

Curriculum Vitae

Essam Dabbour, B.Sc., M.A.Sc., Ph.D., P.Eng.

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PRACTICE AREAS

Road Design & Traffic Safety

- Road Design Factors:
 - Intersection Design
 - Sight Line Visibility
 - Curve & Crest Design
 - Road Signage
 - Pavement Markings
 - Passing Lane Design
 - Barrier Design
 - Shoulder Design & Right-of-Way Design
 - Sidewalk Design & Drainage
 - Nighttime Road Illumination
 - Rail Crossings
 - Road Construction
- Traffic Safety Factors:
 - Pedestrian Facilities
 - Bicycle Facilities
 - Roadside safety
 - Traffic Signal Timing
 - Transit Design
 - Traffic Capacity
 - Speed Studies
 - Collision Reduction Factors
 - Road Safety Audits & Reviews
 - Winter Maintenance Assessment
 - Safety in work zones
 - Video analysis of traffic collisions

ACADEMIC BACKGROUND

Doctorate Degree in Civil Engineering, Ryerson University, 2009

- Graduate courses in Traffic Safety, Transit Planning & Design, Pavement Design

Masters Degree in Civil Engineering, Ryerson University, 2003

- Masters courses in Highway Design, Traffic Operations

Bachelors Degree in Civil Engineering, Alexandria University, Egypt, 1988

- Undergraduate courses in Road Surveying, Road Design, Concrete Design, Structural Analysis, Physics, Railway Design



EMPLOYMENT HISTORY

Advantage Forensics Inc., Toronto

Vice President, February 2021 to present / Senior Engineer, July 2019 to January 2021
Lead investigator on road design & traffic safety cases

Ryerson University, Dept. of Civil Engineering, Toronto

Adjunct Professor, Sept. 2014 to present
Instructor of highway road design course
Supervise graduate research in road design & traffic safety

Abu Dhabi University, Dept. of Civil Engineering, Abu Dhabi, UAE

Associate Professor, Aug. 2009 to 2019
Instructor of road design, traffic engineering, transportation engineering, surveying & engineering ethics courses
Supervise graduate & undergraduate research in road design & traffic safety

Ryerson University, Dept. of Civil Engineering, Toronto

Ph.D. Candidate Researcher, June 2006 to June 2009
Conduct research in road design & traffic safety
Part-time course instructor for highway design course
Tutorial assistant for courses in road design, pavement design, transportation engineering & traffic safety

Giffels Associates (now IBI Group), Toronto

Transportation Engineer, 2003 to 2008
Consultant on road design, transportation & traffic safety projects, including 400-series freeways & OPG

ARCON Construction, Alexandria, Egypt

Project Manager, 1996 to 2000
Consultant on design & analysis of road design, transportation & traffic safety projects

Modern Contracting Co., Alexandria, Egypt

Project Engineer, 1988 to 1996
Designed road infrastructure, transportation & traffic safety projects



PROFESSIONAL SOCIETIES & APPOINTMENTS

- Professional Engineers Ontario, P.Eng. since 2002
- Member, Canadian Society for Civil Engineering (CSCE)
- Member, Institute of Transportation Engineers (ITE)
- Member, American Society of Civil Engineers (ASCE)
- ABET/ASCE Program Evaluator for accreditation of Civil Engineering university programs
- Chairman, Middle East Traffic Infrastructure Summit International Conference, Dubai, Nov. 2016
- Scientific technical paper reviewer for the following Journals:
 - Accident Analysis & Prevention
 - Traffic Injury Prevention
 - Journal of Transportation Engineering
 - Journal of Traffic and Transportation Engineering
 - Journal of Surveying Engineering
 - Canadian Journal of Civil Engineering
 - IET Intelligent Transportation Systems
- Scientific Committee, AIIT International Congress on Transport Infrastructure & Systems, Rome, 2019
- Scientific Committee, AIIT International Conference on Transport Infrastructure & Systems, Rome, 2017
- Scientific Committee, AIIT International Conference on Traffic & Transport Engineering, Belgrade, 2016
- Judging Committee, Think Science National Competition, UAE, 2018
- Award Jury Committee, Dubai Award for Sustainable Transport, Dubai, 2016 & 2017

PROFESSIONAL AWARDS

- Outstanding Reviewer Award, American Society of Civil Engineers, 2017
- Research Fellow Award, Abu Dhabi University, 2017
- Outstanding Teaching Award, Abu Dhabi University, 2015
- Outstanding Research Award, Abu Dhabi University, 2014
- Certificate of Appreciation, Roads & Transport Authority, Dubai, UAE, 2013
- Certificate of Excellence, Abu Dhabi University, 2012
- Outstanding Research Award, Abu Dhabi University, 2010
- Innovation Challenge Award, Ryerson University, 2009
- Arthur M. Wellington Prize, American Society of Civil Engineers, 2005

MEDIA APPEARANCES

- “On the straight and narrow: Road layout changes suggested for safer driving in UAE”, The National newspaper, UAE, March 2015
- “Road map to eliminate road horror”, Al Watan newspaper, UAE, Mar. 2013

RECENT PROFESSIONAL DEVELOPMENT ACTIVITIES

- October 2021:
 - Completed the “Handling Cross-Examination Under Pressure” workshop provided by Experteye Consulting.
- June 2021:
 - Completed the “Forensic Video Analysis: Video Literacy” Course provided by INPUT ACE.
- May 2021:
 - Attended the Annual Conference of the Canadian Society for Civil Engineering (CSCE).
- April 2021:
 - Attended the " How to conduct site visits? - Road Safety during site visits " webinar provided by CIHT Qatar Group.
- January 2021:
 - Attended the 100th Annual Meeting of the Transportation Research Board (TRB).
- December 2020:
 - Attended the "Understanding the Upcoming CMF Rating Transition and Exploring Real-World Applications of CMFs" webinar provided by the University of North Carolina Highway Safety Research Center.
- October 2020:
 - Invited speaker for the “Experts Insights” online panel discussion titled “The importance & relevance of engineering knowledge in major forensic investigations” organized by the Dubai Police Scientists Council.
 - Attended the “IHSDM 2020 - New Enhancements Support Data-Driven Safety Analysis (DDSA)” webinar provided by the Federal Highway Administration (FHWA).
 - Attended the “Research and Innovation on Pedestrian Hybrid Beacon Operations and Safety in Arizona” webinar provided by the Institute of Transportation Engineers (ITE).
- September 2020:
 - Completed the “Snow School” course provided by the Ontario Good Roads Association (OGRA).
 - Completed the “Youth and Road Safety” course provided by the United Nations Institute for Training and Research (UNITAR).
- August 2020:
 - Attended the “Subsurface utilities and right-of-way” webinar provided by American Society of Civil Engineers and the Surveying Institute.
- July 2020:
 - Provided an in-house webinar with the title “Acceleration rates for vehicles starting from a stop position”.
 - Attended the “Detailed vehicle profile crush measurement” webinar provided by Laser Tech.
 - Attended the “Collision reconstructionist’s guide to motorcycle collision analysis” webinar provided by Advantage Forensics.
 - Attended the “Calculating vehicle impact speed in multiple pedestrian collisions” webinar provided by Advantage Forensics.
 - Attended the “Probability of frontal airbag deployment in bumper-bumper and underride collisions” webinar provided by Advantage Forensics.
- June 2020:
 - Provided an in-house webinar with the title “Identifying road design issues related to traffic accidents”.



- Attended the “Innovative approach to assessing the relative risk at rural curved-tangential intersections” webinar provided by the Canadian Association of Road Safety Professionals (CARSP).
- Attended the “Measuring road safety improvements using video-based conflict analysis in Prince George, BC” webinar provided by the Canadian Association of Road Safety Professionals (CARSP).
- Attended the “Applying human factors principles to rural intersection safety” webinar provided by the Canadian Association of Road Safety Professionals (CARSP).
- Attended the “Driver checking failures towards pedestrians and cyclists: an on-road study” webinar provided by the Canadian Association of Road Safety Professionals (CARSP).
- Attended the “Traffic trends and safety in a COVID-19 world” webinar provided by the Transportation Research Board (TRB).
- Attended the “Forensic engineering outlook of failure analysis in product and mechanical systems” webinar provided by Advantage Forensics.
- Attended the “Looming thresholds in analyzing traffic accidents” webinar provided by Advantage Forensics.
- Attended the “Automated vehicle data forensics” webinar provided by Advantage Forensics.
- Attended the “Performance of autonomous emergency braking” webinar provided by Advantage Forensics.
- April 2020:
 - Attended the “Understanding forensic human factors through case study analysis” webinar provided by Advantage Forensics.
- March 2020:
 - Attended the “Lesson’s learned from using driving simulators to improve driver behavior: what’s next?” webinar provided by the Transportation Association of Canada (TAC).

PUBLICATIONS

- Dabbour, E., and Singh, H. (2021). “Your decision to invest in a modern vehicle may save your life”. *WP Magazine*, Ontario, Canada, May 2021.
- Dabbour, E. and Easa, S. (2021). “Revised method for calculating departure sight distance at Two-Way Stop-Controlled (TWSC) intersections”. *Transportation Research Record: Journal of the Transportation Research Board*, DOI: <https://doi.org/10.1177/03611981211031544>.
- Dabbour, E. and Dabbour, O. (2021). “Establishing acceleration profiles of light-duty vehicles departing in a straight path from two-way stop-controlled intersections”. Proceedings of the *annual conference of the Canadian Society for Civil Engineering (CSCE)*, May 2021.
- Staveren, H. and Dabbour, E. (2021). “Evaluating the effectiveness of lowering speed limits on urban roads with and without implementing traffic calming devices”. Proceedings of the *annual conference of the Canadian Society for Civil Engineering (CSCE)*, May 2021.
- Gobin, N., Ngyuen, M., Puthoor, J., Tariq, R., Yip, M., Alkarawi, S., Rataul, M., Easa, S., and Dabbour, E. (2021). “Improving selected intersections across Niagara region for Miovision’s smart city program”. Proceedings of the *annual conference of the Canadian Society for Civil Engineering (CSCE)*, May 2021.
- Dabbour, E. and Dabbour, O. (2021). “Understanding how drivers accelerate on interchange acceleration lanes”. Proceedings of the *100th Annual Meeting of the Transportation Research Board*, Jan. 2021.
- Dabbour, E., Easa, S., and Dabbour, O. (2020). “Minimum lengths of acceleration lanes based on actual driver behavior and vehicle capabilities”. *Journal of Transportation Engineering*, 147(3).
- Dabbour, E., Dabbour, O., and Martinez, A. A. (2020). “Temporal stability of the factors related to the severity of drivers’ injuries in rear-end collisions”. *Accident Analysis & Prevention*, 142: 105562.
- Dabbour, E. (2020). “Motivating engineering students by providing two mid-term exams and dropping the lower mark”. *Journal of Civil Engineering Education*, 147(1).
- Dabbour, E. and Badran, A. (2020). “Understanding how drivers are injured in rear-end collisions”. *European Transport*, 77(1): 1 – 10.
- Dabbour, E., and Martinez, A. (2020). “The science and fiction of autonomous vehicles”. *WP Magazine*, Ontario, Canada, June 2020
- Dabbour, E., Haider, M., Easa, S., and Philip, T. (2019). “Investigating temporal stability of risk externalities in traffic collisions”. *Journal of Transportation Safety & Security*.
- Dabbour, E., Haider, M., and Diaa, E. (2019). “Using random- parameter and fixed-parameter ordered models to explore temporal stability in factors affecting drivers’ injury severity in single vehicle collisions”. *Journal of Traffic & Transportation Engineering*, 6(2): 132 – 146.
- Dabbour, E., Awadhi, M.A., Aljarah, M., Mansoura, M., and Haider, M. (2018). “Evaluating Safety Effectiveness of Roundabouts in Abu Dhabi”. *International Association of Traffic and Safety Sciences Research*.
- Almoarawi, M. and Dabbour, E. (2018). “Predicting operating speeds at urban multi-lane roundabouts in Abu Dhabi, United Arab Emirates”. *Journal of Advanced Transportation*, Vol. 2018.
- Dabbour, E., Easa, S. and Haider, M. (2017). “Using fixed-parameter and random-parameter ordered regression models to identify significant factors that affect the severity of drivers’ injuries in vehicle-train collisions”. *Accident Analysis & Prevention*, 107: 20 – 30.

- Dabbour, E. (2017). “Analyzing temporal trends of the factors that increase the risk of rollover in single-vehicle collisions”. *Journal of Transportation Safety & Security*.
- Dabbour, E. (2017). “Investigating temporal trends in the explanatory variables related to the severity of drivers’ injuries in single vehicle collisions”. *Journal of Traffic & Transportation Engineering*, 4(1): 71 – 79.
- Dabbour, E. (2017). “Risk factors that increased accident severity at US railroad crossings from 2005 to 2015”. In *Transportation Infrastructure & Systems: Proceedings of the AIIT International Congress on Transport Infrastructure & Systems (Rome, Italy, 10-12 April 2017)*. ISBN 978-1-1380-3009-1. CRC Press, Taylor & Francis Group, USA.
- Dabbour, E. and Easa, S. (2016). “Sight-distance requirements for left-turning vehicles at two-way stop-controlled intersections”. *Journal of Transportation Engineering*.
- Dabbour, E. (2016). “Assessing the effects of implementing an online student response system in a transportation engineering course”. *Journal of Professional Issues in Engineering Education and Practice*.
- Easa, S., Qu, X., and Dabbour, E. (2016). “Improved Pedestrian Sight Distance Needs at Railroad-Highway Grade Crossings”. *Journal of Transportation Engineering*.
- Dabbour, E. (2015). “Quantifying the effects of using online student response system in an engineering ethics course”. *Journal of Professional Issues in Engineering Education and Practice*, 142(2).
- Dabbour, E. (2015). “Design gap acceptance for right-turning vehicles based on vehicle acceleration capabilities”. *Transportation Research Record: Journal of the Transportation Research Board*, 2521: 12–20.
- Dabbour, E. and Easa, S. (2014). “Proposed Collision Warning System for Right-Turning Vehicles at Two-way Stop-controlled Rural Intersections”. *Transportation Research Part C: Emerging Technologies*, 42: 121 – 131.
- Dabbour, E. (2013). “Optimizing highway profiles for individual cost items”. *International Journal for Traffic and Transport Engineering*, 3(4): 440 – 447.
- Dabbour, E. (2012). “Using Logistic Regression to Identify Risk Factors Causing Rollover Collisions”. *International Journal for Traffic and Transport Engineering*, 2(4): 372 – 379.
- Dabbour, E., Easa, S., and Hossain, A. (2012). “Statistical models to measure driver behaviour in response to an intersection collision warning system”. In *Driver Behaviour and Training: Volume V*. ISBN 978-1-4094-4304-9. Ashgate Publishing Ltd, England.
- Dabbour, E. and Easa, S. (2010). “Technology-Independent Algorithm for Collision Warning System at Semi-Controlled Intersections”. *Canadian Journal of Transportation*, Vol. 3(1), 2010, 45-68.
- Easa, S., Reed, M., Russo, F., Dabbour, E., Mehmood, E., and Curtis, K. (2010). “Effect of increasing road light luminance on night driving performance of older adults”. *International Journal of Applied Science, Engineering and Technology*. Vol. 6(1), 2010, 41-48.
- Dabbour, E. and Easa, S. (2009). “Perceptual Framework for a Modern Left-Turn Collision Warning System”. *International Journal of Applied Science, Engineering and Technology*. Vol. 5:1, 8 – 14.
- Dabbour, E. and Easa, S. (2008). “Evaluation of safety and operational impacts of bicycle bypass lanes at modern roundabouts”. *Canadian Journal of Civil Engineering*. Vol. 35:10, 1025 – 1032.
- Easa, S. and Dabbour, E. (2005). “Establishing Design Guidelines for Compound Horizontal Curves on Three-Dimensional Alignments”, *Canadian Journal of Civil Engineering*. Vol. 32:4, 615 – 626.
- Easa, S., Ali, M., and Dabbour E. (2005). “Design Aids for Offsetting Opposing Left-Turn Lanes for Intersections on Horizontal Curves”. *ASCE Journal of Transportation Engineering*. Vol. 131, 835-842.

- Dabbour, E. and Easa, S. (2004). "Radius Requirements for Reverse Horizontal Curves on 3D Alignments". *ASCE Journal of Transportation Engineering*. Vol. 130, 610-620.
- Easa, S., Dabbour, E., and Ali, M. (2004). "Three-Dimensional Model for Stop-Control Intersection Sight Distance". *ASCE Journal of Transportation Engineering*, Vol. 130, 261-270.
- Easa, S. and Dabbour, E. (2003). "Need for Revising Minimum Radius Requirements On Three-Dimensional Highway Alignments", *Canadian Journal of Civil Engineering*, Vol. 30:6, 1022 – 1033.
- Khan, N. and Dabbour, E. (2018). "Proposed pavement markings to reduce right-turning vehicular crashes". *Proceedings of Road Safety on Five Continents Conference*, South Korea, May 2018.
- Easa, S., Dabbour, E., Gruchalla-Wesierski, A., and Qu, X. (2018). "Pedestrian Sight Distance Needs at Railroad Crossings: Integrating Train Stopping Requirements". *Proceedings of the 4th International Conference on Railway Technology*, Barcelona, Sept. 2018.
- Aly, A. and Dabbour, E. (2018). "Using Ordered Modeling to Identify the Most Significant Factors That Increase the Severity of Single Vehicle Collisions". *Proceedings of the Canadian Association of Road Safety Professionals Annual Conference*, Victoria, June 2018.
- Philip, T., Dabbour, E., and Easa, S. (2018). "Investigating the risks imposed by different driver groups on other road users". *Proceedings of the Canadian Society for Civil Engineering Annual Conference*, Fredericton, June 2018.
- Almoarawi, M. and Dabbour, E. (2018). "Developing and validating regression models to predict operating speeds for roundabouts in Abu Dhabi". *Proceedings of the Canadian Society for Civil Engineering Annual Conference*, Fredericton, June 2018.
- Bridgwater, S., Dabbour, E., and Haider, M. (2018). "Identifying the factors that increase the severity of pedestrians' injuries when struck by vehicles". *Proceedings of the Canadian Society for Civil Engineering Annual Conference*, Fredericton, June 2018.
- Dabbour, E., Hossam, E., Ally, N., Elshennawy, A., and Falaknaz, H. (2018). "Enhanced model for calculating the required lengths of acceleration lanes at freeway interchanges". *Proceedings of the Canadian Society for Civil Engineering Annual Conference*, Fredericton, June 2018.
- Tabaza, H., Dabbour, E., and Ghazal, M. (2017). "NFC-based mobile-guided parking system in indoor environments". *Proceedings of the 5th International Road Federation Middle East Regional Congress & Exhibition*, Dubai, Oct. 2017.
- Kunnah, H., and Dabbour, E., (2017). "An Optimization Model for Minimizing the Cost of Constructing Highway Vertical Alignments". *Proceedings of the 5th International Road Federation Middle East Regional Congress & Exhibition*, Dubai, Oct. 2017.
- Dabbour, E. (2015). "Design gap acceptance for right-turning vehicles based on vehicle acceleration capabilities". *94th Annual Meeting of the Transportation Research Board*, Washington D.C., Jan. 2015.
- Dabbour, E. (2012). "Identifying Risk Factors Leading to Single-vehicle Rollover Collisions". *International Conference on Civil Engineering Research*, Surabaya, Indonesia, Oct. 2012.
- Dabbour, E., Easa, S., and Hossain, A. (2011). "Statistical models to measure drivers' perception-reaction times and acceleration rates when responding to collision warning systems". *International Conference on Driver Behaviour and Training*, Paris, Nov. 2011.
- Dabbour, E. (2010). "Simulating an Intersection Collision Warning System Using Matlab". *Proceedings of the 7th International Conference on Engineering Computational Technology*, Valencia, Sept. 2010.



- Dabbour, E., Easa, S., and Hossain, K. (2010). "Implementing Human Factors into Intersection Collision Warning Systems". *Proceedings of the 8th International Transportation Specialty Conference*, Winnipeg, June 2010.
- Dabbour, E. and Easa, S. (2008). "Proposed Collision Warning System for Left-Turning Vehicles at Intersections". *Proceedings of the 36th annual conference, Canadian Society for Civil Engineering*, Quebec City, June 2008.
- Dabbour, E. and Easa, S. (2008). "New Collision Warning System for Turning Vehicles at TWSC Intersections". *Proceedings of the 10th International Conference on Application of Advanced Technologies in Transportation*. Athens, May 2008.
- Dabbour, E. and Easa, S. (2006). "Proposed Geometric Features to Improve Safety of Modern Roundabouts". *Proceedings of the Transportation Research Board 85th Annual Meeting*, Washington, D.C., Jan. 2006.
- Dabbour, E., Easa, S., and Abd-El-Halim, A.O. (2003). "Design Guidelines For Horizontal Reverse Curves Combined With Vertical Alignments". *Proceedings of the 31st Annual Conference, Canadian Society for Civil Engineering*, Moncton, June 2003.
- Dabbour, E., Easa, S., and Raahemifar, K. (2002). "Optimum Vertical Curves for Highway Profiles Using Nonlinear Optimization". *Proceedings of the 4th Annual Transportation Conference, Canadian Society for Civil Engineering*, Montreal, June 2002.
- Dabbour, E., Easa, S., Hassan, Y., and Halim, A.O. (2002). "Analytical Model for 3-D Intersection Sight Distance". *Proceedings of the 4th Annual Transportation Conference, Canadian Society for Civil Engineering*, Montreal, June 2002.