

Shahrukh Khan (Lecturer)

Nationality: Pakistani **Date of birth:** 28/10/1994 **Phone number:** (+92) 3312296038

Email address: khanshahrukh@cloud.neduet.edu.pk

Work: Department of Urban and Infrastructure Engineering, NED University of Engineering and Technology, Karachi

PERSONAL PROFILE

An initiative-driven and dedicated Water Resources Engineer with over 6.5 years of professional experience spanning academia and industry. In addition to primary role as a university teacher, have significant contributions to various research and consultancy projects focusing on Water Resources and Coastal Engineering. Demonstrated expertise in Geographic Information Systems (GIS), Remote Sensing, Topographic Surveying, Hydrological and Hydraulic Modelling, and Watershed Management. Proficient in effective communication, data representation, research, and analytical skills.

RESEARCH INTERESTS

- GIS and Remote sensing
- DEM development
- Hydrologic modeling
- Hydraulic modeling
- Watershed Management
- Climate Change
- Flood Assessment
- Drought Assessment
- Flood Mitigation
- Drought Mitigation
- Irrigation and Drainage
- Coastal Hazards
- Inundation and Risk Maps
- Evacuation Maps
- Sea-water Intrusion
- Glacier Modeling
- Water Supply Management
- Drainage Engineering

EDUCATION

M.E (Water Resources Engineering)

NED University of Engineering and Technology [15/12/2017 – 15/04/2021]

City: Karachi | Country: Pakistan | Website: <https://www.neduet.edu.pk/>

Thesis: Hydrologic Assessment of Kishenganga Hydro-Electric Power Project (KHEP) for impact on Neelum-Jhelum Hydro-Electric Power Project (NJHEP) under the purview of Indus Waters Treaty

B.E (Civil Engineering)

NED University of Engineering and Technology [01/01/2014 – 09/11/2017]

City: Karachi | Country: Pakistan | Website: <https://www.neduet.edu.pk/>

PUBLICATIONS

Hasan, Haider, Hira Ashfaq Lodhi, Shoaib Ahmed, Adnan Rais, Muhammad Masood Rafi, and **Shahrukh Khan**. "EARTHQUAKE THRESHOLDS FOR TSUNAMI EARLY WARNING IN PAKISTAN." AGU23 (2023).

Hasan, Hamna, **Shahrukh Khan**, and Aqsa Zahid. "Hydro dynamic Flood Modelling for Kunhar River Basin, Pakistan" *Engineering Proceedings* 23, no. 1 (2023)

Khan, S., Hasan, H., & Ahmed S. (2019). *A digital elevation model for tsunami risk assessment: Poster presented at the workshop on Big Data and Cloud Computing (BigC)*; Dec 2019; Lahore, Pakistan

RESEARCH AND CONSULTANCY PROJECTS

[11/2022 – Current]

Disaster Resilience Improvement in Pakistan (DRIP) - Funded by HEC Part of the team involved in 'Probabilistic Tsunami Hazard Assessment and Seismic Hazard Assessment for the city of Karachi' where I am responsible for preparing GIS based maps, spatial analysis, and assisting the Tsunami Team in preparing GIS based data for the inundation model.

[02/2024 – 03/2024]

Geo referenced Database for Catastrophe for National Disaster Risk Management Fund-NatCat Modeling Project Part of the Tsunami Modeling team where I was responsible for development of Coastal DEMs for Ormara, Pasni, and Gwadar, and preparing GIS based Inundation and Velocity maps by processing output results from GeoClaw.

[02/2023–11/2023]

Relief of Askari Colonies

- Preparation of as-built GIS Database of wet utilities by conducting GNSS based topographic surveys.
- Preparation of ground validated DEM datasets required for Urban Hydrology
- Designed Storm Water Drainage design as per design criteria 'Urban Drainage Design Manual, Hydrologic Engineering Center (HEC-22)' for a residential society prone to urban flooding.

[11/2022–12/2022]

Hydraulic Study of HUB River Bridge Part of team involved in conducting 'Hydrological and Hydraulic study to identify potential reasons for bridge failure at HUB river', where I was responsible for preparing local DEMs, GIS based datasets, performing bridge hydraulics based upon multiple flow scenarios, and preparation of Flood Inundation Maps.

[07/2022–08/2022]

Storm Water Drainage Network of DHA Karachi Vetting of existing storm-water drainage design of DHA Karachi to identify design and maintenance issues, and increase its capacity to cater additional flow from torrential rains in Karachi.

[11/2021–02/2022]

Infrastructure Development at 44 Acres of PNS Mehran Design of wet utilities, including Stormwater Drainage, Sewerage, and Water Supply system for a 44 acre development project

[09/2021– 10/2021]

Assessing Potential of Existing Conveyance System to Cater Additional Water to Karachi Developed as-built hydraulic models for Karachi bulk water supply system (K-I, II, III) in PCSWMM to assess its conveyance potential for additional flow from the source.

[07/2021–08/2021]

Channelize Stormwater From Lath Dam To Prevent The Flooding In Low-Lying Urbanized Areas Of Karachi

- Preliminary topographic surveys to understand existing flow pattern to nearest drainage point
- Development of DEM using orthomosaics validated by ground control points to simulate hydrological response
- Flood simulation based upon current hydrological scenario at M9-M10 interchange using HEC-RAS

[06/2021–30/09/2021]

Hydrology and River Morphology for Malir and Lyari River

- Extraction of river cross-sections data through on site GNSS surveys
- GIS based assistance in performing hydrological simulation for Malir and Lyari rivers

[09/2020–06/2021]

Geodatabase Development of Existing Storm Water Network of Karachi

- Assisted in development of Geospatial database of Karachi existing major drains through GNSS and drone based field surveys
- Preparing GIS datasets for conducting hydrologic and hydraulic modelling using DEMs

[11/2019–03/2021]

Strengthening Tsunami and Earthquake Preparedness in Coastal Areas of Pakistan (UNDP) Part of GIS team where I assisted in conducting geospatial analysis, study area mapping, and development of coastal DEM for Karachi representing most recent topographical and bathymetric developments.

WORK EXPERIENCE

Lecturer

Department of Urban and Infrastructure Engineering, NED University of Engineering and Technology [07/2022 – Current]

City: Karachi | Country: Pakistan

Teaching undergraduate courses in Department of Urban and Infrastructure Engineering such as:

- Fluid Mechanics
- Engineering Surveying
- Introduction to Computing for Civil Engineers
- Engineering Materials

Co-supervision of graduate level design projects in fields of Geographic Information Systems (GIS), Hydrologic and hydraulic modeling, and Drainage engineering.

Assisting in the research and consultancy projects related to domains of Geographic Information Systems (GIS), Mapping and Data representation, Surveying, Hydrological modeling, and Drainage Engineering.

Assisting in departmental administrative activities and implementation of Outcome Based Education (OBE) System

Junior Engineer (Water)

Associated Consulting Engineers ACE LIMITED [04/2022 – 06/2022]

City: Karachi | Country: Pakistan

- Identification of potential small dam sites in different watersheds of Sindh province in Pakistan using GIS and Remote Sensing tools
- Assisting Principal Engineer in preparing 2D Flood Model for Awaran Dam Project using HECRAS
- Assisting in designing of spillway and stilling basins based upon USBR Criteria
- Assisting in preparing design drawings and resolving site based issues.

Water Design Engineer

Bahria Town Karachi Pvt. Ltd [02/2022 – 03/2022]

City: Karachi | Country: Pakistan

Responsible for Design and Management of Water Supply Infrastructure and resolution of site based issue

Research Assistant

National Center for Big Data & Cloud Computing (NCBC), NED University of Engineering and Technology [08/2019 – 01/2022]

Country: Pakistan

- Developed Coastal DEM for Tsunami Hazard Assessment for Karachi and Gwadar
- Developed Rainfall-runoff Model of Neelum Basin using HEC-HMS and HEC-RAS models
- Assessed Transboundary Hydrologic Impact of Designed Structures in Upper Indus Basin Under the Purview of Indus Water Treaty
- Developed Geospatial database of Major Storm Water Drainage network of Karachi

Design Engineer (Water)

Osmani and Company Pvt. Ltd [10/2017 – 08/2019]

City: Karachi | Country: Pakistan

- Planned and Designed Storm Water Drainage and Sewerage Systems in conformity with international design standards, requirements and guidelines
- Developed a simulated Hydraulic Model of Karachi Bulk Water Supply Scheme-KIV
- Assessed Hydrological Response of Urban Watersheds
- Coordinated and Assisted Lead Engineer in assembling project deliverables
- Recommended Modifications for Design Improvements by analyzing results of Research and Development
- Major projects: DHA City, K-IV, CAA Runways, LDA City

CONFERENCES, WORKSHOPS, TRAININGS AND MEETINGS ATTENDED

[22/04/2024 – 03/05/2024] Karachi

Workshop on 'Disaster Resilient Structures'

[21/04/2024 – 21/04/2024] Oman

Workshop titled "UNESCO-Modelling Inundation from tsunami waves and preparing evacuation plans for the NWIO" [27/02/2024 – 28/02/2024] Karachi

Workshop training on "Provincial Workshop on Risk informed Spatial Planning in Practice"

[23/12/2023 – 23/12/2023] Karachi

Forewarned is forearmed construction disputes avoidance and resolution

[10/11/2023 – 11/11/2023] Karachi

13th International Civil Engineering Conference-NEDUET

[22/03/2023 – 22/03/2023] Karachi

Seminar on World Water Day 'Water for Karachi (Present and the Future)'

[11/03/2023 – 15/03/2023] Lahore

Training workshop on Glacier Modeling: Practical Application with the OPEN GLOBAL GLACIER MODEL

[08/12/2022 – 08/12/2022] Karachi

Session on 'Rain Water Harvesting' by Dr. Syed Imran Ahmed

[05/10/2022 – 05/10/2022] Karachi

Workshop on 'Gap and Capacity Analysis on Evacuation Planning in the NWIO Region-Pakistan'

[16/09/2022 – 16/09/2022] Karachi

Awareness Session on 'World Ozone Day' by Dr. Syed Imran Ahmed

[10/09/2022 – 10/09/2022] Karachi

Meeting with CM Sindh on 'Flood Affected Districts of Sindh in 2022'

[22/05/2020 – 22/05/2020] Amsterdam

Webinar on 'Perspectives on Smart Stormwater network'

[15/05/2020 – 15/05/2020] Jakarta

Webinar on 'Asia pacific Youth engagement to Covid-19'

[11/05/2020 – 11/05/2020] Webinar

UNESCO-Webinar on Covid-19 and Open Science

[24/02/2020 – 28/02/2020] Karachi

UNESCO workshop on 'Standard Operating Procedures for Tsunami Early Warning'

SKILLS

General

Microsoft Office (Word , Excel and Power Point) / AI Tools / Google Classroom / Adobe Photoshop / Google Scholar / LinkedIn / AutoTurn/ Turnitin/ Zotero

Civil Engineering

AutoCAD / AUTODESK CIVIL3D / CorelDRAW / Autodesk Civil3d / Autodesk Civil3D / Google Earth Pro

RS/GIS

QGIS / ArcGIS / Global Mapper / Surfer / Autodesk Civil 3D

Hydrology and Hydraulic Modeling

QSWAT / ArcSWAT / SWToolbox / HEC-HMS / HEC-RAS / SewerGEM / SWMM / WaterGEM / HY8

Programming Languages

MATLAB / Python / R Language

PROFESSIONAL MEMBERSHIPS

Registered Engineer with 'Pakistan Engineering Council (PEC)'

Graduate Member of 'Institute Engineers of Pakistan (IEP)'

Academic Affiliation with 'Panjwani-Hisaar Water Institute (PHWI) at NED University'

LANGUAGE SKILLS

Mother tongue(s): Sindhi | Urdu

Professional Language: **English (Proficient User)**

RECOMMENDATIONS

Name: **Dr. Haider Hasan** | Associate Professor

Department of Civil Engineering, NED University of Engineering & technology, Karachi, Pakistan

Email: hhasan@cloud.neduet.edu.pk

Name: **Dr. Hira Lodi** | Assistant Professor

Department of Physics, NED University of Engineering & technology, Karachi, Pakistan

Email: hiralodi@cloud.neduet.edu.pk

Name: **Dr. Etikaf Hussain** | Consultant Transport Modeller

Veitch Lister Consulting, Brisbane, Queensland, Australia