MUHAMMAD FAIQ AHMED

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PROFESSIONAL SUMMARY

A civil engineering graduate and M.E in Transportation Engineering with adept knowledge in the areas of Transportation Engineering, Traffic Engineering, Traffic Management, and Traffic modeling. Along with the working knowledge in the areas of construction project management, and Geometric Design
Working experience with Advanced Traffic Lab for Analytics and Simulation NEDUET, Envision Engineering, Paragon Constructors, and Lucky Textile Mills.

TECHNICAL EXPERTISE

-Visum
-Vissim
-Vistro
-Viswalk
- Autodesk AutoCAD
- Autodesk Civil 3D
- Autodesk Revit
- Agisoft Metashape
- SIDRA Intersection
- ArcGIS Pro
- Microsoft Office and allied software

EDUCATION

- Ph.D. Scholar (Transportation Science), Hasselt University
- M.E Civil Engineering (transportation), NEDUET, 2021
- B.E. Civil (Specialization in Urban and Infrastructure Engineering), NEDUET, 2017
- Intermediate, Meritorious Science College, 2013
- Matriculation Meritorious Schools Network, 2011

PROFESSIONAL CERTIFICATIONS

- Management of Urban Infrastructures 2023
- Smart Cities – Management of Smart Urban Infrastructures (EPFL)2023
- Sustainable Transportation Networks and Streetscapes (Johns Hopkins University)2023
- Transportation, Sustainable Buildings, Green Construction (Johns Hopkins University)2023
- What is Data science (IBM) 2023
- 18-hour Certified Training Course on nD - BIM Modelling at NED University 2017
- Chinese Language Level 1 & 2 certificates from Confucius Institute Karachi
- Certified Training Course of Autodesk AutoCAD, 2016
- 2-Day International Workshop on Road Safety Analysis and Modelling 2016

PROFESSIONAL ASSOCIATION

- Pakistan Engineering Council (PEC) URBAN/00456
- Institute of Transportation Engineers (Pakistan)

L A N G U A G E S :

-Urdu, English, Chinese (level 1& Level 2)

W O R K   E X P E R I E N C E

| Advanced Traffic Lab for Analytics and Simulation | September 2019 - Present

Project Name	**Saddar Cooperative Housing Society**
Technology Used	Audesk Civil 3D, Arc GIS, Total station, DGPS
Project Brief	I worked as a consultant engineer for master planning and topographic analysis
Major Responsibilities	– Masterplan assessment, Topographical analysis, Watershed analysis – Submission of Drawings and Report
Project Name	Saddar Cooperative Housing Society
Technology Used	Audesk Civil 3D, Arc GIS, Total station, DGPS
Project Brief	I worked as a consultant engineer for master planning and topographic analysis
Major Responsibilities	– Masterplan, Topographical analysis, Watershed analysis – Submission of Drawings and Report

Project Name	**Feasibility study and transaction advisory services for three urban road projects under public-private partnership (PPP) mode (NESPAK)**
Technology Used	Vissum, Excel, Traffic cam and Primavera P6
Project Brief	I worked as Project lead in this project, the project comprised data collection, analysis, and traffic modeling at 7 major intersections of Karachi for a feasibility study of the Maripur Expressway, Korangi Causeway, and ICI intersection.
Major Responsibilities	– Development and Submission of Project proposal – Development and Submission of Project Schedule – Development and Submission of Inception Report and final report – Development and Submission of invoice – Rendering Data – Organising and analyzing Traffic data – Analysis of origin-destination data and Development of OD matrix – Peak Hour Traffic Simulation on Vissum

Project Name	**Development of Trip Generation Models for different Lasduses in Karachi**
Technology Used	Excel and Endnote
Project Brief	I worked as a Project Supervisor and conducted this research project with the students of the Civil engineering Department at NEDUET
Major Responsibilities	– Supervision of traffic surveys, occupancy surveys, and field survey – Development of Research Framework – Reviewing the final report and presentation

Project Name	**Role of Public Transport in the Spread of COVID in the United States of America**

Technology Used	Excel, Endnote, SPSS, and Python
Project Brief	I'm working as a research assistant on this research project, this research encompasses the development of models to relate the spread of COVID-19 with respect to public transportation.
Major Responsibilities	– Data collection of daily stats of covid in all counties states and cities of the USA – Development of Research framework and methodology – Data organization and analysis.

Project Name	**Impact of Lockdown on Air Quality of four major cities in Pakistan**
Technology Used	Excel, Endnote, SPSS, and Python
Project Brief	I'm working as a research assistant on this research project, this research encompasses the development of models to relate environmental up-gradation that occurred during the lockdown in Karachi, Lahore, Islamabad, and Peshawar.
Major Responsibilities	– Data collection of daily stats of Air Quality data From May 2019 to August 2020. – Development of Research framework and methodology – Data organization and analysis.

Project Name	**Pre-Feasibility Study of Gujjar Nulla and Orangi Nulla Expressway Network for the Government of Sindh**
Technology Used	Autodesk Civil 3D, Arc GIS, Total station, DGPS, Traffic Cameras, Drone
Project Brief	I worked as a surveyor, Traffic engineer, and Geometric Design engineer for the Pre-Feasibility study of the Gujjar Nulla and Orangi Nulla Expressway Network
Major Responsibilities	– Topographic Survey and analysis, Traffic Survey and analysis, and Geometric Design of Expressway – Statistical analysis (TVM and Socio-economic parameters) – Submission of Drawings and Report

Project Name	**Traffic Impact Assessment of the following:** -Creek Marina Towers -Mehran Icon -AA Residencia -Sawera Icon -AA Luxuria -Ali Towers -Al Reef Twin Towers -Rana Residency -Roshan Corporate Center -Al Basar Vista -JP Heights -Airport Residency -Fantasy Heights -ChaseUP Headquarters -Medicam One -Gohar Golf Vista
Technology Used	Autodesk Civil 3D and Sidra Intersection and mid-block.
Project Brief	Traffic Impact Assessments were carried out for the aforementioned project incorporating, Parking Analysis, Internal Circulation Plan, External Circulation Plan, Emergency Access / Exit Plan, Emergency Vehicle Circulation Plan, and Assessment of Impact under, built, and no-built scenarios (level of service)

Major Responsibilities	– Conducting traffic surveys and road inventory surveys – Acquirement of Permission from traffic Police and other governing authorities – Correspondence with the clients – Traffic Analysis via Sidra intersection, Highway Capacity Manual 2010, and ITE Trip Generation Manual – Geometric Vetting via Vehicle Tracking – Submission of Report

Project Name	**Traffic Noise Modelling and its Impact on different Road User Groups(Research Project):**
Technology Used	UNI-T Noise monitors, MATLAB, SPSS.
Project Brief	The research was comprised of 3 urban arterials namely Shahrah-e-Faisal, Shahrah-e-Shersha Suri, and University Road. Traffic noise was monitored through test vehicles of different road user groups. The analysis was done to measure the impact of the noise on road users with respect to the traffic mix
Major Responsibilities	– Data Analysis and Report Writing

Project Name	**The effect of traffic composition on road capacity (Research Project):**
Technology Used	DJI Phantom 4(drone), Traffic Cameras, MATLAB
Project Brief	The research was comprised of 3 urban arterials namely Shahrah-e-Faisal, Shahrah-e-Shersha Suri, and University Road. The capacity of each road was assessed as per the traffic mix governing the particular road.
Major Responsibilities	– Traffic Surveys, Data Analysis, and Traffic Simulations

Project Name	**Modeling the road crossing behavior of pedestrians and its Impacts on the signal-free corridor (Research Project):**
Technology Used	DJI Phantom 4(drone), PTV VISWALK and Traffic Cams.
Project Brief	The research was conducted on Shaheed-e-Millat Road particularly the section after the end of Khalid-bin Waleed Road. The Traffic Footage was recorded during the peak hours to extract data. With the help of the extracted data Simulations were developed on PTV VISWALK
Major Responsibilities	– Traffic Surveys, Data Analysis, Development of Calibrated and Report writing

Project Name	**Calibration of Link Transmission Model for Heterogenous and Undisciplined Traffic Streams (M.E. Thesis):**
Technology Used	Traffic Cameras, MATLAB
Project Brief	The research was focused on the calibration of the Link Transmission Model (Mathematical Traffic Flow Model) for Heterogeneous and Undisciplined traffic streams.

Major Responsibilities	– Traffic Surveys, Data Analysis, Development of Calibrated and Report writing
Project Name	**Geometric Assessment of Lyari Expressway for Heavy Traffic**
Technology Used	DJI Phantom 4(drone), GNSS (SP20), and Civil 3D
Project Brief	The study is focused on the geometric assessment of the Lyari Expressway for heavy traffic. This is being done to reduce the traffic congestion and moving bottlenecks caused by heavy vehicles, especially 18-wheel trailers.
Major Responsibilities	– Traffic Surveys, Data Analysis, and Traffic Simulations
Project Name	**Assessment and audit of Karachi Circular Railway existing track :**
Technology Used	GNSS (SP20), KENTRACK and Civil3D
Project Brief	The scope of the research is assessment and audit Karachi Circular Railway's existing track and to make a digital copy with the inventory details and the GPS coordinates.
Major Responsibilities	– Project Execution and Supervision
Project Name	**"Design and implementation of a Video-based Schoolchildren road injury prevention tool (V-SCRIPT) in Karachi: A quasi-experimental study**
Project Brief	The Research Project was Funded by The Road Traffic Injuries Research Network (RTIRN). The focus of the research is to develop a Video-based app and web tool to educate the school going children about the hazardous behaviors of road users and how to prevent it
Major Responsibilities	– Development of hazardous scenarios, assessment of the video footage, and the development of the app literature.
Project Name	**Research and Survey for Problems of Transport and Identification of Black Spots for Prevention of Accidents for Ministry of Transportation.**
Technology Used	DJI Phantom Pro V2, Test Car, long backup traffic cameras.
Project Brief	The Project is being funded by the Sindh Transport and Mass Transit Department, Government of Sindh. The focus of this project is to assess the problems in particular Traffic and Public transportation with major emphasis on the assessment of Blackspots along with the sustainable development of the database.
Major Responsibilities	Working as a Project Manager, responsible for the development of project plan, survey methodology, Data Analysis, Management, and Acquisition
Project Name	**Road Improvement Project for Toyota Pakistan (Indus Motor Company Limited).**
Technology Used	DJI Phantom Pro V2, GNSS(Spectra SP20), Traffic Camera, App PTV Package (VISSIM, VISUM, VISTRO VISWALK) development
Project Brief	The Project is being funded by Toyota, Indus Motor Company Limited. The objective of this project is to conduct a detailed assessment of the

	10 major arterials of Karachi and to develop a road improvement plan to reduce traffic congestion and road safety.
Major Responsibilities	Working as a Project Coordinator, responsible for the development of project plan, survey methodology, Data Analysis, Management, and Acquisition

Project Name	**BlackSpot analysis, Development of Road Accident Database and development of Traffic Signal Management Plan (DIGP Traffic Police office).**
Technology Used	DJI Phantom Pro V2, Traffic Camera, PTV Package (VISSIM, VISUM, VISTRO VISWALK)
Project Brief	The Project is being carried out with the support of the DIGP Traffic office in Karachi. The first objective of the project is to a develop road traffic accident database. The Secondary objective of this project is to identify the blackspots and propose countermeasures. The third objective of the project is to develop a traffic signal management plan (TSMP) for major signalized arterials of Karachi.
Major Responsibilities	Working as a Project Manager and Lead, responsible for the development of project plan, survey methodology, Data Analysis, Data Management, Data Acquisition, and Training of personnel for technology handover.

Project Name	**Afloat for Centuries: The Flat-bottomed Indus Boats - An Abode, an Agency for Livelihood and an Expression of Cultural Identity";**
Technology Used	DJI Phantom Pro V2, Agisoft Metashape Professional
Project Brief	The Project is being carried out with the support Endangered Wooden Architecture Program (EWAP) Grant 2022 for documentation, mapping, and inventory of indigenous Indus boats
Major Responsibilities	Working as a drone pilot, Photogrammist, and data analyst Responsible for conducting surveys and processing data. For this project, I carry out the manual as well as scheduled flights to map a 40-boat cluster on Manchar Lake along with the separate flights for individual boats for 3D mapping.

| Envision Engineering | November 2017 – August 2019

Project Name	**Traffic Impact Study of Aga Khan University Hospital (AKUH)**
Technology Used	Traffic Cameras, Autodesk Civil3D Autodesk Vehicle Tracking, Sidra Intersection.
Project Brief	I worked with the Traffic engineering team at Envision Engineering. Performed traffic surveys and developed access gate infrastructure(ITS based)
Major Responsibilities	− Design Assessment − Development of Traffic circulation plan and NMT Guidelines − Submission of Non-motorised Traffic Guidelines − Development of ITS-based access gate infrastructure

Project Name	**Traffic demand audit and estimation of five Rural Highways**
Technology Used	Traffic Cameras, Traffic Counter, Microsoft Excel
Project Brief	I worked with the Traffic Engineering team at Envision Engineering on five rural highways (Mehran Highway, Hyderabad – Badin Highway, Khando – Sanghar Highway, Karachi Thatta Highway) and conducted Feasibility analysis for toll stations and traffic Demand Analysis
Major Responsibilities	– Traffic demand estimation – Traffic demand audit – Feasibility analysis for toll collection

Project Name	**Road and Infrastructure design of KIA Motors**
Technology Used	Autodesk Civil 3D and Auto turn
Project Brief	I worked with the Road Design team at Envision Engineering and designed all the internal roads of the KIA motors assembly plant at Bin Qasim Industrial area and generated the bill of quantities.
Major Responsibilities	– Road Alignment and Design – Design vetting by Autoturn – Development of Bill of Quantities – Submission of drawings

Project Name	**Future Footfall Estimation and design audit of an international Standard 40-acre facility at Sukkur**
Technology Used	Autodesk AutoCAD, Excel, SPSS,
Project Brief	I worked as a Team Lead with the Traffic engineering team at Envision Engineering and conducted multiple surveys at three major cities (Sukkur, Larkana, Khairpur) to estimate the future demand for a developed facility
Major Responsibilities	– Legal permission to conduct surveys from the Commissioner of Sukkur, Khairpur, and Larkana – Identification of influenced facilities – Submission of Future footfall Estimation and fair financial Estimate

Project Name	**Infrastructure Design of Bin Qasim Industrial Park (BQIP)**
Technology Used	Autodesk AutoCAD, Autodesk Civil 3D, Sewer CAD
Project Brief	I worked with the infrastructure engineering team at Envision Engineering and assisted in the infrastructure design.
Major Responsibilities	– Sewer, Strom Water Drain Design – Drawings Printing and submission
Project Name	**Traffic Impact Studies:** **I have conducted 32 Traffic Impact assessments some of the major TIA's are:** • **IMTIAZ SUPERMARKET** • **ELEGANT HOMES** • **SOCIETY TOWERS** • **GRAND RESIDENCY** • **CREEK APARTMENTS** • **DEFENCE GATEWAY RESIDENCY** • **COMMERCIAL-1** • **DAWAT-E-HIDAYAH**
Technology Used	Autodesk AutoCAD, Autodesk Civil 3D, Auto-Turn, Sidra Intersection, in-house Highway Capacity Manual Software.
Project Brief	I worked on all the above-mentioned traffic impact studies during my period at Envision Engineering.

Major Responsibilities	– Conducting traffic surveys – Acquirement of Permission from traffic Police and other authorities – Facility Parking Design Vetting and Proposed changed design – Traffic Analysis via Sidra intersection and Highway Capacity Manual 2010

Project Name	**North-South Gas Pipeline Construction Management Plan**
Technology Used	Autodesk AutoCAD, Autodesk Civil 3D
Project Brief	The project is an initiative by the government to lay a gas pipeline from Nawabshah in the south to all the way up to Nankana Sahib
Major Responsibilities	– Identification of Intersecting pipeline ROW and Major Highways and road – Detour plans, construction phasing, and management of the project

Project Name	**Karachi Neighbourhood Improvement Plan**
Technology Used	Autodesk AutoCAD, Autodesk Civil 3D, Primavera p6
Project Brief	The project is an initiative for the rehabilitation of the Saddar downtown area by the world bank and the local government of Sindh. The scope of the project is to rehabilitate and improve three major roads(M.R.Kiyani Road, Strachen Road, and Ziauddin Road) and construction of a Parking plaza(Peoples Square) at Kamal Atatürk road.
Major Responsibilities	– Design Audit and circulation plan for Parking Plaza(Peoples Square) – Road Construction Management – Safety and Design Audit

| Lucky Textile Mills | January 2017 – October 2017

Project Name	**Development of an as-built 7D BIM Model for a Retrofitted Industrial Building – A Facility Management Approach**
Technology Used	Building Information Modelling (BIM), Primavera P6, Autodesk Revit, Autodesk AutoCAD
Project Brief	I worked with the civil engineering team at Lucky Textile Mill and made the 7D Building Information Model (BIM) of the entire factory. Scope of work includes converting the shop drawings of different structural and MEP elements and modeling them on Autodesk Revit.
Major Responsibilities	– Development of Architectural Modell – Development of Structural Modell – Development of Mechanical and Plumbing Systems