

### Profile

Highly organized and self-motivated Transport Modeler with 18 years of progressive experience in engineering consulting firms and university teaching and research environments. Profound knowledge in collecting, analyzing, interpreting and presenting transport planning and traffic data through effective field surveys and research skills. Strong familiarity with Transport Planning software packages, Traffic Analysis packages, Pedestrian simulation packages, Programming languages, and other software packages.



### Highlights

- Transportation modeler
- Traffic Analysis
- Intelligent Transportation Systems
- Geographic Information Systems
- Data Collection and Analysis
- Project Budget and Duration Estimation

### Education

- Ph.D. Civil Engineering (Transportation)  
Southern Methodist University 2009
- M.Sc. Civil Engineering (Transportation)  
Cairo University 2005
- B.Sc. Civil Engineering  
Cairo University 2000

Ph.D. Dissertation Title: "*An Equilibrium-Based Modeling Framework for Airlines Competition: Application to the U.S. Domestic Network*". Advisor: Khaled Abdelghany

M.Sc. Thesis Title "*Modeling and Valuation of Traffic Accidents on Rural Roads in Egypt*"  
Advisor: Khaled Abdelnaser

### Work Experience

#### Transport Modeler at CGCE 07/2017 – Current

I participated in consulting service for the following project:

- Calibrating and validating of **Bahrain** Activity-Based Strategic Transport Model.
- Management of heavy truck flow within Greater Cairo region, **Egypt**. The project includes assessing of several alternatives such as applying dynamic pricing for internal major roads, specifying truck lane, constructing logistic centers on radial roads targeting Cairo region considered as trip end points for heavy trucks.

#### Associate Professor at Cairo University 07/2017 – Current

I participated in consulting service for the following projects:

- Preparing the demand forecasting for a rail line extension in rural areas in **Egypt**. The study required designing a SP survey forms, conducting survey, calibrating mode choice Logit model and use of other mathematical techniques.

#### Assistant Professor at Cairo University 06/2013 – 07/2017

I participated in teaching a Transportation Engineering courses for under and post graduate students at Cairo University.

I participated in consulting service for the following projects:

- Preparing marking and signage typical models for the intersections on major roads in Cairo Governorate, **Egypt**.

- I participated in preparing the proposal for constructing the public transportation terminal for Upper Egypt regions in Cairo Governorate.
- I participated in preparing the proposal for improving the level of services for congested roundabouts and regions in Cairo Governorate, **Egypt**.
- I participated in preparing the proposal for constructing multi-story garage(s) in East Saqr Quresh Area, **Egypt**.
- I participated in preparing the proposal for the feasibility study of constructing a bridge above Dahshour rail level-crossing on Cairo-Fayoum Road, **Egypt**.
- I participated in preparation of AL Alameen City Masterplan study. The study includes but not limited to preparation of a public transport internal system and its connection with the regional public transport system, a Transport model for the entire city for private and public transport modes, **Egypt**.

### **Transport Modeler at Dar Al Handasah Consultants 06/2014 – 10/2017**

Participated in the preparation of transportation planning and traffic impact studies in coordination with other disciplines in different countries around the world, for the following projects:

- Prepared the demand estimation for Al Maktoum Airport Airside micro-simulation model in **Dubai, United Arab Emirates**.
- The Traffic Impact Study of the Kingdom City in **Jeddah, Kingdom of Saudia Arabia**. I participated in the preparation of Transport model for the entire Master Plan; in addition to assess the main Junctions proposing mitigation measures where needed. The city includes more than 12 Million square meters of Gross floor Area for different land use types. It also includes the proposed highest building in the world (i.e., the kingdom tower). The city is located on the north of Jeddah and suppose to generate around 140,000 trips per peak hour in both directions.
- The traffic study of Orbital road in **Qatar**. I participated in the microsimulation assessment of the whole corridor study area (the corridor is 42 km length) using PTV VISSIM microsimulation software.
- Different projects in **Dubai, United Arab Emirates**. These projects include either extending or planning Public Transport network to maximize its share and hence reducing the proposed private traffic. These tasks are included in the Traffic Impact Study for the developments listed below:
  - Ibn Battuta mall Extension.
  - Al Khail Avenue Mall.
  - Jabal Ali Residential complex (i.e., includes residential and commercial activities).
  - Warsan Village.
  - DICEC new Exhibition hall.
  - International City Phase III Impact Study (includes more than 30,000 inhabitants)
  - Dragon City Project.
  - Deira Island Mega project (generates more than 100,000 trips per peak hour per direction).
  - The previous project are being modeled using the Dubai Strategic Transport Model (DSTM) except the DICEC new exhibition hall. Noting that DSTM uses PTV Visum software.
- The traffic study of Fan Villages in **Qatar**. I participated in designing an internal public transport system, external bus system and a transport hub which includes a bus terminal, car parking, taxi drop offs, and a fan entrance security check system. In addition, the crowd management for critical egress and ingress, and emergency evacuation.

### **Transportation Engineer at Namaa Consultants 11/2013 – 6/2014**

I participated in the following activities:

- The evaluation of TOR for **Al-Madinah, Saudi Arabia** Transportation Master Plan.
- The preparing a proposal for inventorying and improve the critical locations in **Riyadh, Saudi Arabia**.

### **Visiting Assistant Professor at SMU 10/2011 – 05/2013**

I participated in Integrated Corridor Management, Stage III, System Design, Implementation and Deployment project by:

- Participated in the development of a real-time traffic network simulation model for traffic network state estimation and short-term prediction to support real-time traffic network management strategies in **Dallas, Texas, USA**.
- I participated in developing the Flight Scheduler System Design.

### **Assistant Professor at Cairo University 03/2010-09/2011**

I participated in teaching a Special Topics in Transportation Engineering course and supervised a group of students doing their graduation project.

### **Transportation Engineer at Dar Al Handasah Consultants 09/2010-09/2011**

Participated in the preparation of transportation planning and traffic impact studies in coordination with other disciplines, for the following projects:

- Ministry of Interior - Gate Buildings and Parking Structures, **United Arab Emirates**. Design, tender documents and supervision of construction for a new interrogation and interim detention facilities in addition to 4 new administrative gate buildings, and parking facilities for visitors and staff. All buildings are of 2 levels with a car-parking underneath each building. The project comprises state-of-the-art security measures and access control systems.
- Palm Hills Botanica Project, **Egypt**. Master plan, final design and tender documents for all road and infrastructure utility networks for a new residential development on the 1,700 ha site including traffic survey and studies.
- North Road Additional Works – Duhail and Simaisma Interchanges, Qatar. Perform the capacity analysis of the addition/upgraded road network elements in terms of LOS, weaving analysis and intersection analysis.
- Eko Atlantic City Infrastructure, **Nigeria** Master Plan and Detailed design for all infrastructure utilities related to a 1,000 ha development on a reclaimed site extended for 6.4 km along the shoreline of bar beach and average of 1.1 km into the Ocean. The scope of service covers the preparation of environmental planning guidelines, road design, public transport internal system, connection to Lagos public transport system and facilities, traffic control system and signage design, and all other infrastructure utilities and landscaping.
- Muscat, **Oman** Master Plan, Analysis of existing conditions using traffic survey data for roundabout junctions.

### **Post Doctor at SMU, United States 08/2009 – 02/2010.**

- Participated in Stage II of modeling the US 75 corridor in Dallas, Texas including the modeling and evaluation of a wide range of ITS strategies for Integrated Corridor Management applications.

### **Graduate Research Assistant at SMU, United States 09/2005 – 08/2009.**

- Participated in developing the software engine and the user interface for the traffic assignment simulation modeling platform (DIRECT).

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- Participated in developing a software application for determining dynamic pricing strategies of managed lanes. The application is currently used to derive pricing strategies for highway I-30 in the DFW region.
- Participated in survey design and data analysis for the use of Intelligent Transportation Systems at major US and Europe Airports.
- Participated in developing a traffic analysis tool for Texas Department of Transportation (TXDOT).

### Teaching Assistant at Cairo University, Egypt 10/2000 – 08/2005

- Teaches Transportation and Statistics courses
- Graduate Research Assistant at DRTPC (Development Research and Technological Planning Center) at Cairo University, Egypt 10/2000 – 08/2005.
- Participated in a project with the Ministry of Transportation for Safety of Public Transport Users on Highways in Egypt.
- Participated in the Study of Transportation Master Plan and Feasibility Study of Urban Transport Projects in Greater Cairo, Egypt.
- Participated in the Feasibility Study of the El Menya – El Wahat Highway Construction.

### Capabilities

- Solid background in transportation engineering with expertise in traffic network modeling and simulation, crowd dynamics and management, toll roads and managed lanes, and infrastructure planning and operations.
- Strong statistical and quantitative analysis skills, robust understanding of simulation modeling and excellent experience in optimization models and mathematical programs.
- Contributed to a large research project in the area of integrated corridor management that is funded by the USDOT
- Participated in the development of large-scale traffic network simulation platform for the US75 Corridor in Dallas, Texas.
- Contributed in large scale consulting projects in the area of transport planning.
- Registered Transport Modeler at RTA, Dubai.
- Software Skills:
  - Urban Transportation Simulation: VISUM, VISSIM, AIMSUN, DYNASMART-P, DIRECT
  - Traffic Analysis Software: Sidra, Synchro, HCS 2000
  - Pedestrian Simulation: Legion
  - Statistical Packages: Statistica, Biogeme
  - GIS software: ArcGIS
  - Programming Languages: Java and Object Oriented Design
  - Optimization Software: AMPL, CPLEX, CPLEX and Mosek/Java Interface
  - MS Office: Advanced Skills (Excel, Access, Power Point and Word)
  - Design Software: AutoCAD

### Awards

- 2008 Frederick R. Terman award for Outstanding Research Assistant in the Department of Environmental and Civil Engineering at Southern Methodist University

### Publications

- Hassan, A., and Abdelghany, K. (2017). Dynamic Origin-Destination Demand Estimation using Separable Programming Approach. *Advances in Transportation Studies*.

- Abdelghany, K., Hassan, A., Alnawaiseh, A., and Hashemi, H. (2015). Flow-Based and Density-Based Time-Dependent Demand Estimation for Congested Urban Transportation Networks. *Transportation Research Record: Journal of the Transportation Research Board*, 2498, 27-36.
- Alnawaiseh, A., Abdelghany, K., and Hassan, A. (2014). A Rollback Approach for Demand Consistency Checking of Real-Time Traffic Network State Estimation Models. *Transportation Research Record: Journal of the Transportation Research Board*, 2467, 30-39.
- Etemadnia, H., Abdelghany, K., and Hassan, A. (2014). A Network Partitioning Methodology for Distributed Traffic Management Applications. *Transportmetrica A: Transport Science*, Vol. 10 , Issue 6.
- Hassan, A., Abdelghany, K., and Semple, J. (2013). Dynamic Road Pricing for Revenue Maximization: Modeling Framework and Solution Methodology. *Transportation Research Record: Journal of the Transportation Research Board*, 2345, 100-108.
- Etemadnia, H., Hassan, A., Goetz, S., and Abdelghany, K. (2013). Wholesale Hub Location in Food Supply Chain Systems. *Transportation Research Record: Journal of the Transportation Research Board*, 2379, 80-89.
- Hashemi, H., Abdelghany, K., Hassan, A., and Lezar, M. (2013). Real-time traffic network state estimation and prediction with decision support capabilities: application to integrated corridor management. *Proceeding of Transportation Research Board*.
- Hassan, A., Abdelghany, K., and Abdelghany, A. (2010). Modeling Framework for Evaluating Airlines Schedule Sensitivity to Airports Congestion Pricing. *Transportation Research Record: Journal of the Transportation Research Board*, 2177, 33-40.
- Hassan, A., Abdelghany, K., and Abdelghany, A. (2009). Modeling Framework for Airlines Competition in the US Domestic Network. *Transportation Research Record: Journal of the Transportation Research Board*, 2106, 47-56.
- Saied, A., Hassan, A., and Abdelnasser, K. (2005). Valuation of Traffic Accidents on Rural Roads in Egypt. *Proceedings of the 13th International conference on Road Safety in Four Continents, Warsaw, Poland*.

### Workshops

- Traffic Safety Teaching workshops as part of TEMPUS traffic safety master program in:
  - Stockholm, Sweden, September 2014.
  - Napoli, Italy, May 2015.
- Attend a training workshop arranged by UITP about "A New Generation of Urban Bus System" in Brussels, Belgium 24-25 February, 2014.
- Attend a training program by Beit Al Karma about Business Development Manager: Solutions Through Relationship and Through-leadership (STRT) in Cairo, Egypt 29<sup>th</sup> October 2016 – 26<sup>th</sup> November 2016 (30 hours training program)

**Ahmed E. Hassan, Ph.D.**

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**Associate Professor**

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**Memberships**

- Egyptian Engineering Syndicate since 2000

**References**

Available upon request