

USMAN NAZIR

Research Scientist

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📍 House # 241 CC, Sector D, Bahria Town Lahore, Pakistan.

EDUCATION

(Split-site) PhD Computer Science CGPA: 3.50

Lahore University of Management Sciences and University of Leeds

📅 Aug 2017 - May 2023 📍 Pakistan and UK

Thesis: Efficient Techniques for Spatial and Spatio-temporal Analysis in Remote Sensing Data

Supervisors: Dr Murtaza Taj (LUMS) & Dr He Wang (University of Leeds)

MS Computer Networks CGPA: 3.57

Lahore University of Management Sciences (LUMS)

📅 2014 - 2016

Bachelor of Science in Telecommunication CGPA: 3.42

COMSATS University Islamabad(CUI)

📅 2008 - 2012

TEACHING EXPERIENCE

Assistant Professor (School of Computer and Information Technology (SCIT))

Beaconhouse National University

📅 Feb 2024 – till now

Instructor

Knowledge Stream

📅 Summer & Fall 2023 (Evening session)

- Data Science and Machine Learning

Guest Lecturer in Deep Learning course

Lahore University of Management Sciences (LUMS)

📅 Spring 2023 & Fall 2022

- Convolutional Neural Network & Graph Neural Network Module

Lab Demonstrator (School of Geography)

University of Leeds

📅 Fall 2021 📍 UK

- Retail Location Planning using QGIS

Lecturer (Department of Statistics and Computer Science)

University of Veterinary & Animal Sciences (UVAS)

📅 2016 - 2017

RESEARCH EXPERIENCE

Research Associate (Center for Urban Informatics, Technology, and Policy)

CITY, LUMS

📅 Aug 2022 - Feb 2024

- Quality Inspection of Portable Cabins
- Learning Socio-economic Indicators from Remote Sensing Data
- Poverty Mapping
- Conducted workshop on 'Damage Assessment' using QGIS
- Tree Counting using Satellite Imagery (Published in IGARSS 2023)
- Flood 2022 Impacts using Satellite Imagery (Published in IGARSS 2023)

Research Studentship (A natural Moving2health experiment)

University of Oxford

📅 Summer 2022 📍 UK

- Examine how changes in the environment (air pollution, green spaces, social environment, built environment) influence childhood health (Published in ICLR 2023, workshop)

Research Fellow (MODALES)

University of Leeds

📅 Fall 2021 📍 UK

- Vehicle velocity profile optimization considering fuel consumption and NOx emissions

Challenge Principal Investigator (Turing Data Study Group at LIDA)

University of Leeds

📅 Summer 2021 📍 UK

- Working with Network Rail to formulate the challenge: "Identifying counterfort drains along railway lines" and providing support to the team in hyper-parameters tuning

TEACHING EXPERIENCE (CONT.)

Lab Engineer (Digital Signal Processing Lab)

COMSATS University

📅 Spring 2014

Teaching Assistant

Lahore University of Management Sciences (LUMS)

📅 2019-2022

- High Performance Computing April 2022
- Hardware Architectures for AI Spring 2021
- Deep Learning Spring 2019
- Signal Processing & Computational Problem Solving Spring 2014

GRANTS RECEIVED

- 5000GBP Research Support Grant at University of Leeds from Commonwealth Scholarship Commission (CSC). 2021

SELECTED PUBLICATIONS

- **U. Nazir**, et al. Predicting malaria outbreaks using earth observation measurements and spatio-temporal deep learning modelling: a South Asian case study from 2000 to 2017, The Lancet Journal 2024.
- **U. Nazir**, et al. 'Humanitarian costs of climate change: mapping the impact of extreme floods on population displacement and disruption to education and health using earth observation and data fusion', PHAM 2024
- **U. Nazir**, et al. 'Predicting malaria outbreaks using earth observation measurements and spatio-temporal deep learning modelling: a South Asia case study from 2000 to 2017', PHAM 2024
- **U. Nazir**, et al. "Towards a spatio-temporal deep learning approach to predict malaria outbreaks using earth observation measurements in South Asia", NeurIPS 2023 Workshop on Tackling Climate Change with Machine Learning.
- **U. Nazir**, et al. "Spatio-temporal Graph Neural Networks with Block Adjacency Matrix (STAG-NN-BA)", AAAI Climate Change Symposium 2023.
- **U. Nazir**, et al., "Feature Selection on Sentinel-2 Multi-spectral Imagery for Efficient Tree Cover Estimation", IEEE IGARSS 2023.
- **U. Nazir**, et al., "Improved Flood Mapping For Efficient Policy Design By Fusion Of Sentinel-1, Sentinel-2 And Landsat-9 Imagery To Identify Population And Infrastructure Exposed To Floods", IEEE IGARSS 2023.
- **U. Nazir**, et al. "Mitigating climate and health impact of small-scale kiln industry using multi-spectral classifier and deep learning", In *Tackling Climate Change with Machine Learning workshop at ICLR 2023*
- **U. Nazir**, et al. "Kiln-Net: A Gated Neural Network for Detection of Brick Kilns in South Asia", In *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (J-STARS) 2020*
- **U. Nazir**, et al. "Tiny-Inception-ResNet-v2: Using Deep Learning for Eliminating Bonded Labors of Brick Kilns in South Asia", In *CVPR Workshop 2019, Long Beach, CA, USA*
- M.A. Bhimra, **U. Nazir** and M. Taj, "Using 3D Residual Network for Spatio-Temporal Analysis of Remote Sensing Data", In *IEEE, ICASSP 2019, Brighton, UK*

RESEARCH EXPERIENCE (CONT.)

Research Supervision (MS thesis)

TPI Lab, LUMS

📅 2020 - 2022

- Crops classification using satellite imagery
- Illegal kiln activity during SMOG period

Research Assistant (Inference and Protocol Design Team)

AdCom Lab, LUMS

📅 Aug 2012-Dec 2013

- Development of a localization algorithm, networking scheme & node deployment strategy for Safety Assurance in High Stress Environments (SAHSE)

TECHNICAL SKILLS

- **Geographic Information System (GIS)**
Tools: GEE, QGIS, ArcGIS
- **Programming Languages:** Python, C/C++
- **Frameworks:** Tensorflow, Keras, Scikit-learn, OpenCV, Matplotlib
- **Math Packages:** MATLAB, NumPy
- **Documentation:** LaTeX

WORKSHOPS & TRAININGS

- 2-Day Course Design Express by LUMS Learning Institute Jan 2024
- 4-Day International Training on "Bridging the Critical Data Gap-Sustainable Water Resources Management Using Satellite Radar Altimetry" Nov. 2022
- 5-Day Course Design Express by LUMS Learning Institute Sept. 2022
- "Pakistan's Global Graduates, Essential skills to get ready for a global educational platform" by UPSIGN June 2021 (UK Pakistan Science and Innovation Global Network)
- GeoGebra Workshop: "Mathematics is fun" by Prof. Ashraf Iqbal Summer 2020
- 5th Workshop on Precision Agriculture and Forestry, LUMS November 29, 2019
- Training Workshop on Earth Observation Applications in Agriculture, NARC 2018

- **U. Nazir**, et al. "Accurate Localization Algorithm in Wireless Sensor Networks in the Presence of Cross Technology Interference", In *ICONIP 2019, Sydney, Australia*.

REVIEW SERVICE

- The International Conference on Learning Representations, 2024
- The International Conference on Learning Representations, 2022
- The International Conference on Neural Information Processing, 2019

TRAINING WORKSHOPS DELIVERED

- Workshops on LaTeX for University of Veterinary and Animal Sciences (UVAS) Faculty (across Pattoki and Lahore Campuses) 2016
- Damage Assessment in QGIS at Lahore University of Management Sciences (LUMS) 2022
- Design Summit AI Hackathon at Beaconhouse National University (BNU) 9th March 2024

CERTIFICATIONS

- City Management Course by Atomcamp Nov-Dec 2022
- Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning by deeplearning.ai on Coursera 2019
- Convolutional Neural Networks by deeplearning.ai on Coursera 2019
- Structuring Machine Learning Projects by deeplearning.ai on Coursera 2019
- Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization by deeplearning.ai on Coursera 2019
- Neural Networks and Deep Learning by deeplearning.ai on Coursera 2018
- Discrete Time Signals and Systems on edX 2014

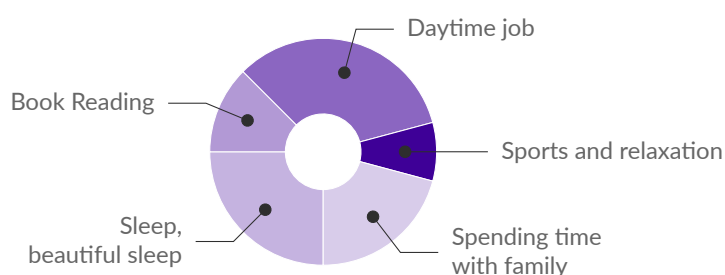
AWARDS & SCHOLARSHIPS

- Commonwealth Split-Site PhD Scholar at University of Leeds, UK (2020-2021)
- Won Facebook's Computer Vision for Global Challenges (CV4GC) (2019)
- Got PhD scholarship at LUMS, Pakistan (2017-2022)
- Got full bright merit ICT Scholarship during four years of undergraduate studies from CIIT, Islamabad, Pakistan (2008-2012)
- Selected as the Student of the Year in Govt. Degree College, Pattoki, Pakistan (2007)

EXTRACURRICULAR ACTIVITIES

Volunteer Work & Community Services, Hiking & Volleyball

A DAY OF MY LIFE



- Hands-on Training workshop on Data Science CUI March 19-25, 2018

- Cloud Computing Workshop: Department of Computer Science, SBASSE, LUMS March 24-28, 2015

- 'Power of Positive Attitude' Training at PTCL Regional Telecom Training School (RTTS), Lahore, Pakistan Oct 2012

REFEREES

Dr Murtaza Taj (Associate Professor)

@ LUMS

✉ murtaza.taj@lums.edu.pk

Relation: PhD Advisor (LUMS)

Dr. Momin Uppal (Associate Professor)

@ LUMS

✉ momin.uppal@lums.edu.pk

Relation: Previous Employer [Director of CITY at LUMS]

Dr He Wang (Associate Professor)

@ University of Leeds

✉ h.e.wang@leeds.ac.uk

Relation: PhD Co-Advisor (University of Leeds)

Dr Sara Khalid (Associate Professor)

@ University of Oxford

✉ sara.khalid@ndorms.ox.ac.uk

Relation: Supervisor during research studentship.

Dr Muhammad Fareed Zaffar (Associate Professor)

@ LUMS

✉ fareed.zaffar@lums.edu.pk

Relation: MS Thesis Advisor.

Dr Ijaz Haider Naqvi (Associate Professor)

@ LUMS

✉ ijaznaqvi@lums.edu.pk

Relation: Research Advisor for Project: SAHSE.

Dr Natash Ali Mian (Assistant Professor)

@ BNU

✉ natash.ali@bnu.edu.pk

Relation: HoD (SE) at SCIT, BNU