



## PERSONAL INFORMATION

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## EDUCATIONAL BACKGROUND

**Ph.D (Engineering Science)** The University of Mississippi, Oxford, MS, USA (2019)  
Title: Condition Deterioration Modeling and Computational Simulations to Enhance Asphalt Highway Pavement Design and Asset Management

**MSc (Asphalt Technology)** Universiti Sains Malaysia, Pulau Pinang, Malaysia (2012)  
Title: Porous Parking Materials and Design for Storm Water Management

**BSc (Civil Engineering)** Universiti Sains Malaysia, Pulau Pinang, Malaysia (2008)

## RESEARCH INTERESTS

Asphalt; Pavement; Transportation; Performance Modeling; 3D-Finite Element Simulation; Pavement Design; Asset Management

## PROFESSIONAL MEMBERSHIP

1. Board of Engineer Malaysia (BEM)-Graduate Engineer
2. Institution of Engineers Malaysia (IEM)- Grad I.E.M.
3. International Association of Innovation Professionals (IAOIP)

## HONORS/AWARDS

USM (2019-Now)

1. Best Paper Award and Best Presenter Awards - Mohamed Jaafar, Z. F., W. Uddin. and Y. Najjar. "Pavement Roughness Modeling using Regression and ANN Methods for LTPP Western Region." Paper presented at the 4th International Conference on Rebuilding Place, Georgetown, Penang, Malaysia, 6-7 November 2019 (Presenter).

Ph.D (2013-2019)

1. Scholarship and Outstanding Student Merit Awards, Universiti Sains Malaysia, Pulau Pinang, Malaysia and Ministry of Education (MOE) Malaysia (January 16, 2013-January 15, 2017).
2. Outstanding Ph.D Candidate 2016, Civil Engineering Department, The University of Mississippi.

MSc (2009-2012)

1. Scholarship and Outstanding Student Merit Awards, Universiti Sains Malaysia, Pulau Pinang, Malaysia and Ministry of Education (MOE) Malaysia (2009-2011).
2. Runner Up Award for National Road Safety Essay Competition supported by Ministry of Higher Education, Malaysia.

BSc (2004-2008)

1. Certificate of Excellent Sport Management by Universiti Sains Malaysia (2007/2008)
2. Most Outstanding 4<sup>th</sup> Year Undergraduate in Civil Engineering (2007)
3. Recipient of POSCO ASIA Fellowship by POSCO TJ Park Foundation (20<sup>th</sup> July 2007)
4. Most Outstanding 4<sup>th</sup> Year Undergraduate in Civil Engineering (2006)
5. Recipient of Dean List Award Semester 1 2005/2006

## WORK EXPERIENCES

1. Research Assistant, Center of Advance Infrastructure Technology (CAIT) – The University of Mississippi, Oxford, MS, USA. (January 2014–August 2014)

2. Teaching Assistant for Dr. Waheed Uddin's Transportation and Geospatial Courses – The University of Mississippi (2013-2015)
3. Research Assistant at Sustainable Asphalt Research Group (SARG) Universiti Sains Malaysia Engineering Campus, Pulau Pinang, Malaysia. (1<sup>st</sup> August 2011 – 14<sup>th</sup> Feb 2012) & (15<sup>th</sup> April 2012 – 14<sup>th</sup> July 2012)
4. Research Officer (N41) at Sustainable Asphalt Research Group (SARG) Universiti Sains Malaysia Engineering Campus, Pulau Pinang, Malaysia. (15<sup>th</sup> Feb 2012 – 14<sup>th</sup> April 2012)
5. Lecturer in Highway and Transportation Engineering, School of Civil Engineering, Universiti Sains Malaysia Engineering Campus, Pulau Pinang, Malaysia (5<sup>th</sup> August 2019 – Now)

### **CONSULTANCY AND RESEARCH PROJECTS**

1. Design and Construct the Proposed Resurfacing of Runway and Its Associated Works at Langkawi International Airport, Kedah Darul Aman, Malaysian Airport Holding Berhad (MAHB), 01/06/2020 - 28/02/2021. (National)
2. Uddin, W. "A Synthesis Study of Noncontact Nondestructive Evaluation of Top-down Cracking in Asphalt Pavements." Final Report FHWA/MS-DOT-RD-13-255, Sponsored Research Study SS 255, Center for Advanced Infrastructure Technology Report UMCAIT/2013-01, The University of Mississippi, for the Mississippi Department of Transportation, December 2013. (Assisted Dr. Uddin in literature review process)
3. Project: Integrated Intermodal Transportation Corridors for Economically Viable and Safe Global Supply Chain  
Tasks: (1) Commodity domestic flow data extraction from Oak Ridge National Laboratory (ORNL) database and data analysis. (2) Development of the spatial maps for the U.S. commodities inbound and outbound data visualization using GeoMedia Professional (GMPPro), a Geographic Information System (GIS) software. (3) Development of combined spatial map database of NAFTA countries (Canada, USA, Mexico) for data visualization and decision making process using GMPPro.
4. Porous Parking Materials and Design for Storm Water Management. Master of Science (MSc) Thesis. Sponsored by Ministry of Higher Education Malaysia and Universiti Sains Malaysia.
5. Laboratory Experiment for Rehabilitation of Al Garabolli-Misuratah Coastal Road, Libya. A project by Nurol Insaat Ve Ticaret, A.S., Turkey (2008 - 2009)
6. Sieve Analysis and Aggregate Properties Determination for Kuad Sdn. Bhd (Local Quarry in Penang) (10<sup>th</sup>– 13<sup>th</sup> January 2012)
7. Laboratory Testing on Asphalt Pavement Quality Involving Binder Content Determination by Ignition Method, Sieve Analysis, Marshall Stability and Theoretical Optimum Specific Gravity using Rice Method. A Project by PENS Industries Sdn. Bhd. (6<sup>th</sup> – 10<sup>th</sup> February 2012)

### **INNOVATION**

1. Water Flow Simulator (Used in Master Degree Study 2009 - 2012)

### **INTELLECTUAL PROPERTY**

1. Trade Secret (USM) – New Standard Procedure and Analysis of Binder Content for Bituminous Material, Asphaltic Concrete, and other Civil Engineering Materials.
2. Mohd Rosli Bin Mohd Hasan, Mohd Fouzi Bin Ali, Shamsul Bin Ishak, Zul Fahmi Bin Mohamed Jaafar, Zulhairi Bin Arifin, Video of Asphalt Binder Softening Point Test Procedure - Ring & Ball Method, FM2020003348, 26/08/2020
3. Mohd Rosli Bin Mohd Hasan, Mohd Fouzi Bin Ali, Shamsul Bin Ishak, Zul Fahmi Bin Mohamed Jaafar, Zulhairi Bin Arifin, Video of Asphalt Binder Penetration Test Procedure, FM2020003353, 26/08/2020

4. Mohd Rosli Bin Mohd Hasan, Mohd Fouzi Bin Ali, Shamsul Bin Ishak, Zul Fahmi Bin Mohamed Jaafar, Zulhairi Bin Arifin, Video of Asphalt Binder Flash Point Test Procedure, FM2020003350, 26/08/2020
5. Mohd Rosli Bin Mohd Hasan, Mohd Fouzi Bin Ali, Shamsul Bin Ishak, Zul Fahmi Bin Mohamed Jaafar, Zulhairi Bin Arifin, Video of California Bearing Ration (CBR) Test Procedure, FM2020003342, 26/08/2020
6. Mohd Rosli Bin Mohd Hasan, Mohd Fouzi Bin Ali, Shamsul Bin Ishak, Zul Fahmi Bin Mohamed Jaafar, Zulhairi Bin Arifin, Video of Sample Preparation, Sample Measurement, and Marshall Stability Test Procedure, FM2020003347, 26/08/2020
7. Mohd Rosli Bin Mohd Hasan, Mohd Fouzi Bin Ali, Shamsul Bin Ishak, Zul Fahmi Bin Mohamed Jaafar, Zulhairi Bin Arifin, Video of Pavement Skid Resistance Test Procedure, FM2020003346, 26/08/2020
8. Mohd Rosli Bin Mohd Hasan, Mohd Fouzi Bin Ali, Shamsul Bin Ishak, Zul Fahmi Bin Mohamed Jaafar, Zulhairi Bin Arifin, Video of Aggregate Los Angeles Abrasion Value Test Procedure, FM2020003345, 26/08/2020
9. Mohd Rosli Bin Mohd Hasan, Mohd Fouzi Bin Ali, Shamsul Bin Ishak, Zul Fahmi Bin Mohamed Jaafar, Zulhairi Bin Arifin, Video of Asphalt Binder Ductility Test Procedure, FM2020003344, 26/08/2020
10. Mohd Rosli Bin Mohd Hasan, Mohd Fouzi Bin Ali, Shamsul Bin Ishak, Zul Fahmi Bin Mohamed Jaafar, Zulhairi Bin Arifin, Video of Aggregate Flakiness & Elongation Index Test Procedure, FM2020003343, 26/08/2020

## **ACADEMIC CONTRIBUTIONS AND ACHIEVEMENTS**

### **CONFERENCES**

1. Mohamed Jaafar, Z. F., W. Uddin. and Y. Najjar. "Pavement Roughness Modeling using Regression and ANN Methods for LTPP Western Region." Paper presented at the 4th International Conference on Rebuilding Place, Georgetown, Penang, Malaysia, 6-7 November 2019 (Presenter).
2. Mohamed Jaafar, Z. F., W. Uddin. "Development of Asphalt Pavement Roughness and Rutting Models by Using LTPP Database and Considering Maintenance and Rehabilitation History." Presented at TRB's Data Analysis Working Group ("the DAWG"), *95<sup>th</sup> Annual Meeting of Transportation Research Board*, Washington, DC, January 9, 2016. (Presenter)
3. National Center for Intermodal Transportation for Economic Competitiveness (NCITEC) First Annual Conference, Colvard Student Union, Mississippi State University (MSU), Starkville, MS, USA. October 31-November 1, 2013. (Participant)

### **POSTER PRESENTATIONS**

1. Mohamed Jaafar, Z. F., W. Uddin. and Y. Najjar. "Asphalt Pavement Roughness Modeling Using the Artificial Neural Network and Linear Regression Approaches for LTPP Southern U.S. States." *95<sup>th</sup> Annual Meeting of Transportation Research Board*, Washington, DC, January 11, 2016. (Presenter)

### **ACADEMIC ARTICLES (JOURNALS)**

1. Mohd Rosli Mohd Hasan, Hainian Wang, Ashiru Sani, Zul Fahmi Mohamed Jaafar, 2020, The Performance of Methanol-Based Foaming Agent in Latex Modified Foamed Binders and Warm Asphalt Mixtures, *Construction & Building Materials* (Under Review)
2. M.O. Hamzah, Z. F. M. Jaafar and F. Ahmad, Laboratory Simulation of Porous Asphalt Parking Lot System and Mix Design for Storm Water Management, *Journal of Engineering Science and Technology (JESTEC)*, Vol. 8, No. 2 (2013) 217-232, School of Engineering, Taylor's University.

3. Z.F. Mohamed Jaafar. "Porous Parking Materials and Design for Storm Water Management." Master of Science (MSc) Thesis. Sponsored by Ministry of Higher Education Malaysia and Universiti Sains Malaysia (2012).
4. Meor Othman Hamzah, Zul Fahmi Mohamed Jaafar and Fauziah Ahmad, Laboratory Assessment of Water Flow Simulator for Porous Parking Lots System. *World Applied Sciences Journal* 16 (5), pp 748-758 (2012) ISSN 18184952
5. Meor Othman Hamzah, Zul Fahmi Mohamed Jaafar and Fauziah Ahmad, (2011), Laboratory Assessment of Water Flow Simulator for Porous Parking Lots Reservoir and Soil Layers, *Journal of Applied Sciences*, ISSN 18125654, DOI: 103923/JAS 2011
6. M. O. Hamzah, Z. F. M. Jaafar and F. Ahmad (2010) Verification of Porous Asphalt Mix Design Using NMAS 20 mm as a Storm Water Runoff Mitigation Measure, *Civil Engineering Colloquium 2010 (CEC 2010)*, Universiti Sains Malaysia Engineering Campus, Pulau Pinang (March 2011)

#### **ACADEMIC ARTICLES (CONFERENCES)**

1. Nguyen.G, Uddin. W., and Mohamed Jaafar, Z. F. "Flood Disaster Impact Assessment using Geospatial Analysis Methods: A Case Study of Thammasat University's Campus in Thailand." Presented at The 7th AUN/SEED-Net Regional Conference on Natural Disaster 2019, 25-26 November 2019, Putrajaya, Malaysia. *ASEAN Engineering Journal* (In Press)
2. Mohamed Jaafar, Z. F., W. Uddin. and Y. Najjar. "Pavement Roughness Modeling using Regression and ANN Methods for LTPP Western Region." Paper presented at the 4th International Conference on Rebuilding Place, Georgetown, Penang, Malaysia, 6-7 November 2019. Published in *The European Proceedings of Multidisciplinary Sciences (EpMS)*, pp. 536-548, January 2020.
3. W. Uddin, Barros, R., and Mohamed Jaafar, Z. F. "Sensitivity Analysis of Mechanistic-Empirical Pavement Structural Design Methods Considering Climate Impacts on Layer Modulus Values" *Proc., 7th International Conference Bituminous Mixtures and Pavements, Thessaloniki, Greece, 12-14 June 2019*, pp. 357-364
4. Mohamed Jaafar, Z. F., W. Uddin. "Modeling of Asphalt Pavement Rutting for LTPP Southern Region Using Multiple Linear Regression Method." *Eight International Conference on Maintenance and Rehabilitation of Pavements (MAIREPAV8)*, DOI: 10.3850/978-981-11-0449-7-178-CD, July 27-29, 2016, Singapore.
5. Mohamed Jaafar, Z. F., M. Ahlan., and W. Uddin. "Modeling of Pavement Roughness Performance Using the LTPP Database for Southern Region in the U.S." *Proc., 6th International Conference Bituminous Mixtures and Pavements, Thessaloniki, Greece, 2015*, pp. 714-722.
6. Uddin, W. and Z.F. Mohamed Jaafar. "Achieving Sustainability without Compromising Long-Term Pavement Performance for Road Infrastructure Assets." *Online Proceedings, First Conference, 2013 IJPC - International Journal of Pavements Conference, São Paulo, SP, Brazil, December 9-10, 2013.*  
<http://www.ijpavement.com/2013-ijpc-papers/>
7. M.O. Hamzah, Z. F. Mohamed Jaafar, M. R. Mohd Hasan, A. Shingani, S. H. A. Talib, S. S. M. Tahir, (2013), "Binder Flow Due to Gravitational Forces in Asphalt Mixes." *Online Proceedings, First Conference, 2013 IJPC - International Journal of Pavements, São Paulo, SP, Brazil, December 9-10, 2013.*  
<http://www.ijpavement.com/wp-content/uploads/2013/12/2013-IJPC-130-1.pdf>
8. Meor Othman Hamzah, Marliana Azura Ahmad Puzi, Khairun Azizi Mohd Azizli and Zul Fahmi Mohamed Jaafar, (2011) Investigation on the Dynamic Properties of Asphalt Mixture Incorporating Geometrically Cubical Aggregate, *5th International Conference Bituminous Mixtures and Pavements, Thessaloniki, Greece, 1-3 June 2011*

#### **ACADEMIC ARTICLES (COMPENDIUM OF PAPERS)**

1. Mohamed Jaafar, Z. F., W. Uddin. and Y. Najjar. "Asphalt Pavement Roughness Modeling Using the Artificial Neural Network and Linear Regression Approaches for LTPP Southern U.S. States." TRB 95th Annual Meeting Compendium of Papers, Washington, DC, January 11, 2016.

**ACADEMIC ARTICLES (PROJECT REPORT)**

1. Zul Fahmi Bin Mohamed Jaafar, Mohd Rosli Bin Mohd Hasan, 2020, FIELD ASSESSMENTS AND POTENTIAL PAVEMENT MAINTENANCE APPROACHES FOR RUNWAY AND TAXIWAY AT LANGKAWI INTERNATIONAL AIRPORT (National)
2. Zul Fahmi Bin Mohamed Jaafar, Mohd Rosli Bin Mohd Hasan, 2020, PROPOSED FULL INTEGRATION OF AIRPORT PAVEMENT MANAGEMENT SYSTEM (APMS) FOR LANGKAWI INTERNATIONAL AIRPORT (National)