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EDUCATION

Ph.D.	**Civil Engineering (Transportation)**	Cont'd
	The University of Alabama in Huntsville, Huntsville, AL	2021-2025
M.S.	**Computer Science**	Cont'd
	The University of Alabama in Huntsville, Huntsville, AL	2023-2025
M.S.	**Transportation Engineering**	Sept 2019
	Southeast University, Nanjing, Jiangsu, China	
	Thesis: *Different Model Considerations For Repositioning Free-Float Bike Sharing Systems With Faulty Bikes*	
B.S.	**Civil Engineering**	July 2013
	University of Engineering & Technology, Lahore, Pakistan.	
	Thesis: Analysis and Design of Multistory Building.	

RESEARCH INTERESTS

- Traffic State Estimation
- Urban Railway Planning
- Data Analytics and Control on Urban Traffic
- Optimal Railway Track Maintenance.

PROFESSIONAL EXPERIENCE

Assistant Executive Engineer Sep 2015-Oct 2017 & Sep 2019-Aug 2021
Civil Engineering Department, Pakistan Railways, Pakistan.

Lecturer Sep 2013-Sep 2015
Civil Engineering Department,
University of Engineering and Technology, Lahore, Pakistan.

AWARDS

1.	Mary Maikima and Lester M. Ross, Senior, Scholarship Award in Engineering at UAH	2022 & 2023
2.	Third prize of Outstanding Thesis awarded in the 9th Transportation Research (Shanghai) Forum	2019
3.	Best paper award for the paper presented in 11th International Workshop on Computational Transportation Science.	2019
4.	HEC-CRBC scholarship for master in Transportation Engineering	2017
5.	Dean's Role of Honor Certificates in undergraduate	2013

6. Honor shield in Secondary School examination.

PUBLICATIONS

[1] **Usama, M.**, Ma, R., Hart, J., & Wojcik, M. (2022). Physics-Informed Neural Networks (PINNs)-Based Traffic State Estimation: An Application to Traffic Network. *Algorithms*, *15*(12), 447.

[2] **Usama, M**., Shen, Y., & Zahoor, O. (2019). Towards an Energy Efficient Solution for Bike-Sharing Rebalancing Problems: A Battery Electric Vehicle Scenario. *Energies*, *12*(13), 2503.

[3] Shen, Y.; Zahoor, O.; Tan, X.; **Usama, M**.; Brijs, T. Assessing Fitness-to-Drive among Older Drivers: A Comparative Analysis of Potential Alternatives to on-Road Driving Test. *Int. J. Environ. Res. Public Health* **2020**, *17*, 8886.

[4] **Usama, M**., Shen, Y., & Zahoor, O. (2019). A free-floating bike repositioning problem with faulty bikes. *Procedia Computer Science*, *151*, 155-162.

[5] **Usama, M.**, Zahoor, O., Shen, Y., & Bao, Q. (2020). Dockless bike-sharing system: Solving the problem of faulty bikes with simultaneous rebalancing operation. *Journal of Transport and Land Use*, *13*(1), 491-515. https://doi.org/10.5198/jtlu.2020.1594

[6] **Usama, M.**, Zahoor, O., Bao, Q., Liu, Z., & Shen, Y. (2019). Dockless Bike-Sharing Rebalancing Problem with Simultaneous Faulty Bike Recycling. In *CICTP 2019* (pp. 4963-4974).

[7] Zahoor, O., **Usama, M**., Bao, Q., Abbas, Z., Shen, Y., & Chen, S. (2019). LNG Bus Emissions Prediction Using Neural Network. In *CICTP 2019* (pp. 4156-4168).

[8] Zahoor, O., Shen, Y., **Usama, M**., Bao, Q., Atlas, A., & Brijs, T. (2019, November). Assessing Fitness to Drive among Older Adults using Random Forest. In *2019 IEEE 14th International Conference on Intelligent Systems and Knowledge Engineering (ISKE)* (pp. 648-653). IEEE.

[9]. Usama, Muhammad, Onaira Zahoor, and Imran Khan. "Towards Sustainable and Energy Efficient Railways through Electrification: The Case Study of Pakistan Railways." *Book of Abstracts*. 2021.

Non-peer-reviewed Conference Proceedings & Presentations

[1] **Usama, M.**, Ma, R., Shivashankar, S. (2023). A Spatial-Social Analysis of Multi-Dimensional Evaluation of Bikeability and Cyclist Equity in the City of Huntsville, Alabama. *TRB 102nd Annual Meeting. Washington DC, January 7 - 12, 2023.*

[2] Ma, R., Shivashankar, S., **Usama, M.** (2023). The Shift of Work from Home and Public Transit Ridership in Alabama During the COVID-19 Pandemic. *TRB 102nd Annual Meeting. Washington DC, January 7 - 12, 2023.*