduction to Generative AI
- Fundamentals of Statistics (MIT)
- Probability, the science of Uncertainty and Data (MIT)
- Machine Learning with python-from linear models to deep learning (MIT)
- Scalable Machine Learning
- Big Data in Education
- Introduction to Big Data with Apache Spark
- Data Science and Machine Learning Essentials

- Statistical Thinking for Data Science and Analytics

COURSERA

- Generative AI with Large Language Models
- AI for Everyone
- Applied Machine Learning in Python
- Introduction to Data Science in Python
- Big Data In Education
- Big Data Capstone Project
- Introduction to Big Data (2015)
- Hadoop Platform and Application Framework
- Introduction to Big Data Analytics (2015)
- Machine Learning With Big Data (2015)
- Graph Analytics for Big Data(2015)
- Machine Learning Foundations: A Case Study Approach
- Machine Learning: Regression
- Machine Learning: Classification
- Machine Learning: Clustering & Retrieval
- Mathematics of Machine Learning Linear Algebra
- Mathematics of Machine Learning Multivariable Calculus
- Matrix Algebra for Engineers
- Convolution Neural Network in TensorFlow
- Natural Language Processing in TensorFlow
- Natural Language Processing with Sequence Models
- Natural Language Processing with Probabilistic Models
- Natural Language Processing with Attention Models
- Sequences, Time Series and Prediction
- Introduction to TensorFlow for Artificial Intelligence Machine Learning and Deep Learning
- Neural Networks and Deep Learning
- Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization
- Structuring Machine Learning Projects
- Convolutional Neural Networks
- Sequence Model
- Introduction to Machine Learning in Production
- AI and Public Health
- AI and Climate Change
- AI and Disaster Management



- Statistical learning (Stanford)

Short Courses

- ChatGPT prompt engineering for developers (deeplearning.ai)
- LangChain for LLM application development (deeplearning.ai)
- How diffusion model works (deeplearning.ai)
- Building the system with ChatGPT API (deeplearning.ai)
- LangChain chat with your data (deeplearning.ai)
- Large Language Models with Semantic Search (deeplearning.ai)
- Finetuning Large Language Models (deeplearning.ai)
- Pair Programming with a large Language Model (deeplearning.ai)
- Vector Databases: from Embeddings to Applications (deeplearning.ai)
- Reinforcement Learning From Human Feedback (deeplearning.ai)
- Advanced Retrieval for AI with Chroma (deeplearning.ai)
- Prompt Engineering with Llama 2&3 (deeplearning.ai)
- JavaScript RAG Web Apps with LlamaIndex (deeplearning.ai)
- Processing Unstructured Data for LLM Applications (deeplearning.ai)
- Quantization Fundamentals with HuggingFace (deeplearning.ai)
- Building Agentic RAG with LlamaIndex (deeplearning.ai)
- Create image captioning models (GoogleCloud)
- Attention mechanism (GoogleCloud)
- Encoder decoder architecture (GoogleCloud)
- Transformer models and BERT Model (GoogleCloud)
- Introduction to image generation (GoogleCloud)
- Generative AI fundamentals (GoogleCloud)
- Introduction to responsible AI (GoogleCloud)
- Introduction to large language models (GoogleCloud)
- Introduction to Generative AI (GoogleCloud)

Reference:

Name	Designation	Affiliation	Email
Liming Cai	Professor	UGA Computer science	cai@cs.uga.edu
ROBERT W. ROBINSON	Professor	UGA computer science	rwr@cs.uga.edu
E. Rodney Canfield	Professor	UGA Computer Science	erc@cs.uga.edu
Abdul Basit	Associate Professor	Habib University, EE Program	basit.memon@sse.habib.edu.pk