

Hany Hassan, Ph.D.

(Nationality: Egyptian)

CURRENT POSITION

Assistant Professor of Transportation Engineering

October 2011 – Present

King Saud University

Riyadh, Saudi Arabia

Civil Engineering Department**Prince Mohamed Bin Naif for Traffic Safety Research****Mailing Address:** King Saud University, Civil Engineering Department, P.O. Box 800,
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PROFESSIONAL PROFILE

- Self-motivated and highly skilled researcher
- Worked on multiple research projects that addressed Intelligent Transportation Systems, drivers' behavior and traffic safety issues
- Experienced in teaching Transportation Engineering courses
- Accomplished extensive industry experience regarding the geometric design and the structural designs of Highway elements

EDUCATION

University of Central Florida

Orlando, FL

Doctor of Philosophy in Civil Engineering (Transportation)

August 2011

Dissertation: *Improving Traffic Safety and Driver Behavior in Reduced Visibility Conditions***Ain Shams University**

Cairo, Egypt

Master of Science in Civil Engineering (Transportation)

September 2005

Dissertation: *Environmentally Oriented Road Design***Ain Shams University**

Cairo, Egypt

Bachelor of Science in Civil Engineering (Grade: Distinction with honors)

June 2000

Graduation Rank: *No. 4 out of 225 students*Graduation Project: *Highway and Airport Engineering Project* (Grade: Distinction)**ACADEMIC HONORS AND AWARDS**

- Nominee, the Civil department level award for outstanding Ph.D. dissertation, Faculty of Engineering, University of Central Florida, USA, October 28, 2011
- Recipient, Kamal Marchi/Arab American Community Center Endowed Scholarship, Orlando, March 2011
- Recipient, the Intelligent Transportation Society of Florida scholarship (the Anne S. Brewer Scholarship), one of three recipients on the state level, December, 2009
- Recipient, the American society of Highway Engineers (ASHE) scholarship, April 2009

- Nominee, the college level award for outstanding M.Sc. dissertation, Faculty of Engineering, Ain Shams University, Cairo, Egypt, 2005

RESEARCH INTERESTS

Traffic safety analysis, modeling drivers' behavior, Intelligent Transportation Systems, traffic simulation, statistical and econometrics applications in Transportation Engineering, drivers' behavior and safety of young drivers

PROFESSIONAL MEMERSHIPS

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| (1) TRB Committee on User Information Systems, AND20 | Apr. 2011 – Apr. 2014 |
| (2) American Society of Highway Engineers (ASHE), vice president | Aug. 2008 – Aug. 2011 |
| (3) The Institute of Transportation Engineers (ITE), UCF | Aug. 2009 - Aug. 2011 |
| (4) Graduate Student Association (GSA), UCF | Aug. 2010 - Aug. 2011 |

ACADEMIC RESEARCH EXPERIENCE

King Saud University

Riyadh, Saudi Arabia

Assistant Professor of Transportation Engineering

Oct. 2011 – present

Currently, besides writing research proposals, I am working on several research projects that address traffic safety issues. These include:

- Evaluating the effectiveness of Speed limit enforcement in improving safety using cameras installed on Riyadh's roadways network.
- Investigating the factors affecting traffic safety in Saudi Arabia using crash reports, geometric, weather and traffic flow data in order to suggest countermeasures to improve traffic safety in Saudi Arabia.

University of Central Florida

Orlando, FL

Graduate Research Assistant

August 2008 – August 2011

- Work on multiple research projects that address ITS and traffic safety issues
- Worked on research related to developing a real-time weather warning system on Florida Highways
- Developed and tested the visibility warning system (with my colleagues) in June 2010
- Designed two surveys exploring drivers' decisions under reduced visibility and young drivers' safety considerations
- Examined visibility related crashes on freeways and expressways based on real-time traffic flow data
- Investigated the effect of Changeable Message Signs and Variable Speed Limit Signs on drivers' behavior and preferences under reduced visibility conditions
- Examined the attitudes, perceptions and behaviors of young drivers to design appropriate treatments to enhance the safety of this group of the population

Ain Shams University

Cairo, Egypt

Graduate Research Assistant of Highway & Airport Engineering

Mar. 2002 – July 2008

- Designed and conducted a survey-based study that addressed drivers' satisfaction and response to vehicular noise and emissions in urban areas
- Designed and conducted a field experiment that examined environmental impact (such as: vehicle's emissions, air pollution, noise, etc.) on road cross-section elements in some selected urban roads in greater Cairo as a representative example of heavily urbanized regions

- Proposed environmentally-oriented design criteria of road elements to ensure better quality of life based on the field measurements and the questionnaire results

FUNDED RESEARCH PROJECTS:

1- "Young Drivers Safety Study" (main researcher). Funded by Florida Department of Transportation, District 5, 2010-2011.

Task included:

- Preparation of detailed work plan and project schedule.
- Designing of a questionnaire survey for young drivers in Central Florida.
- Survey administration, data preparation and analysis.
- Developing several multivariate models to examine young drivers' behavior and factors associated with their safety.
- Documentation and Preparation of progress reports and technical papers.

2- "Developing an Early Detection System for Reduced Visibility from Fog/Smoke and Means to Effectively and Timely Warn Drivers" (main researcher). Funded by Florida Department of Transportation, match from CATSS, 2008-2010.

Task included:

- Preparation of detailed work plan and project schedule.
- Development of state of the art system that involves visibility sensors, wireless communications, GPS, Mini Computers, Controllers, solar power, Dynamic Message Signs, Variable Speed Limits, etc.
- Software design and development of real-time operating algorithm.
- Testing and calibrating the system in the field.
- Demonstrated and delivered the system to Florida Department of Transportation.
- Documentation and Preparation of progress reports and technical papers.

SUBMITTED RESEARCH PROPOSALS:

- 1- **Developing a Dynamic Traffic-Crash Prediction System for the Saudi Arabian Highway Network using Advanced Information Technology** (under review), submitted in March 2012, funded by King Abdulaziz City for Science and Technology (KACST) in Riyadh, my role: CO-PI.
- 2- **Developing an artificial immune system to control roadway traffic signals and regulate traffic flow in case of emergencies** (under review), submitted in September 2012, funded by King Abdulaziz City for Science and Technology (KACST) in Riyadh, my role: PI.
- 3- **Dynamic Allocation Mechanism of Traffic Safety Units in Urban Road Networks. Application to the Riyadh Region** (under review), submitted in September 2012, funded by King Abdulaziz City for Science and Technology (KACST) in Riyadh, my role: CO-PI.

TEACHING EXPERIENCE

King Saud University, Faculty of Engineering

Riyadh, Saudi Arabia

Assistant Professor of Transportation Engineering

Oct. 2011 – present

Beside my current research tasks in the field of traffic safety, currently, I am the instructor of the following undergraduate course.

CE 436: Transportation Engineering

This course covers the introduction to fundamentals of traffic engineering, including data collection, analysis, and design. Traffic engineering studies, traffic control devices, capacity and level of service analysis of freeways and urban streets. Design of isolated intersection and coordinated traffic signal control systems.

Ain Shams University, Faculty of Engineering

Cairo, Egypt

Graduate Teaching Assistant of Highway & Airport Engineering

Mar. 2002 – July 2008

Participated in teaching three undergraduate courses at the Faculty of Engineering, Ain Shams University

(1) Geometric Design of Highways and Airports:

This course covers all aspects of the Highway and Airport design. Topics covered include the design elements (horizontal and vertical alignment), design controls and criteria, functional classification of highways, the relation between highway capacity and geometric design, grade separations and interchanges, and intersections. In addition, it covers the geometric design of Airports' elements.

(2) Structural Design of Highway Pavement

This course covers all aspects of the structural design of Highway pavement. Topics covered include various types of pavement, different methods for designing flexible and rigid pavements.

(3) Surveying

This course covers introduction to Surveying Engineering, measurements and errors, distance measurements, leveling, angles, bearings, azimuths and traversing.

REFEREED JOURNAL PUBLICATIONS

1. **Hassan H.**, Abdel-Aty M. (2012). Exploring the Safety Implications of Young Drivers' Behavior, Attitudes and Perceptions. *Accident Analysis & Prevention*, 50, pp. 361– 370.
2. Abdel-Aty M., **Hassan H.**, Ahmed, M. Al-Ghamdi, A.S. (2012). Real-time prediction of visibility related crashes. *Transportation Research Part C*, 24, pp. 288–298.
3. **Hassan H.**, Abdel-Aty M., Choi, K, AlGadhi, S. (2012). Driver Behavior and Preferences for Changeable Message Signs and Variable Speed Limits in Reduced Visibility Conditions. *Journal of Intelligent Transportation Systems*, 16(3), pp. 1–15.
4. **Hassan H.** and Abdel-Aty M. (2011). Analysis of drivers' behavior under reduced visibility conditions using a structural equation modeling approach. *Journal of Transportation Research Part F*, 14(6), pp. 614–625.
5. Pande A., Das A., Abdel-Aty M. and **Hassan H.** (2011). Real-time crash risk estimation: are all Freeways created equal? *Journal of the Transportation Research Board*, 2237 (2), pp. 60–66.

6. Okail O., Mohamed S., Mahdy H. and **Hassan H.** (2007). Environmentally accepted Sidewalk Widths in Urban Areas, *The scientific bulletin of the Faculty of Engineering, AL AZHAR University*, Cairo, Egypt.

REFEREED CONFERENCE PUBLICATIONS

1. **Hassan H.**, Dimitriou, L., Abdel-Aty M. and Al-Ghamdi, A. (2013). Analysis of Risk Factors Affecting the Size and Severity of Traffic Crashes in Riyadh, *Transportation Research Board*, 92th Annual Meeting Compendium of Papers, paper no.13-2333 (accepted October 2012)
2. Dimitriou, L. and **Hassan H.** (2013). Dynamic Autoregressive Neural Networks for Spatially Distributed Time Series Prediction of Car Crashes in Urban Networks, *Transportation Research Board*, 92th Annual Meeting Compendium of Papers, paper no.13-4272 (accepted October 2012)
3. Abdel-Aty M. **Hassan H.** and Ahmed M. (2012). Real-time analysis of visibility related crashes: can loop detector and AVI data predict them equally? *Transportation Research Board*, 91th Annual Meeting Compendium of Papers, paper no.12-0113
4. **Hassan H.**, Abdel-Aty M. and Oloufa, A. (2011). The effect of warning messages and variable speeds in different visibility conditions. *Transportation Research Board*, 90th Annual Meeting Compendium of Papers, paper no. 11-0354
5. **Hassan H.** and Abdel-Aty M. (2011). Exploring visibility related crashes on freeways based on real-time traffic flow data. *Transportation Research Board*, 90th Annual Meeting Compendium of Papers, paper no. 11-0920
6. **Hassan H.** and Abdel-Aty M. (2011). How CMS and VSL affect Drivers' Speeds under Low Visibility Conditions? *The Australasian College of Road Safety National Conference*, Melbourne
7. **Hassan H.** and Abdel-Aty M. (2011). Design and Administration of a survey to Investigate Drivers' responses to Reduced Visibility Conditions, 9th *International Conference on Transport Survey Methods*, Chile
8. **Hassan H.**, Abdel-Aty M. and Oloufa, A. (2011). Use and content of CMS and VSL under low visibility conditions, 18th *ITS world congress*, Orlando, USA
9. Abdel-Aty M., Oloufa A., **Hassan H.**, Ahmed M. and Siddiqui M. (2010). Portable Visibility Warning System for the Safety of Highways, 17th *ITS world congress*, Busan, Korea

PRESENTATIONS

1. Examining Severe traffic crashes in Riyadh using different data mining techniques, World Conference on Transport Research (WCTR), Rio de Janeiro, Brazil, May 2013 (accepted August 2012)
2. Real-time analysis of visibility related crashes: can loop detector and AVI data predict them equally? 91th Annual Meeting of the *Transportation Research Board*, Washington DC, January 2012
3. Improving traffic safety system of school transportation of Saudi Arabia, 1st international conference of school transportation, Riyadh, October 2012

4. Developing Saudi Highway safety manual, traffic safety workshop, King Saud University, Saudi Arabia, May 2012.
5. The Effect of Warning Messages And Variable Speeds In Different Visibility Conditions, 90th Annual Meeting of the *Transportation Research Board*, Washington DC, January 2011.
6. Exploring Visibility Related Crashes on Freeways based On Real-time Traffic Flow Data, 90th Annual Meeting of the *Transportation Research Board*, Washington DC, January 2011.
7. How CMS and VSL affect Drivers' Speeds under Low Visibility Conditions? *The Australasian College of Road Safety National Conference*, Melbourne, September 2011.
8. Design and Administration of a survey to Investigate Drivers' responses to Reduced Visibility Conditions, 9th *International Conference on Transport Survey Methods*, November 2011.
9. Portable Visibility Warning System for the Safety of Highways, 17th *ITS world congress*, Busan, Korea, October, 2010.
10. Portable Visibility Warning System for the Safety and Efficiency of Highways, 18th *International Conference on Management of Technology*, Orlando, April 2009.

COURSES STUDIED AFTER OBTAINING PhD

1. The use of modern technology in teaching.
2. Modern trends in teaching.
3. International Publication.
4. Methods of scientific research
5. Competitive research projects
6. Effective Presentation Skills

INDUSTRY EXPERIENCE

The International Consulting Engineering (I.C.E) firm

Cairo, Egypt

Part-time Highway Design Engineer

July 2000 - Sep. 2006

My duties included creating plans, profiles, cross sections, bill of quantities, shop drawings and designing of intersections and interchanges of the following projects in Egypt:

- West Aswan Road from Aswan Storage Tank to Kobanya Village
- El Mansora – Gamasa Road from St. 26+000 to St. 46+000
- Sewa El Wahat Road from St. 0+000 to St. 150+000
- El Katamia – El Ain El Sokhna Road from St. 0+000 to St. 14+500
- Intersection of Safaga Bridge with Kena Road
- Intersections of Belbase City
- Intersections of Giza Governorate
- Sohag networks
- Dream land (west golf community)
- El mokatm road
- El Kosair ring Road
- International Cairo airport (runway 3)

Highway Engineering Consultancy Unit (HECU), Ain Shams University Cairo, Egypt
Part-time Highway Design Engineer July 2002 - May 2008

My duties included creating plans, profiles, cross sections, bill of quantities, shop drawings, traffic study and designing of intersections and interchanges of the following projects in Egypt:

- New Menia Ring Road
- Hammam Link from Wadi Al Natroon to Alex. Matrooh International Coastal Road
- Sphinx Square
- Kafr El Shekh – Damanhour Highway
- Souhag Governorate Road Network
- Protection of Abeedos Monumental Area by Switching Aswan/Asiut Highway
- Egypt – Sudan Freeway (Abu Sombol – Arkeen Donkola)
- Abu-Rudies Airport
- Black Spots National Study
- New Cairo Networks
- Upgrading of Cairo-Alex-Matrouh Road to be a Freeway

Dar Al-Handasah (shair and partners) Company Cairo, Egypt
Highway Design Engineer December 2006 - July 2008

My duties included creating plans, profiles, cross sections, bill of quantities, signs, marking, and designing intersections and interchanges of the following projects in Africa and Middle East:

- Freeway in Algeria
- Jeddah Ring Road in Saudi Arabia
- Viane Expressway, Luanda, Angola
- Madenety Road Networks, New Cairo, Egypt