

## Dr Muhammad Irfan

Professor

School of Civil & Environmental Engineering

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## About

Dr. Dr Muhammad Irfan is working as Professor in the School of Civil & Environmental Engineering. Dr. Dr Muhammad Irfan has a PhD in Civil Engg. Dr. Dr Muhammad Irfan has published 91 research articles & conference papers having a citation count of 1199, carried out 7 projects and filed 0 intellectual property.

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## Qualifications

<b>PhD in Civil Engg</b> Purdue University , United States	2007 - 2010
<b>MS in Transportation</b> Purdue University , United States	2005 - 2006
<b>BS in Civil Engineering</b> Military College Of Engineering Risalpur , Pakistan	1991 - 1994

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## Experience

<b>Professor</b> School of Civil & Environmental Engineering	2022- Present
<b>Professor</b> Military College of Engineering	2020 - 2022
<b>Defence Faculty</b> Military College of Engineering	2014 - 2020
<b>Defence Faculty</b> National Institute of Transportation (NIT-SCEE)	2010 - 2014
<b>Professor/ Principal &amp; Dean</b> School of Civil & Environmental Engineering (SCEE)/ NUST , SCEE/ NUST, H-12 Islamabad	2022 - 2023
<b>Dean/(Professor)/ Chief Instructor</b> MCE , MCE NUST Campus Risalpur	2019 - 2022
<b>Prof/ HoD Research</b> MCE , MCE NUST Campus Risalpur	2017 - 2019
<b>Assoc. Prof. HoD Const Engg &amp; Mgmt Dept HoD Tn &amp; Geotech Dept</b> MCE , Risalpur	2014 - 2017
<b>Asst. Prof. HoD Transportation Dept</b> NIT , NUST Islamabad	2011 - 2014

Awards

National Award of Best University Teacher

National Award of Best University Teacher by Higher Education Commission (HEC).

Best PhD Dissertation (Civil Engineering) Award

Best PhD Dissertation (Civil Engineering) Award – Purdue University, USA.

Best Teacher Military College of Engineering

Best Teacher Military College of Engineering – 2014-15.

Best Researcher Military College of Engineering

Best Researcher Military College of Engineering – 2015 and 2018

Member National Expert Group on Highway Engineering for CPEC

Member National Expert Group on Highway Engineering for CPEC – Group constituted by Ministry of Communication and Recommendation of NHA and approved by Prime Minister of Pakistan.

Professional Memberships

PEC	Since 1995
ASCE	Since 2006
IRF	Since 2008

Research Projects

National Projects

Sustainability and Quality Assurance for Academic Governance and Redesign Engineering Studies	2023
Funding Agency: ERASMUS	
Amount: PKR 18,892,479.00	
Status: Approved_inprocess	
Improvement of Mix Design Technology for Pakistan	2013
Funding Agency: National Highway Authority	
Amount: PKR 5,460,000.00	
Status: Completed	

International Projects

Industry Projects

National Projects

<b>Geotechnical Consultancy Project for “Field Density Tests at German Embassy, Islamabad.</b> <b>Client:</b> DVK Construction Pvt Ltd <b>Amount:</b> PKR 208,500.00 <b>Status:</b> Completed	2023
<b>Geotechnical Consultancy for Design of Foundation for Upgradation of NCRD Complex, Phase-III, at Chak Shahzad, Islamabad</b> <b>Client:</b> Pakistan Public Works Department (PWD) <b>Amount:</b> PKR 646,000.00 <b>Status:</b> Completed	2024
<b>Geotechnical Consultancy Project for “Geotechnical Investigation for Newly Proposed 132 KV Grid Station at Cabinet Division Employees Cooperative Housing Society, Islamabad”</b> <b>Client:</b> Islamabad Electric Supply Company (IESCO), Pakistan <b>Amount:</b> PKR 688,010.00 <b>Status:</b> Completed	2023
<b>Geotechnical Consultancy Project for “Geotechnical Investigation for Construction of BOQs (Male) (Adjacent to Under Construction Male BOQ building)”</b> <b>Client:</b> Project Management Office (PMO) NUST, Pakistan <b>Amount:</b> PKR 411,200.00 <b>Status:</b> Completed	2023
<b>Geotechnical Consultancy for Design of Foundation for Transmission Tower at 132 KV, CHAKSAWARI, MIRPUR</b> <b>Client:</b> Islamabad Electric Supply Company (IESCO), Pakistan <b>Amount:</b> PKR 800,000.00 <b>Status:</b> Completed	2023

International Projects

Research Articles

<b>Effects of synergistic combined Bakelite and Nano clay modification on asphalt mixture performance properties</b> <i>Naqeeb Ullah Khattak Dr Muhammad Irfan Menglim Hoy Asmat Khan</i> <i>Road Materials and Pavement Design</i> , Pages 1-17 <b>Impact Factor:</b> 3.400   <b>Quartile:</b> 1   <b>Citations:</b> 3 <b>DOI:</b> 10.1080/14680629.2024.2446427	2025
<b>Scientific and Technical Approach for Climate Change Mitigation and Disaster Management</b> <i>Dr Muhammad Irfan</i> <i>The Sappers Journal</i> , Pages 4-16 <b>Impact Factor:</b> N/A <b>DOI:</b> The Sappers Journal 2024	2024
<b>Real-time monitoring of asphalt pavement structure fatigue response based on tri-axis accelerometer.</b> <i>Xingwang Wang Hainian Wang Chonghui Wang Ponan Feng Muhammad Irfan Junfeng Gao Zhen Leng Chen Zhang</i> <i>International Journal of Pavement Engineering</i> , Volume: 25, Issue: 01, Pages: 14 <b>Impact Factor:</b> 3.8   <b>Quartile:</b> 2   <b>Citations:</b> 6 <b>DOI:</b> 10.1080/10298436.2024.2308158	2024
<b>Complex Linear Diophantine Fuzzy Sets over AG-Groupoids with Applications in Civil Engineering</b> <i>Hao Guan Faisal Yousafzai Muhammad Danish Zia Murad-ul-Islam Khan Muhammad Irfan Kostaq Hila</i> <i>Symmetry</i> , Volume 15(1), Article Number 74 <b>Impact Factor:</b> 2.7   <b>Quartile:</b> 2   <b>Citations:</b> 9 <b>DOI:</b> 10.3390/sym15010074	2022
<b>Experimental investigation of nano materials applicability in Hot Mix Asphalt (HMA)</b> <i>Sarfraz Ahmed Muhammad Irfan Awais Zahid</i> <i>Construction and Building Materials</i> , Volume 350, Article Number 128882 <b>Impact Factor:</b> 7.693   <b>Quartile:</b> 1   <b>Citations:</b> 13 <b>DOI:</b> <a href="https://doi.org/10.1016/j.conbuildmat.2022.128882">https://doi.org/10.1016/j.conbuildmat.2022.128882</a>	2022

<b>Alternative Approach for Predicting the Phase Angle Characteristics of Asphalt Concrete Mixtures Based on Recurrent Neural Networks</b> <i>Yasir Ali Fiza Hussain Muhammad Irfan</i> <i>Journal of Materials in Civil Engineering</i> , Volume 33, Issue 9, Article Number 04021215 <b>Impact Factor:</b> 3.651   <b>Quartile:</b> 2   <b>Citations:</b> 6 <b>DOI:</b> 10.1061/(ASCE) MT.1943-5533.0003855	2021
<b>An eXtreme Gradient Boosting model for predicting dynamic modulus of asphalt concrete mixtures</b> <i>Fizza Hussain Yasir Ali Muhammad Irfan Abdul Salam Buller</i> <i>Construction and Building Materials</i> , Volume 295, Article Number 123642 <b>Impact Factor:</b> 7.693   <b>Quartile:</b> 1   <b>Citations:</b> 46 <b>DOI:</b> <a href="https://doi.org/10.1016/j.conbuildmat.2021.123642">https://doi.org/10.1016/j.conbuildmat.2021.123642</a>	2021
<b>Quantifying the Differential Phase Angle Behaviour of Asphalt Concrete Mixtures Using Artificial Neural Networks</b> <i>Fizza Hussain Yasir Ali Muhammad Irfan</i> <i>International Journal of Pavement Research and Technology</i> , Pages 1-19 <b>Impact Factor:</b> 0   <b>Citations:</b> 8 <b>DOI:</b> <a href="https://doi.org/10.1007/s42947-021-00042-0">https://doi.org/10.1007/s42947-021-00042-0</a>	2021
<b>A data-driven model for phase angle behaviour of asphalt concrete mixtures based on convolutional neural network</b> <i>Fizza Hussain Yasir Ali Muhammad Irfan Murtaza Ashraf Shafeeq Ahmed</i> <i>Construction and Building Materials</i> , Volume 269, Article Number 121235 <b>Impact Factor:</b> 7.43   <b>Quartile:</b> 1   <b>Citations:</b> 22 <b>DOI:</b> <a href="https://doi.org/10.1016/j.conbuildmat.2020.121235">https://doi.org/10.1016/j.conbuildmat.2020.121235</a>	2021
<b>Effect of factors of organizational structure influencing nonphysical waste in road projects of developing countries</b> <i>Dr Muhammad Irfan Muhammad Sohail Anwar Malik Syeed Sami Ul Haq Kaka Khel</i> <i>Engineering, Construction and Architectural Management</i> , Volume 27, No. 10, Pages 3135-3153 <b>Impact Factor:</b> 3.531   <b>Quartile:</b> 2   <b>Citations:</b> 8 <b>DOI:</b> 10.1108/ECAM-06-2019-0327	2020
<b>Determinants of labor productivity for building projects in Pakistan</b> <i>Muhammad Irfan Hafiz Zahoor Ahmed Muhammad Abbas Yasir Ali</i> <i>Journal of Construction Engineering, Management &amp; Innovation</i> , Volume 3, Issue 2, Pages 85-100 <b>Impact Factor:</b> N/A <b>DOI:</b> <a href="https://doi.org/10.31462/jcemi.2020.02085100">https://doi.org/10.31462/jcemi.2020.02085100</a>	2020
<b>Influence of Coarse-Aggregate Angularity on Asphalt Mixture Macroporosity: Skid Resistance, High-Temperature, and Compaction Performance</b> <i>Junfeng Gao Hainian Wang Yin Bu Zhanping You Xiang Zhang Muhammad Irfan Junfeng Gao Hainian Wang Yin Bu Zhanping You Xiang Zhang</i> <i>Journal of Materials in Civil Engineering</i> , Volume 32(5), Article Number 04020095 <b>Impact Factor:</b> 3.266   <b>Quartile:</b> 2   <b>Citations:</b> 41 <b>DOI:</b> DOI: 10.1061/(ASCE)MT.1943-5533.0003125	2020
<b>Sustainable Urban Transportation – Demand and Supply Management Policies Using Econometric Model</b> <i>Muhammad Irfan</i> <i>The Sappers Journal</i> , Pages 6-10 <b>Impact Factor:</b> N/A <b>DOI:</b> sappers-journal-2019	2019
<b>A binary logistic model for predicting the tertiary stage of permanent deformation of conventional asphalt concrete mixtures</b> <i>Yasir Ali Muhammad Irfan Abdul Salam Buller Hammad Anis Khan Hafiz M. F. Gul</i> <i>Construction and Building Materials</i> , Volume 227, Article Number UNSP 116608 <b>Impact Factor:</b> 4.419   <b>Quartile:</b> 1 <b>DOI:</b> 10.1016/j.conbuildmat.2019.07334	2019
<b>Traffic open time prediction of fog seal with sand using image processing technology</b> <i>Mohd Rosli Mohd Hasan Xiang Zhang Hainian Wang Junfeng Gao Muhammad Irfan</i> <i>Construction and Building Materials</i> , Volume 209, Pages 9-19	2019

- Impact Factor:** 4.419 | **Quartile:** 1 | **Citations:** 26  
**DOI:** <https://doi.org/10.1016/j.conbuildmat.2019.03.070>
- Rutting and Fatigue Properties of Cellulose Fiber-Added Stone Mastic Asphalt Concrete Mixtures** 2019  
*Muhammad Irfan Yasir Ali Shahid Iqbal Hainian Wang Yasir Ali Sarfraz Ahmed Shahid Iqbal Hainian Wang*  
*Advances in Materials Science and Engineering*, Volume 2019, Article ID 5604197, 8 pages  
**Impact Factor:** 1.271 | **Quartile:** 4 | **Citations:** 28  
**DOI:** <https://doi.org/10.1155/2019/5604197>
- Performance Test on Styrene-Butadiene-Styrene (SBS) Modified Asphalt Based on the Different Evaluation Methods** 2019  
*Hainian Wang Junfeng Gao Muhammad Irfan Chen Zhang Zhanping You*  
*Applied Sciences*, Volume: 9, Issue:3, Article Number: 467  
**Impact Factor:** 2.474 | **Quartile:** 2 | **Citations:** 48  
**DOI:** [DOI: 10.3390/app9030467](https://doi.org/10.3390/app9030467)
- The impact of data noise on permanent deformation behaviour of asphalt concrete mixtures** 2018  
*Yasir Ali Muhammad Irfan Etikaf Hussain*  
*International Journal of Pavement Engineering*, -  
**Impact Factor:** 2.298 | **Quartile:** 1 | **Citations:** 6  
**DOI:** <https://doi.org/10.1080/10298436.2018.1549324>
- Predicting the permanent deformation behaviour of the plant produced asphalt concrete mixtures: A first order regression approach** 2018  
*arshad hussain Hassan Bin Tahir Muhammad Irfan Yasir Ali Etikaf Hussain*  
*Construction and Building Materials*, Volume 189, Pages 629-639  
**Impact Factor:** 4.046 | **Quartile:** 1 | **Citations:** 7  
**DOI:** [10.1016/j.conbuildmat.2018.08.164](https://doi.org/10.1016/j.conbuildmat.2018.08.164)
- High-Temperature Performance and Workability of Crumb Rubber–Modified Warm-Mix Asphalt** 2018  
*Hanian Wang Jinkun Xiao Zhanping You Xu Yang Muhammad Irfan Xiaoyan Li*  
*Journal of Testing and Evaluation*, Volume 48, Issue 4, online published in 2018  
**Impact Factor:** 0.711 | **Quartile:** 4 | **Citations:** 10  
**DOI:** [DOI: 10.1520/JTE20170384](https://doi.org/10.1520/JTE20170384)
- Highway Asset Management Framework for Longevity of Infrastructure – A Case Study for China-Pakistan Economic Corridor** 2018  
*Yasir Mehmood Anwaar Ahmed Hainian Wang Muhammad Irfan Yasir Mehmood Anwaar Ahmed Hainian Wang*  
*American Journal of Civil Engineering*, Volume 6, No. 6, Pages 185-194  
**Impact Factor:** 0  
**DOI:** [10.11648/j.ajce.20180606.12](https://doi.org/10.11648/j.ajce.20180606.12)
- Rutting Evaluation of Asphalt Mixtures Using Static, Dynamic, and Repeated Creep Load Tests** 2018  
*Muhammad Irfan Y. Ali Shahid Iqbal Sarfraz Ahmad I. Hafeez*  
*Arabian Journal for Science and Engineering*, Volume 43, Pages 5143–5155  
**Impact Factor:** 1.518 | **Quartile:** 3 | **Citations:** 26  
**DOI:** <https://doi.org/10.1007/s13369-017-2982-4>
- Modelling and characterising the fatigue behaviour of asphaltic concrete mixtures** 2018  
*Muhammad Aniq Gul Muhammad Irfan Sarfraz Ahmed Yasir Ali Shahab Khanzada*  
*Construction and Building Materials*, Volume 184, Pages 723-732  
**Impact Factor:** 4.046 | **Quartile:** 1 | **Citations:** 12  
**DOI:** [DOI:10.1016/j.conbuildmat.2018.07.022](https://doi.org/10.1016/j.conbuildmat.2018.07.022)
- Effects of coarse aggregate angularity on the microstructure of asphalt mixture** 2018  
*Junfeng Gao Hainian Wang Yin Bu Zhanping You Mohd Rosli Mohd Hasan Muhammad Irfan*  
*Construction and Building Materials*, Volume 183, Pages 472-484  
**Impact Factor:** 4.046 | **Quartile:** 1 | **Citations:** 91  
**DOI:** <https://doi.org/10.1016/j.conbuildmat.2018.06.170>
- Effect of binder grade on performance parameters of asphaltic concrete paving mixtures** 2018  
*Muhammad Irfan Yasir Ali Muhammad Junaid Sarfraz Ahmed*  
*International Journal of Pavement Research and Technology*, Volume 11, Issue 5, Pages 435-444  
**Impact Factor:** 0 | **Citations:** 17  
**DOI:** <https://doi.org/10.1016/j.ijprt.2017.11.006>

<b>Post Implementation Evaluation of Lahore-Sheikhupura- Faisalabad Dual Carriageway - A Built Operate Transfer (BOT) Project</b> <i>Anwaar Ahmed Sandeerah Choudhary Anwaar Ahmed Sandeerah Choudhary Muhammad Irfan</i> <i>International Journal of Transportation Engineering and Technology</i> , Volume 4, Issue 3, Pages 59-64 <b>Impact Factor: 0</b> <b>DOI:</b> 10.11648/j.ijtet.20180403.12	2018
<b>Policy Implications of Work-Trip Mode Choice Using Econometric Modeling</b> <i>Muhammad Irfan Ahmed N. Khurshid Aemal Khattak Dr. Muhammad Bilal Khurshid Yasir Ali</i> <i>Journal of Transportation Engineering Part A: Systems</i> , Volume 144(8), Article Number 04018035 <b>Impact Factor: 0.641   Quartile: 4   Citations: 14</b> <b>DOI:</b> <a href="https://doi.org/10.1061/JTEPBS.0000158">https://doi.org/10.1061/JTEPBS.0000158</a>	2018
<b>Rheological Behavior and Sensitivity of Wood-Derived Bio-Oil Modified Asphalt Binders</b> <i>Junfeng Gao Zhanping You Muhammad Irfan Hainian Wang Mohd Rosli Mohd Hasan Yong Lei</i> <i>Applied Sciences</i> , Volume 8(6), Article Number 919 <b>Impact Factor: 2.217   Quartile: 3   Citations: 86</b> <b>DOI:</b> <a href="https://doi.org/10.3390/app8060919">https://doi.org/10.3390/app8060919</a>	2018
<b>Revisiting the Relationship of Dynamic and Resilient Modulus Test for Asphaltic Concrete Mixtures</b> <i>Yasir Ali Muhammad Zeeshan Imran Hafeez Shafeeq Ahmed Muhammad Irfan</i> <i>Construction and Building Materials</i> , Volume 170, Pages 698-707 <b>Impact Factor: 4.046   Quartile: 1   Citations: 21</b> <b>DOI:</b> <a href="https://doi.org/10.1016/j.conbuildmat.2018.03.098">https://doi.org/10.1016/j.conbuildmat.2018.03.098</a>	2018
<b>Performance Evaluation of Crumb Rubber Modified Asphalt Mixtures Based on Laboratory and Field Investigations</b> <i>Sarfraz Ahmed Muhammad Irfan Yasir Ali Imran Hafeez</i> <i>Arabian Journal for Science and Engineering</i> , Volume 43, Issue 4, Pages 1795-1806 <b>Impact Factor: 1.518   Quartile: 3   Citations: 48</b> <b>DOI:</b> <a href="https://doi.org/10.1007/s13369-017-2729-2">https://doi.org/10.1007/s13369-017-2729-2</a>	2018
<b>Permanent deformation prediction of asphalt concrete mixtures - A synthesis to explore a rational approach</b> <i>Yasir Ali Muhammad Irfan Sarfraz Ahmed Shafeeq Ahmed</i> <i>Construction and Building Materials</i> , Volume 153, Pages 588-597 <b>Impact Factor: 3.485   Quartile: 1   Citations: 33</b> <b>DOI:</b> <a href="https://doi.org/10.1016/j.conbuildmat.2017.07.105">https://doi.org/10.1016/j.conbuildmat.2017.07.105</a>	2017
<b>Performance Evaluation of Elvaloy as a Fuel-Resistant Polymer in Asphaltic Concrete Airfield Pavements</b> <i>Muhammad Irfan Madeeha Saeed Sarfraz Ahmed Y. Ali</i> <i>Journal of Materials in Civil Engineering</i> , Volume 29, Issue 10, Article Number 04017163 <b>Impact Factor: 1.763   Quartile: 2   Citations: 29</b> <b>DOI:</b> <a href="https://doi.org/10.1061/(ASCE)MT.1943-5533.0002018">https://doi.org/10.1061/(ASCE)MT.1943-5533.0002018</a>	2017
<b>Empirical Correlation of Permanent Deformation Tests for Evaluating the Rutting Response of Conventional Asphaltic Concrete Mixtures</b> <i>Muhammad Irfan Yasir Ali Sarfraz Ahmed Shafeeq Ahmed</i> <i>Journal of Materials in Civil Engineering</i> , Volume 29, Issue 8, Article Number 04017059 <b>Impact Factor: 1.763   Quartile: 2   Citations: 31</b> <b>DOI:</b> <a href="https://doi.org/10.1061/(ASCE)MT.1943-5533.0001888">https://doi.org/10.1061/(ASCE)MT.1943-5533.0001888</a>	2017
<b>Community Based Flood Risk Reduction: A Study of 2010 Floods in Pakistan</b> <i>Muhammad Iqbal Javed Akhter Muhammad Irfan Naeem Shahzad Rehan Ullah</i> <i>American Journal of Social Science Research</i> , Volume 3, No. 6, Pages 35-42 <b>Impact Factor: -</b> <b>DOI:</b> NA	2017
<b>Characterization of Various Plant-Produced Asphalt Concrete Mixtures Using Dynamic Modulus Test</b> <i>Sarfraz Ahmed Yasir Ali Muhammad Irfan Asad S. Waraich</i> <i>Advances in Materials Science and Engineering</i> , Volume 2016, Article ID 5618427, 12 pages <b>Impact Factor: 1.299   Quartile: 3   Citations: 27</b> <b>DOI:</b> <a href="http://dx.doi.org/10.1155/2016/5618427">http://dx.doi.org/10.1155/2016/5618427</a>	2016

<b>Investigation of factors affecting dynamic modulus and phase angle of various asphalt concrete mixtures</b> <i>Yasir Ali S. Khanzada Tariq Mahmood Yasir Ali Muhammad Irfan Sarfraz Ahmed S. Khanzada Tariq Mahmood</i> <i>Materials and Structures</i> , Volume 49, Issue 3, Pages 857-868 <b>Impact Factor:</b> 2.607   <b>Quartile:</b> 1   <b>Citations:</b> 58 <b>DOI:</b> DOI:10.1617/s11527-015-0544-3	2016
<b>Sensitivity analysis of dynamic response and fatigue behaviour of various asphalt concrete mixtures</b> <i>Sarfraz Ahmed Muhammad Irfan Yasir Ali Shahab Khanzada Tariq Mahmood</i> <i>Fatigue and Fracture of Engineering Materials and Structures</i> , Volume 38, Issue 10, Pages 1181-1193 <b>Impact Factor:</b> 1.838   <b>Quartile:</b> 1   <b>Citations:</b> 27 <b>DOI:</b> <a href="https://doi.org/10.1111/ffe.12297">https://doi.org/10.1111/ffe.12297</a>	2015
<b>A framework for assessing the consequences of deferred or hastened highway asset interventions</b> <i>Dr. Muhammad Bilal Khurshid Muhammad Irfan Anwaar Ahmed Samuel Labi</i> <i>Structure and Infrastructure Engineering</i> , Volume 11, Issue 3, Pages 282-296 <b>Impact Factor:</b> 1.202   <b>Quartile:</b> 2   <b>Citations:</b> 10 <b>DOI:</b> DOI:10.1080/15732479.2013.875046	2015
<b>Framework for airfield pavements management - an approach based on cost-effectiveness analysis</b> <i>Muhammad Irfan Muhammad Bilal Khurshid Dr Shahid Iqbal Abid Khan</i> <i>European Transport Research Review</i> , Volume 7, Article Number 13 <b>Impact Factor:</b> 0.672   <b>Quartile:</b> 4   <b>Citations:</b> 18 <b>DOI:</b> 10.1007/s12544-015-0165-5	2015
<b>Marginal Pavement Damage Cost Estimation Using Field Data: Issues and Opportunities</b> <i>Anwaar Ahmed Dr. Muhammad Bilal Khurshid Muhammad Irfan Samuel Labi</i> <i>IRF Examiner</i> , Volume 4, Pages 6-12 <b>Impact Factor:</b> N/A <b>DOI:</b> IRF-Examiner-2014-pp-6-12	2014
<b>Performance Evaluation of Asphaltic Mixtures Using Bakelite</b> <i>Muhammad Irfan Muhammad Babar Khan Anwaar Ahmed Adnan Yousaf Arshad Hussain</i> <i>Life Science Journal</i> , Vol.11(7s), Pages 481-488, 2014 <b>Impact Factor:</b> 0 <b>DOI:</b> <a href="http://www.dx.doi.org/10.7537/marslsj1107s14.103">http://www.dx.doi.org/10.7537/marslsj1107s14.103</a>	2014
<b>Utilization of Waste Polyethylene in Asphalt Mixes in Pakistan</b> <i>Bilal Khurshid Sarfraz Ahmed Muhammad Jawed Iqbal Muhammad Irfan</i> <i>Sarhad University International Journal of Basic and Applied Sciences</i> , Volume 2, Issue 1, Pages 1-8 <b>Impact Factor:</b> N/A <b>DOI:</b> 000	2014
<b>Multidimensional Benefit–Cost Evaluation of Asphaltic Concrete Overlays of Rigid Pavements</b> <i>Muhammad Bilal Khurshid Muhammad Irfan Samuel Labi Anwaar Ahmed</i> <i>Structure and Infrastructure Engineering</i> , Volume 10, Issue 6, Pages 792-810 <b>Impact Factor:</b> 1.454   <b>Quartile:</b> 2   <b>Citations:</b> 21 <b>DOI:</b> <a href="https://doi.org/10.1080/15732479.2013.767842">https://doi.org/10.1080/15732479.2013.767842</a>	2014
<b>Determining the Contribution of Different Structural Layers of Asphalt Pavement System to Rutting Using Transverse Profile Analysis</b> <i>Sabahat Hussan Majid Kamal Muhammad Babar Khan Sabahat Hussan Majid Kamal Muhammad Babar Khan Muhammad Irfan</i> <i>American Journal of Civil Engineering and Architecture</i> , Volume 1, No. 6, Pages 174-180 <b>Impact Factor:</b> 0 <b>DOI:</b> DOI: 10.12691/ajcea-1-6-7	2013
<b>An Analytical Framework for Optimizing the Highway and Civil Infrastructure Interventions</b> <i>Dr. Muhammad Bilal Khurshid Muhammad Irfan Sarfraz Ahmed Shahid Iqbal</i> <i>Sarhad University International Journal of Basic and Applied Sciences</i> , Volume 1, Issue No. 1, Pages 158-166 <b>Impact Factor:</b> N/A <b>DOI:</b> <a href="https://journal.suit.edu.pk/index.php/suijbas/issue/archive">https://journal.suit.edu.pk/index.php/suijbas/issue/archive</a>	2013
<b>Factorial Design Approach to Investigate the Effect of Different Factors on the Resilient Modulus of bituminous Paving Mixes</b> <i>Muhammad Babar Khan Afaq Khattak Sarfraz Ahmed Muhammad Babar Khan Afaq Khattak Muhammad Irfan</i>	2012

**Impact Factor:** - | **Citations:** 21

**DOI:** <https://doi.org/10.1080/15732479.2013.767842>

**Establishing optimal project-level strategies for pavement maintenance and rehabilitation - A framework and case study**

2012

*Muhammad Irfan Muhammad Bilal Khurshid Samuel Labi Qiang Bai Thomas L Morin*  
*Engineering Optimization* , Volume 44, Issue 5, Pages 565-589

**Impact Factor:** 0.962 | **Quartile:** 2 | **Citations:** 42

**DOI:** [doi.org/10.1080/0305215X.2011.588226](https://doi.org/10.1080/0305215X.2011.588226)

**Scale and Condition Economies in asset Preservation Cost Functions – A Case Study Involving Flexible Pavement Treatments**

2012

*Muhammad Irfan Dr. Muhammad Bilal Khurshid Anwaar Ahmed Samuel Labi*  
*Journal of Transportation Engineering* , Volume 138(2), Pages 218-228

**Impact Factor:** 0.863 | **Quartile:** 2 | **Citations:** 18

**DOI:** [10.1061/\(ASCE\)TE.1943-5436.0000323](https://doi.org/10.1061/(ASCE)TE.1943-5436.0000323)

**An analysis of the cost-effectiveness of rigid pavement rehabilitation treatments**

2011

*Muhammad Irfan Muhammad Bilal Khurshid Samuel Labi*  
*Structure and Infrastructure Engineering* , Volume:7, Issue:9, Page:715-727

**Impact Factor:** 0.966 | **Quartile:** 2 | **Citations:** 16

**DOI:** [doi.org/10.1080/15732470902836566](https://doi.org/10.1080/15732470902836566)

**Optimal Performance Threshold Determination for Highway Asset Interventions: Analytical Framework and Application**

2011

*Muhammad Bilal Khurshid Muhammad Irfan Samuel Labi*  
*Journal of Transportation Engineering* , Volume 137(2), Pages 128-139

**Impact Factor:** 0.62 | **Quartile:** 3 | **Citations:** 34

**DOI:** [https://doi.org/10.1061/\(ASCE\)TE.1943-5436.0000198](https://doi.org/10.1061/(ASCE)TE.1943-5436.0000198)

**Planning Stage Estimation of Highway Project Duration on the Basis of Anticipated Project Cost, Project Type, and Contract Type**

2011

*Panagiotis Anastasopoulos Samuel Labi Fred Moavenzadeh Muhammad Irfan Dr. Muhammad Bilal Khurshid*  
*International Journal of Project Management* , Volume 29, Issue 1, Pages 78-92

**Impact Factor:** 1.532 | **Quartile:** 2 | **Citations:** 61

**DOI:** <https://doi.org/10.1016/j.ijproman.2010.01.001>

**A Synthesis of Overweight Truck Permitting**

2010

*Muhammad Irfan Muhammad Bilal Khurshid Anwaar Ahmed Samuel Labi Kumares Sinha*  
*JTRP Technical Reports* , Pages 1-16

**Impact Factor:** N/A

**DOI:** [10.5703/1288284314260](https://doi.org/10.5703/1288284314260)

**Evaluating the cost effectiveness of flexible rehabilitation treatments using different performance criteria**

2009

*Muhammad Irfan Muhammad Bilal Khurshid Samuel Labi William Flora*  
*Journal of Transportation Engineering* , Volume 135, Issue 10, Pages 753-763

**Impact Factor:** 0.496 | **Quartile:** 3 | **Citations:** 66

**DOI:** [10.1061/\(ASCE\)TE.1943-5436.0000041](https://doi.org/10.1061/(ASCE)TE.1943-5436.0000041)

**Determining the service life of thin hot-mix asphalt overlay by means of different performance indicators**

2009

*Samuel Labi Muhammad Irfan Muhammad Bilal Khurshid*  
*Transportation Research Record* , Volume 2108, Issue 1, Pages 37-45

**Impact Factor:** 0.298 | **Quartile:** 4 | **Citations:** 41

**DOI:** <https://doi.org/10.3141/2108-04>

**Comparison of methods for evaluating pavement interventions: Evaluation and case study**

2009

*Muhammad Bilal Khurshid Samuel Labi Muhammad Irfan*  
*Transportation Research Record* , Issue:2108, Page:25-36

**Impact Factor:** 0.298 | **Quartile:** 4 | **Citations:** 44

**DOI:** [doi.org/10.3141/2108-03](https://doi.org/10.3141/2108-03)

**Conference Proceedings**



<b>Keynote Speaker: Leveraging AI in Water Resources Planning, Engineering &amp; Management</b> <i>Dr Muhammad Irfan</i> 3rd WAPDA Conference "Application of Artificial Intelligence for Water Resources Planning and Management", res.country(177,) <b>Citations:</b> N/A <b>DOI:</b> Nil	2025
<b>Keynote Speaker: Highway Asset Management for Longevity of Infrastructure</b> <i>Dr Muhammad Irfan</i> International Workshop on Quality Assurance and PMS for Highway Construction Maintenance, res.country(177,) <b>Citations:</b> N/A <b>DOI:</b> <a href="https://sceee.nust.edu.pk/in-the-spotlight/international-workshop-on-quality-assurance-and-pms-for-highway-construction-maintenance/">https://sceee.nust.edu.pk/in-the-spotlight/international-workshop-on-quality-assurance-and-pms-for-highway-construction-maintenance/</a>	2025
<b>Post Implementation Evaluation of Lahore-Sheikhupura- Faisalabad Dual Carriageway - A Built Operate Transfer (BOT) Project</b> <i>Muhammad Irfan Anwaar Ahmed Sandeerah Choudhary</i> 2018 World Congress on Traffic and Transportation Engineering, res.country(48,) <b>Citations:</b> N/A <b>DOI:</b> 10.11648/j.ijtet.20180403.12	2018
<b>Effect of Compaction on Quality of Asphalt Concrete Pavements</b> <i>Muhammad Irfan Muhammad Adeel Bilal Khurshid Malik Kamran Shakir</i> 3rd Multi-Disciplinary Student Research Conference (MDSRC), res.country(177,) <b>Citations:</b> N/A <b>DOI:</b> 3rd Multi-Disciplinary Student Research Conference	2017
<b>Integrating Structural Evaluation of Highways in overall Pavement Management System using Non-Destructive Testing</b> <i>Muhammad Irfan Yasir Mehmood Sarfraz Ahmed</i> 5th IRF Middle East Regional Congress & Exhibition, res.country(2,) <b>Citations:</b> N/A <b>DOI:</b> Nil	2017
<b>Can Asphaltic Concrete Permanent Deformation Test Methods be used as Surrogate to Each Other?</b> <i>Muhammad Irfan Yasir Ali Dr Sarfraz Ahmed</i> Transportation Research Board 96th Annual Meeting, res.country(233,) <b>Citations:</b> N/A <b>DOI:</b> Nil	2017
<b>Developing a Framework for an Efficacious Highway Asset Management System in Pakistan</b> <i>Muhammad Irfan Dr.Sarfraz Ahmed Samuel Labi</i> 8th International Conference on Maintenance and Rehabilitation of Pavements (MAIREPAV8), res.country(197,) <b>Citations:</b> N/A <b>DOI:</b> 10.3850/978-981-11-0449-7-234-cd	2016
<b>Keynote Speaker: Challenges and Opportunities in Developing Sustainable Urban Transportation</b> <i>Dr Muhammad Irfan</i> International Seminar on Sustainable Urban Transportation System. National University of Sciences and Technology, res.country(177,) <b>Citations:</b> N/A <b>DOI:</b> Nil	2015
<b>Sustainable Urban Transportation – Demand and Supply Management Policies Using Econometric Model</b> <i>Muhammad Irfan</i> International Seminar on Sustainable Urban Transportation System., res.country(177,) <b>Citations:</b> N/A <b>DOI:</b> Nil	2015
<b>Analyzing the Effect of Congestion Pricing on Work-Trip Mode Choice Using Econometric Modeling</b> <i>Muhammad Irfan Ahmed Nader Khurshid Bilal Khurshid Anwaar Ahmed Aemal Khattak</i> 94th Annual Meeting of the Transportation Research Board (TRB), res.country(233,) <b>Citations:</b> N/A <b>DOI:</b> Nil	2015
<b>Performance Evaluation of Asphaltic Airfield Pavements Using Elvaloy as a Fuel Resistant Polymer</b> <i>Muhammad Irfan Madeeha Saeed Intekhab Ahmed Qureshi Dr.Sarfraz Ahmed</i>	2014

<i>11th International Congress on Advances Civil Engineering (ACE 2014), res.country(224,)</i>	
<b>Citations:</b> N/A	
<b>DOI:</b> Nil	
<b>Estimation of Highway Project Duration at the Planning Stage and Analysis of Risk Factors Leading To Time Overrun</b>	2014
<i>Muhammad Irfan Sidra Kaleem Hamza Farooq Gabriel</i>	
<i>Second Transportation and Development Institute Congress, res.country(233,)</i>	
<b>Citations:</b> N/A	
<b>DOI:</b> 10.1061/9780784413586.059	
<b>Keynote Speaker: Laboratory Characterization of Asphalt Concrete Mixtures using Dynamic Modulus Test</b>	2014
<i>Dr Muhammad Irfan</i>	
<i>1st International Seminar: Improvement of Asphalt Mix Design Technology for Pakistan, National Highway Authority, res.country(177,)</i>	
<b>Citations:</b> N/A	
<b>DOI:</b> Nil	
<b>Experimental Investigation of Strength and Stiffness Characteristics of Hot Mix Asphalt (HMA)</b>	2013
<i>Muhammad Irfan Asst Prof Kashif Ahmed Dr.Sarfraz Ahmed Arsalan Ahmed Afaq Khatak</i>	
<i>Fourth International Symposium on Infrastructure Engineering in Developing Countries, IEDC 2013, res.country(177,)</i>	
<b>Citations:</b> N/A	
<b>DOI:</b> 10.1016/j.proeng.2014.07.026	
<b>Developing an Enhanced Decision Framework for Road Asset Management System of Pakistan Using HDM-4</b>	2013
<i>Muhammad Irfan Umer Saeed Bilal Khurshid Tabjeel Ashraf</i>	
<i>17th IRF World Meeting and Exhibition, res.country(192,)</i>	
<b>Citations:</b> N/A	
<b>DOI:</b> Nil	
<b>Determining the Contribution of Different Structural Layers of Asphalt Pavement System to Rutting Using Transverse Profile Analysis</b>	2013
<i>Muhammad Irfan Sabahat Hussan Muhammad Babar</i>	
<i>17th IRF World Meeting and Exhibition Riyadh, res.country(192,)</i>	
<b>Citations:</b> N/A	
<b>DOI:</b> Nil	
<b>Marginal Pavement Damage Cost Estimation Using Field Data – Issues and Opportunities</b>	2013
<i>Muhammad Irfan Anwaar Ahmed Muhammad Bilal Khan Samuel Labi</i>	
<i>17th IRF World Meeting and Exhibition in Riyadh, res.country(192,)</i>	
<b>Citations:</b> N/A	
<b>DOI:</b> Nil	
<b>Cracking Evaluation of Asphalt Concrete in Context of Intermediate Test Temperatures</b>	2013
<i>Brig Dr Muhammad Irfan Dr.Sarfraz Ahmed Dr. Eshan V. Dave Bilal Khurshid</i>	
<i>17th IRF World Meeting and Exhibition in Riyadh, res.country(192,)</i>	
<b>Citations:</b> N/A	
<b>DOI:</b> Nil	
<b>Impact Study: New Benazir Bhutto International Airport Islamabad</b>	2013
<i>Muhammad Irfan Muhammad Bilal Khurshid Dr.Sarfraz Ahmed Muhammad Jawed Iqbal</i>	
<i>5th World Engineering Congress (WEC), res.country(177,)</i>	
<b>Citations:</b> N/A	
<b>DOI:</b> Nil	
<b>Recent developments in the regression methods for computing peak flood discharges</b>	2013
<i>Muhammad Irfan Mohiuddin Ali Khan Hamza Farooq Gabriel</i>	
<i>2nd International Conference on Hydrology &amp; Groundwater Expo, res.country(233,)</i>	
<b>Citations:</b> N/A	
<b>DOI:</b> 10.4172/2157-7587.S1.008	
<b>Comparative analysis of conventional and waste polyethylene modified bituminous mixes: A new dimension of effective environmental &amp; waste management</b>	2013
<i>Bilal Khurshid Dr.Sarfraz Ahmed Muhammad Irfan Lt Col Sajid Mehmood</i>	

**Citations:** N/A

**DOI:** 10.2991/rsete.2013.84

**An Analytical Framework for Optimizing the Highway & Civil Infrastructure Interventions**

2012

*Brig Dr Muhammad Irfan Bilal Khurshid Dr.Sarfraz Ahmed Dr Shahid Iqbal*

*2nd International Multidisciplinary Conference towards Better Pakistan, res.country(177,)*

**Citations:** N/A

**DOI:** Nil

**Water Reclamation Strategies in Built Environmenta Framework and Case Study of University Campus**

2012

*Muhammad Irfan Saqib Naveed Cheema*

*Construction Research Congress (CRC- 2012), res.country(233,)*

**Citations:** N/A

**DOI:** 10.1061/9780784412329.202

**Quantifying the Consequences of Hastened or Deferred Interventions**

2011

*Muhammad Irfan Bilal Khurshid Anwaar Ahmed Samuel Labi*

*90th Annual Meeting of the Transportation Research Board, res.country(233,)*

**Citations:** N/A

**DOI:** Nil

**Establishing Optimal Pavement Life-cycle Profiles at Project Level – A Framework Involving Different Categories of Cost and Treatment Types**

2010

*Muhammad Irfan Muhammad Bilal Khurshid Samuel Labi Qiang Bai*

*89th Annual Meetings of the Transportation Research Board,, res.country(233,)*

**Citations:** N/A

**DOI:** Nil

**Estimation of Planning-Level Asset Preservation Costs – A Case Study involving Flexible Pavement Treatments**

2010

*Muhammad Irfan Muhammad Bilal Khurshid Anwaar Ahmed Samuel Labi*

*89th Annual Meeting of the Transportation Research Board, Washington D.C., USA, res.country(233,)*

**Citations:** N/A

**DOI:** Nil

**Establishment of Optimal Performance Thresholds for Highway Asset Interventions:A Framework and Case Study**

2010

*Muhammad Irfan Muhammad Bilal Khurshid Samuel Labi*

*89th Annual Meeting of the Transportation Research Board, res.country(233,)*

**Citations:** N/A

**DOI:** Nil

**Parametric Estimation of Planning-Level Asset Preservation Costs – Case Study in Flexible Pavements**

2009

*Muhammad Irfan Muhammad Bilal Khurshid Samuel Labi*

*5th Annual Interuniversity Symposium on Infrastructure Management (AISIM) , res.country(233,)*

**Citations:** N/A

**DOI:** Nil

**Service Life of Thin HMA Overlay Using Different Performance Indicators**

2009

*Muhammad Irfan Muhammad Bilal Khurshid Samuel Labi*

*88th Annual Meeting of the Transportation Research Board, res.country(233,)*

**Citations:** N/A

**DOI:** Nil

**Econometric Analysis of Influence of Highway Project Size, Project Type, and Contract Type on Contract Duration**

2009

*Muhammad Irfan Muhammad Bilal Khurshid Samuel Labi Panagiotis Anastasopoulos*

*88th Annual Meetings of the Transportation Research Board, res.country(233,)*

**Citations:** N/A

**DOI:** Nil

**Comparing the Methods for Evaluating Pavement Interventions – A Discussion and Case Study**

2009

*Muhammad Irfan Muhammad Bilal Khurshid Samuel Labi*

*88th Annual Meeting of the Transportation Research Board, res.country(233,)*

<b>Citations:</b> N/A	
<b>DOI:</b> Nil	
<b>A Framework for Establishing Optimal Performance Thresholds for Highway Asset Interventions</b>	2009
<i>MUhammad Irfan Muhammad Bilal Khurshid Samuel Labi</i>	
<i>5th Annual Interuniversity Symposium on Infrastructure Management (AISIM)</i> , res.country(233,)	
<b>Citations:</b> N/A	
<b>DOI:</b> Nil	
<b>Cost-Effectiveness of Rehabilitation Alternatives – The Case For Flexible Pavements</b>	2008
<i>Muhammad Irfan Muhammad Bilal Khurshid Samuel Labi Kumares Sinha</i>	
<i>7th International Conference of Managing Pavement Assets (ICMPA)</i> , res.country(38,)	
<b>Citations:</b> N/A	
<b>DOI:</b> Nil	
<b>Cost Effectiveness of Rigid Pavement Rehabilitation Treatments</b>	2008
<i>Muhammad Irfan Muhammad Bilal Khurshid Samuel Labi Kumares C. Sinha</i>	
<i>7th International Conference on Managing Pavement Assets</i> , res.country(38,)	
<b>Citations:</b> N/A	
<b>DOI:</b> Nil	
<b>Effectiveness of AC Overlays of Rigid Highway Pavements Using LTPP SPS-6 Data</b>	2008
<i>Muhammad Irfan Samuel Labi Kumares Sinha Muhammad Bilal Khurshid</i>	
<i>87th Annual Meeting of the Transportation Research Board</i> , res.country(233,)	
<b>Citations:</b> N/A	
<b>DOI:</b> Nil	

## Book Chapters

<b>Exploring synergies between Disaster Risk Reduction and Climate Change policies in Pakistan</b>	2021
<i>Naeem shehzad Muhammad Irfan Muhammad Javed Iqbal Akhter Khichi</i>	
In: <i>Handbook of Climate Change Management</i> , Chapter 1, Pages 1-24	
<b>Citations:</b> N/A	
<b>DOI:</b> <a href="https://doi.org/10.1007/978-3-030-22759-3_211-1">https://doi.org/10.1007/978-3-030-22759-3_211-1</a>	

## Trainings

<b>HEC/ USAID Program -Advancing Leadership Capacities of Deans</b>	2024
<b>Partner:</b> USAID - Higher Education System Strengthening Activity (HESSA)	
<b>Duration:</b> 27-Jan-2024 to 03-Feb-2024	
<b>PEC PROGRAM EVALUATORS (PEVs) TRAINING ON OUTCOME-BASED EDUCATION &amp; BE PROGRAMS ACCREDITATION</b>	2022
<b>Partner:</b> Pakistan Engineering Council	
<b>Duration:</b> 21-Mar-2022 to 07-Jul-2022	
<b>PTV VISSIM &amp; VISUM SOFTWARE TRAINING</b>	2016
<b>Partner:</b> PTV Singapore	
<b>Duration:</b> 26-Oct-2016 to 28-Oct-2016	
<b>ARC GIS TRAINING BY ESRI</b>	2007
<b>Partner:</b> Purdue University	
<b>Duration:</b> 06-Aug-2007 to 09-Oct-2007	
<b>APPLIED MANAGEMENT PRINCIPLES PROGRAM (MINI MBA) AT KRANNERT SCHOOL OF MANAGEMENT PURDUE UNIVERSITY USA</b>	2007
<b>Partner:</b> Purdue University	
<b>Duration:</b> 14-May-2007 to 25-May-2007	