



**Sadik Khan, Ph.D., P.E.**  
 Associate Professor  
 Department of Civil and Environmental  
 Engineering  
 Jackson State University  
 1400 J. R. Lynch St. Box 17068  
 Jackson, MS, 39157

Email: [sadik.khan@jsums.edu](mailto:sadik.khan@jsums.edu)  
[sadik.ce@gmail.com](mailto:sadik.ce@gmail.com)  
 Phone: +1-601-979-6373  
 Cell: +1-817-319-0079  
[Google Scholar](#)  
[LinkedIn](#)  
[Research Website](#)

## SUMMARY

Dr. Khan worked more than 15 years in different projects with on the investigation, monitoring and evaluation of foundations, slopes and earth retaining systems. Dr. Khan leads and co-lead multiple projects funded by Federal and State Agencies such as National Science Foundation (NSF), Gulf Research Program, USDOT, USACE ERDC, FRA and MDOT on various aspects of sustainable, resilient and smart Geo-Infrastructure. He coauthored more than 100+ peer-reviewed journal, conference proceedings and technical report on different aspects of geo-infrastructure. Dr. Khan co-Authoring two technical books, 1. Site Investigation using Electrical Resistivity Imaging and 2. Slope Stabilization using Recycled Plastic Pin, from CRC press. Dr. Khan received the 2018 Engineer of the Year award from MS ASCE Section, and 2019 Engineer of the Year award from ASCE Region 5. He was awarded the prestigious CAREER Award from National Science Foundation in 2021 on “Climate Resilient Landslide Repair on Expansive Soil Using Vetiver Grass”. Dr. Khan is an Associate Editor of ASCE Natural Hazard Review Journal. Dr. Khan is a licensed engineer in the State of Texas and the State of Mississippi. Dr. Khan is a technical member of different national committees of Transportation Research Board, United States Society of Dams, ASCE Geo-Institute and Deep Foundation Institute. Dr. Khan graduated 4 PhDs, 6 MS, and supervised 9 undergraduate students and currently supervising 6 PhDs, 6 MS and 8 Undergraduate students.

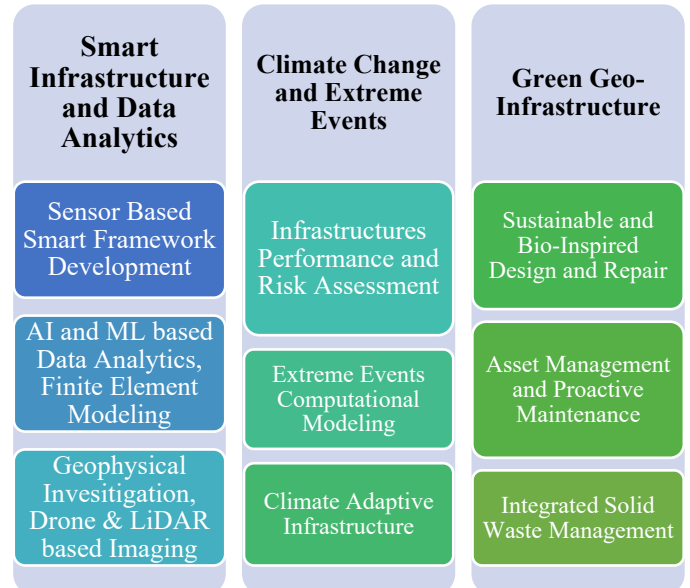
## EDUCATION

- Doctor of Philosophy (Geotechnical Engineering), December 2013.  
The University of Texas at Arlington (UTA).
- Masters of Science in Civil Engineering (Geotechnical Engineering), August 2011.  
The University of Texas at Arlington (UTA).
- Bachelor of Science in Civil Engineering, June 2007.  
Bangladesh University of Engineering and Technology (BUET).

## APPOINTMENTS

- Associate Professor, (May 2021- Present), Jackson State University (JSU)
- Assistant Professor (August 2015-April 2021), Jackson State University (JSU)
- Post-Doctoral Research Associate and Adjunct Faculty (January 2014-August 2015), The University of Texas at Arlington (UTA)
- Graduate Research Assistant (January 2010-December 2013), The University of Texas at Arlington (UTA)
- Project Coordinator (December 2007- December 2009), Sinamm Engineering Limited, Dhaka, Bangladesh.
- Assistant Engineer, (June 2007- November 2007), China National Electric Wire & Cable Import/Export Corporation (CCC), Dhaka, Bangladesh.

## CURRENT RESEARCH FOCUS



## HONORS AND AWARDS

- **2021 AASHTO Sweet 16 project Award**, Awarded by AASHTO Research Advisory Committee on the research project, “State Study 286: Performance Evaluation of highway slopes on Yazoo clay”.
- **2020 NSF CAREER AWARD** Awarded by National Science Foundation.
- **2019 ENGINEER OF THE YEAR** Awarded by ASCE Region 5 in September 2019.
- **2018 ENGINEER OF THE YEAR** Awarded by ASCE MS Section in October 2018.

## **EDITORIAL BOARD & TECHNICAL COMMITTEE MEMBERSHIP**

1. Associate Editor, ASCE Natural Hazards Review.
2. Committee Communication Coordinator and Member, AKG 20- TRB Standing Committee on Soil and Rock Properties and Site Characterization, National Academy of Science, Engineering and Medicine.
3. Member, AKG 40- TRB Standing Committee on Mechanics and Drainage of Saturated and Unsaturated Geomaterials, National Academy of Science, Engineering and Medicine.
4. Vice Chair, GI Technical Committee on Unsaturated Soils, ASCE
5. Member, GI Technical Committee on Shallow Foundations, ASCE
6. Past Panel Member of NCHRP Project Panel C01-59
7. Session Chair, Shallow Foundations, GeoCongress 2023, in Los Angeles, CA
8. Session Chair, Shallow Foundations, GeoCongress 2024, in Vancouver, BC.
9. Session Co-Chair of 23/ Pipeline and Transportation Structures in Unsaturated Soils of PAN-AM UNSAT 2017, in Dallas, Texas.
10. Member, Levee Committee, US Society of Dams.
11. Member, Foundation Committee, US Society of Dams
12. Member, Helical Piles and Tiebacks, Deep Foundation Institute
13. Member, Deep Foundations for Landslides & Slope Stabilization, Deep Foundation Institute

## **RESEARCH PROJECTS**

### **Proposal Under Review**

***Pending Fund: \$16.4 million, (\$10.5 million as PI)***

1. **TRAILBLAZER: Close Loop Landslide Management for Climate Adaptive Infrastructure**, Sponsoring Agency: National Science Foundation, Role: PI, Total Budget \$3M, Project Duration: 3 years (August 2024 to July 2027).
2. **RII Track 2 FEC: PROTECT: Partnership for Resilience, Opportunities, Technology, Education, and Community Transformation**, Sponsoring Agency: National Science Foundation, Role: PI, Total Budget \$6M, Project Duration: 4 years (August 2024 to July 2028).
3. **Excellence in Research: Phytoremediation Using Vetiver Grass for Capturing Heavy Metals and PFAS from Wastewater and Landfill Leachate**, Sponsoring Agency: National Science Foundation, Role: PI, Total Budget \$995.3k, Project Duration: 3 years (May 2024 to April 2027).
4. **RESILIENT: REmote Sensing Center for Resilient Infrastructure Against Climate Uncertainty**, Sponsoring Agency: NASA, Role: PI, Total Budget \$5M, Project Duration: 5 years (October 2024 to September 2029).
5. **Improved Penetration Methodology Testing: Phase II**, Sponsoring Agency: USACE ERDC/Applied Research Associate, Role: PI, Total Budget \$1.4M, Project Duration: 1.5 years (November 2023 to May 2025).

### **Current Projects**

***Total Fund: \$6.64 million, (\$4.11 million as PI)***

1. **Mississippi River Delta Transition Initiative (MissDelta)**, Sponsoring Agency: Gulf Research Program, Role: Co-PI, Total Budget \$1.07M, Project Duration: 5 years (November 2023 to October 2028)
2. **NSF Convergence Accelerator Track K: COMPASS: Comprehensive Prediction, Assessment, and Equitable Solutions for Storm-Induced Contamination of Freshwater Systems**, Sponsoring Agency: National Science Foundation, Role: Co-PI, Total Budget 650k, Khan Share: \$150k, Project Duration: 5 years (January 2024 to December 2024)

3. **Detection of Large-scale Soil Moisture Content, Pore Water Pressure, and Matric Suction Using Electrical Resistivity Imaging Technique.** Sponsoring Agency: Federal Railway Administration, Role: PI, Total Budget \$477.8K, Project Duration: 3 years (September 2023 to August 2026)
4. **Green Landslide Repair using Deep Rooted Vetiver Grass for MDOT,** Sponsoring Agency: Mississippi Department of Transportation, Role: PI, Total Budget \$300K, Project Duration: 2 years (June 2023 to June 2025)
5. **Improved Penetration Methodology Testing,** Sponsoring Agency: USACE ERDC/Applied Research Associate, Role: PI, Total Budget \$1.6M, Project Duration: 1.5 years (November 2022 to May 2024)
6. **LEAP-HI: A data-driven Fragility Framework for Risk Assessment of Levee Breach,** Sponsoring Agency: National Science Foundation, Role: Co-PI, Total Budget \$2M, Khan Share: \$476.7k, Project Duration: 5 years (August 2022 to July 2027)
7. **CAREER: Climate Resilient Landslide Repair on Expansive Soil Using Vetiver Grass,** Sponsoring Agency: National Science Foundation, Role: PI, Total Budget \$539k, Project Duration: 5 years (May 2021 to April 2026)

### Completed Projects

*Total Fund: \$1.17 million, (\$1.17 million as PI)*

8. **Evaluation of Helical Pile in Expansive Soil,** Collaboration with: Cantsink, Role: PI, Project Duration: 2 years (June 2021 to May 2023)
9. **Advanced Landslide Investigation protocol using Geophysical Testing.,** Sponsoring Agency: Mississippi Department of Transportation, Role: PI, Total Budget \$350K, Project Duration: 3 years
10. **Bio-Inspired Stabilization of Levee Slope on Expansive Yazoo Clay at the Maritime and Multimodal Transportation Infrastructure in Mississippi,** Sponsoring Agency: MarTREC UTC Grant of USDOT, Role: PI, Total Budget \$200 K, Project Duration: 2 years
11. **"Track 1" for Planning or Conference Grant, CO<sub>2</sub> Sequestration and Storage using Vetiver Grass on Coastal Wetlands,** Sponsoring Agency: National Science Foundation, Role: Co-PI, Total Budget \$90k, Project Duration: 1 years (From May 2022 to February 2023)
12. **Stabilization of Airfield Pavement Subgrade using Recycled Plastic Pin,** Sponsoring Agency: US Army Corps of Engineers (ERDC), Role: PI, Total Budget \$50k, Project Duration: 1 years (From August 2021 to July 2022)
13. **Performance Evaluation of Highway Slopes on Yazoo Clay,** Sponsoring Agency: Mississippi Department of Transportation, Role: PI, Total Budget \$196k, Project Duration: 2 years (From Feb 2018 to June 2020)
14. **Investigation of the Moisture Variation at Pavement Subgrade on Expansive Soil,** Sponsoring Agency: MarTREC UTC Grant of USDOT, Role: PI, Total Budget \$86.25 K, Project Duration: 2 years (September 2018-August 2019)
15. **Effect of Swell-Shrink Characteristics on Landslides in Yazoo Clay,** Sponsoring Agency: MarTREC UTC Grant of USDOT, Role: PI, Total Budget \$86.25 K, Project Duration: 2 years (July 2017-June 2018)
16. **Development of A Design Protocol: Sustainable Stabilization of Slope Using Recycled Plastic Pin in Mississippi,** Sponsoring Agency: MarTREC UTC Grant of USDOT, Role: PI, Total Budget \$86.25 K, Project Duration: 2 years (May 2016-Oct 2017)
17. **Airborne Survey System for Enhancement of Surveying Lab,** Sponsoring Agency: Mississippi Board of Licensure for Professional Engineers and Surveyors, Role: PI, Total Budget \$31.1 K, Project Duration: 5 months (Jan 2019-May 2019)

## **PUBLICATIONS**

### **Technical Book**

1. Hossain, M.S., Kibria, G. and Khan, S., (2018), “Site Investigation using Electrical Resistivity Imaging”, CRC Press, ISBN 9781138485938 - CAT# K349394
2. Hossain, M.S., Khan S. and Kibria, G. (2017), “Sustainable Slope Stabilization using Recycled Plastic Pin”, CRC Press, ISBN 9781138636101 - CAT# K32128

### **Journals and Technical Note**

#### **Under Review**

1. Salunke, R., Shuman, N. M. & Khan, S. (2024). Evaluating Effective Stress-Beta Method's Design Coefficients using Machine Learning. *Journal of the Deep Foundations Institute (under review)*.
2. Nahian, A., Shuman, N.; Rahman, F.; Khan, S.; Khan, F., (2023), “Data-Driven Prediction of Climate Change Impact on Soil Moisture Content in Yazoo Clay using Machine Learning” Under review in Transportation Research Record (TRR): Journal of the Transportation Research Board
3. Khan, F.; Nahian, A.; Rahman, F.; Khan, S.; Salunke, R.; LaCour I.; (2023), “Determination of Failure Depth of a Slope Using Electrical Resistivity Imaging and Drone”, Under review in Transportation Research Record (TRR): Journal of the Transportation Research Board
4. Shuman, N.; Khan, S.; and Amini F. (2023), “Efficient Machine Learning Model for Settlement Prediction of Large Diameter Helical Pile in c -  $\Phi$  Soil”, Under review in AI in Civil Engineering.
5. Shuman, N.; Khan, S.; and Amini F. (2023), Development of A Machine Learning Based Method for Design of Helical Piles, Under review in Soil and Foundation
6. Chia, H., Khan, S. & Souissi, M. (2024). Impact of Seasonal Variation on the Behavior of Helical Piles on High Expansive Clay. *Journal of the Deep Foundations Institute (under review)*.
7. Chakraborty, A., and Khan. S. (2023). “Application of Tensile properties of Vetiver Roots on the remedy of expansive soil shallow slope failure.” Under review in International Journal of Geomechanics.

#### **Published**

1. Spears, A., Khan, S., Alzeghoul, O., and Whalin, R. (2023) Climate Resilient Slope Stability Improvement Using Vetiver on a Test Levee, ASCE Natural Hazards Review (*In Press*).
2. Rahman, F., Khan, M. F., Nahian, A., Khan, S. & Amini, F. (2024). Evaluation of the Impact of Climate Variability on the Soil-Water Characteristics Curve. *Transportation Research Record (In Press)*
3. Rahman, F., Chakraborty, A., Khan, S. & Salunke, R. (2024). Impact of Vetiver Plantation on Unsaturated Soil Behavior & Stability of Highway Slope. *MDPI Geoscience (In Press)*.
4. Chakraborty, A., and Khan. S. (2023). “Soil Bioengineering Using Vetiver for Climate-Adaptive Slope Repair: A Review” Under review in ASCE Natural Hazards Review (*In Press*)
5. Salunke R., Nobahar M., Alzeghoul O. E., Khan S, La Cour, I., and Amini F. (2023). Near-Surface Soil Moisture Characterization in Mississippi’s Highway Slopes Using Machine Learning Methods and UAV-Captured Infrared and Optical Images, *Remote Sens.* 2023, 15(7), 1888; <https://doi.org/10.3390/rs15071888>
6. Nobahar M., Salunke R., Alzeghoul O. E., Khan S, and Amini F. (2023). Mapping of Slope Failures on Highway Embankments using Electrical Resistivity Imaging (ERI), Unmanned Aerial Vehicle

- (UAV), and Finite Element Method (FEM) Numerical Modeling for Forensic Analysis. *Transportation Geotechnics*, <https://doi.org/10.1016/j.trgeo.2023.100949>
7. Shuman, N. M., Khan, M.S., and Amini, F., (2022). Settlement based load capacity curve for single helix helical pile in  $c-\phi$  soil, *Soils and Foundations*, 63 (1), 101265
  8. Shuman, N. M., Khan, M. S., & Amini, F. (2022). Performance-Based Design Method for Multiple Helices of Helical Pile in Cohesionless Soil. *Transportation Research Record*, 03611981221128282.
  9. Davar, S., Nobahar, M., Khan, M. S., & Amini, F. (2022). The development of PSO-ANN and BOA-ANN models for predicting matric suction in expansive clay soil. *Mathematics*, 10(16), 2825.
  10. Nobahar M., Salunke R., Khan M. S., and Amini F. (2022). Development of Soil Moisture Content and Soil Matric Suction Model based on Field Instrumentation and Electrical Resistivity Imaging (ERI). MDPI, *Geotechnics*, 2(3):671-705. <https://doi.org/10.3390/geotechnics2030033>
  11. Khan, M.S., Nobahar, M., Ivoke, J. and Amini, F. (2022), Numerical Investigation of Hydraulic Conductivity Variation on Highway Slopes Made of Expansive Yazoo Clay, *Transportation Research Record*, 03611981221099508.
  12. Khan, M. S., Nobahar, M., Stroud, M., Ferguson, S., & Ivoke, J. (2022). Performance Evaluation of a Highway Slope on Expansive Soil in Mississippi. *International Journal of Geomechanics*, 22(1), 05021005.
  13. Khan M.S., Nobahar M, Stroud, M., Amini, F and Ivoke, J. (2021) Evaluation of rainfall induced moisture variation depth in highway embankment made of Yazoo clay, *Transportation Geotechnics*, 30 (100602), <https://doi.org/10.1016/j.trgeo.2021.100602>
  14. Nobahar, M., Khan, M.S., Stroud, M., Amini, F., and Ivoke, J. (2021), Progressive Development of the Perched Water Zone in Highway Slopes Made of Highly Plastic Clay”, *Transportation Research Record*.
  15. Khan, M.S., Hossain, M.S., and Nobahar, M. (2021) “Stabilization of the Highway Slope using Recycled Plastic Pins” *Transportation Research Record*, 03611981211007143
  16. Ivoke J., Khan M.S., and Nobahar M. (2021)” Unsaturated Hydraulic Conductivity Variation of Expansive Yazoo Clay with Wet-Dry Cycles”, *Transportation Research Record*, 03611981211011994
  17. Khan M. S., Ivoke J., Nobahar M., Boggs, S. and Amini F. (2021), Artificial Neural Network (ANN) based predictive Soil Temperature model of High Plastic Yazoo Clay, *Geomechanics and Geoengineering*, 1-17.
  18. Khan, M.S., Ivoke, J. and Nobahar, M. (2021), “Numerical Investigation of Slope Stabilization using Recycled Plastic Pin on Yazoo Clay”, *Infrastructures* 2021, 6(3), 47; <https://doi.org/10.3390/infrastructures6030047>
  19. Ahmed, A., Khan, M. S., Hossain, S., Sadigov, T., & Bhandari, P. (2020). Safety prediction model for reinforced highway slope using a machine learning method. *Transportation research record*, 2674(8), 761-773.
  20. Nobahar, M., Khan, M. S., & Ivoke, J. (2020). Combined Effect of Rainfall and Shear Strength on the Stability of Highway Embankments Made of Yazoo Clay in Mississippi. *Geotechnical and Geological Engineering*, 1-16; DOI: <https://doi.org/10.1007/s10706-020-01187-8>
  21. Khan M. S., Ivoke J & Nobahar M. (2019), Coupled Effect of Wet-Dry Cycles and Rainfall on Highway Slope Made of Yazoo Clay, *Geosciences* 2019, 9 (341); doi:10.3390/geosciences9080341



22. Nobahar M., Khan M. S., Ivoke J., and Amini F. (2019), " Impact of Rainfall Variation on Slope Made of Expansive Yazoo Clay Soil in Mississippi" *Transportation Infrastructure Geotechnology*, <https://doi.org/10.1007/s40515-019-00083-w>
23. Ahmed, A., Hossain, M.S., Khan, M.S., and Shishani, A. (2018), "Data Based Real Time Moisture Modeling in Unsaturated Expansive Subgrade in Texas", *Transportation Research Record: Transportation Research Board*, 0361198118772960
24. Kibria, G., Hossain M.S., and Khan M.S. (2018), Determination of Consolidation Properties using Electrical Resistivity, *Journal of Applied Geoscience*, *J. of Applied Geoscience*, 152(2018), 150-160.
25. Mahedi, M., Hossain, M.S., Faysal, M. and Khan, M.S. (2017). Potential Applicability of Impact Echo Method on Pavement Base Materials as a Nondestructive Testing Technique. *Transportation Research Record: Transportation Research Board*, DOI: 10.3141/2657-06
26. Khan, M.S., Hossain, M.S., Ahmed, A. and Faysal, M. (2016), "Investigation of a shallow slope failure on expansive clay in Texas", *Eng. Geol.*, <http://dx.doi.org/10.1016/j.enggeo.2016.10.004>
27. Manzur, S. R; Hossain, M.S., Kemler, V. and Khan, M.S. (2016), "Monitoring Extent of Moisture Variations Due to Leachate Recirculation in an Elr/Bioreactor Landfill using Resistivity Imaging", *Waste Management*, DOI: 10.1016/j.wasman.2016.02.035
28. Khan, M., Hossain, S., and Kibria, G. (2015). "Slope Stabilization Using Recycled Plastic Pins." *J. Perform. Constr. Facil.*, 10.1061/ (ASCE) CF.1943-5509.0000809, 04015054.
29. Kibria, G., Hossain, M., and Khan, M.S. (2013). "Influence of Soil Reinforcement on Horizontal Displacement of MSE wall." *Int. J. Geomech.*, 10.1061/ (ASCE) GM.1943-5622.0000297 (Feb. 22, 2013).
30. Hossain, M.S., Khan, M.S., Hossain, J., Kibria, G., and Taufiq, T. (2013). "Evaluation of Unknown Foundation Depth Using Different NDT Methods." *J. Perform. Constr. Facil.*, 27(2), 209–214.
31. Hossain, M., Kibria, G., Khan, M. S., Hossain, J., and Taufiq, T. (2012). "Effects of Backfill Soil on Excessive Movement of MSE Wall." *J. Perform. Constr. Facil.*, 26(6), 793–802.

### **TRB Corundum of Papers**

1. Khan M. S., Nobahar M., Ivoke J., and Amini F. (2018), "Effect of Rainfall on Slope made of Yazoo Clay soil in Mississippi." *Proc. 97th Annual Meeting of Transportation Research Board, Washington D.C.*
2. Khan M. S., Hossain M, S.; Ahmed A. and Nobahar M., (2018), "Simplified Design Method of Slope Stabilization Using Recycled Plastic Pin", *Proc. 97th Annual Meeting of Transportation Research Board, Washington D.C.*
3. Ahmed, A., Hossain, M.S., Khan, M.S. and Greenwood, K. (2018), "Use of Modified Moisture Barrier to Reduce Subsurface Moisture in Flexible Pavement in North Texas", *Proc. 97th Annual Meeting of Transportation Research Board, Washington D.C.*
4. Ahmed, A., Hossain, M.S., and Khan, M.S. (2018). "Unsaturated Hydraulic Properties and Suction Variation on a Pavement Subgrade Over Expansive Soil" *Proc. 97th Annual Meeting of Transportation Research Board, Washington D.C.*
5. Faysal M., Hossain, M.S., Salah, S. and Khan, M., S. (2017). Characterization of Strength and Long-Term Durability of Recycled Flex Base Materials. *Proc. 96<sup>th</sup>P Annual Meeting of Transportation Research Board, Washington D.C.*

6. Hossain, J., Khan, M.S., Hossain, M.S. and Ahmed, A. (2016) "Determination of Active Zone in Expansive Clay in North Texas through Field Instrumentation", *Proc. 95th Annual Meeting of Transportation Research Board*, January 10-14, 2016, Washington, DC, USA.
7. Khan, M. S., Hossain, M. S., Ahmed, A. and Faysal, M. (2015). Investigation of Shallow Failure of a Highway Slope Constructed over Expansive Soil. *Proc. 94th Annual Meeting of Transportation Research Board*, Washington D.C.
8. Khan, M. S. and Hossain, M. S. (2015). Effect of Shrinkage and Swelling Behavior of High Plastic Clay on the Performance of a Highway Slope Reinforced with Recycled Plastic Pin. *Proc. 94th Annual Meeting of Transportation Research Board*, Washington D.C.
9. Khan, M. S., Hossain, M. S., and Ahmed F. S. (2013). "A Comparative Study on Compressive Strength of Recycled Plastic Pin, Wood Lumber and Bamboo at Different Environmental Conditions". *92nd Transportation Research Board Annual Meeting*. Transportation Research Board, January 13-17, Washington D. C.

**Peer Reviewed ASCE Geotechnical Special Publications and Other Proceedings**

10. Masoud, N., Han, F., Eslami, A., Khan, S., & Amini, F. Stability Prediction of Highway Slope on Highly Plastic Clay Using Particle Swarm Optimization (PSO)-Based Neural Network. In *Geo-Congress 2024* (pp. 264-274).
11. Salunke, R., Khan, S., & Khan, M. F. (2023). Incorporating Advanced Imaging Techniques for Climate-Resilient Geotechnical Asset Management. In *ASCE Inspire 2023* (pp. 230-238).
12. Rahman, F., Chakraborty, A., & Khan, S. (2023). A Transformative Approach to Stabilize Highway Slope Using Vetiver Grass. In *ASCE Inspire 2023* (pp. 537-545).
13. Masoud, N., Rakesh, S., Mohammad Sadik, K., & Farshad, A. (2023). Early Warning Protocol against Highway Slope Failures in Mississippi. In *Geo-Congress 2023* (pp. 430-439).
14. Rahman, F., Chakraborty, A. and Khan, S. Vetiver Grass as a Climate-adaptive Solution for Highway Slopes Repair. In *ASCE INSPIRE 2023*.
15. Khan, S., Chakraborty, A. and Spears, A. (2023). Climate resilient stabilization of levee slope using deep-rooted Vetiver grass. In *Dam Safety*.
16. Chakraborty, A., Rahman, F. and Khan, S. (2023). Investigation of Vetiver Efficiency in Expansive Soil Slope Repair. In *AGU23 Fall Meeting*.
17. Khan, F., Chakraborty, A., Kibria, S. and Khan, S. (2023). Evaluating the Subsurface Impact of Vetiver Grass using Electrical Resistivity Imaging and Multichannel Analysis of Surface Waves. In *AGU23 Fall Meeting*.
18. Salunke, R. and Khan, S. (2023). Evaluating machine learning models for Identifying at-risk geo-infrastructure assets during extreme events. In *AGU23 Fall Meeting*.
19. Salunke, R. and Khan, S. (2023). Neural Networks Applied to Geophysics for Subsurface Characterization. In *AGU23 Fall Meeting*.
20. Kibria, S., Chakraborty, A., Khan, F., Zohuruzzaman, A. Q. M., and Khan, S. (2023). A Comparative Study of MASW, GPR and ERI For Subsurface Investigation. In *AGU23 Fall Meeting*.

21. Salunke, R. and Khan, S. (2023). Geospatial Deep Learning Technique to Detect and Classify Geo-structure Failures in Mississippi. In *International Conference of Learning Representations (ICLR)*.
22. Nahian, A. and Khan, S. (2023). Levee Performance during Floods: A Finite Element Method Study of Transient Hydrodynamic Conditions. In *Dam Safety*.
23. Alzeghoul, O., Khan, S. and Rushing, T. (2023). Stabilization of Airfield Pavement Subgrade Using Recycled Plastic Pin. In *ASCE Transportation & Development Institute (T&DI)*.
24. Chia, H. and Khan, S. (2023). Field-Based Performance of Helical Piles Installed in High Expansive Clay. In *Deep Foundation*.
- 25.
26. Salunke, R., Khan, S., & Khan, M. F. (2023). Incorporating Advanced Imaging Techniques for Climate-Resilient Geotechnical Asset Management. In *ASCE Inspire 2023* (pp. 230-238).
27. Rahman, F., Chakraborty, A., & Khan, S. (2023). A Transformative Approach to Stabilize Highway Slope Using Vetiver Grass. In *ASCE Inspire 2023* (pp. 537-545).
28. Salunke, R., Nobahar, M., Alzeghoul, O. E., & Sadik Khan, M. (2023). Soil Moisture characterization from UAV-based Optical and Thermal Infrared (TIR) Images. In *Geo-Congress 2023* (pp. 482-492).
29. Salunke, R., Nobahar, M., & Sadik Khan, M. (2023). A Cross-Platform Approach Using Remote Sensing and Geophysical Monitoring to Streamline Geotechnical Asset Management. In *Geo-Congress 2023* (pp. 471-481).
30. Masoud, N., Rakesh, S., Mohammad Sadik, K., & Farshad, A. (2023). Early Warning Protocol against Highway Slope Failures in Mississippi. In *Geo-Congress 2023* (pp. 430-439).
31. Spears, A., Khan, M. S., Whalin, R. W., Alzeghoul, O. E., & Chakraborty, A. Bio-Inspired Stabilization of a Test Levee Slope Using Vetiver Grass on Highly Plastic Clay. In *Geo-Congress 2023* (pp. 96-105).
32. Rahman, F., Chakraborty, A. and Khan, S. Vetiver Grass as a Climate-adaptive Solution for Highway Slopes Repair. In *ASCE INSPIRE 2023*.
33. Khan, S., Chakraborty, A. and Spears, A. (2023). Climate resilient stabilization of levee slope using deep-rooted Vetiver grass. In *Dam Safety*.
34. Chakraborty, A., Rahman, F. and Khan, S. (2023). Investigation of Vetiver Efficiency in Expansive Soil Slope Repair. In *AGU23 Fall Meeting*.
35. Khan, F., Chakraborty, A., Kibria, S. and Khan, S. (2023). Evaluating the Subsurface Impact of Vetiver Grass using Electrical Resistivity Imaging and Multichannel Analysis of Surface Waves. In *AGU23 Fall Meeting*.
36. Salunke, R. and Khan, S. (2023). Evaluating machine learning models for Identifying at-risk geo-infrastructure assets during extreme events. In *AGU23 Fall Meeting*.
37. Salunke, R. and Khan, S. (2023). Neural Networks Applied to Geophysics for Subsurface Characterization. In *AGU23 Fall Meeting*.



38. Kibria, S., Chakraborty, A., Khan, F., Zohuruzzaman, A. Q. M., and Khan, S. (2023). A Comparative Study of MASW, GPR and ERI For Subsurface Investigation. In *AGU23 Fall Meeting*.
39. Salunke, R. and Khan, S. (2023). Geospatial Deep Learning Technique to Detect and Classify Geo-structure Failures in Mississippi. In *International Conference of Learning Representations (ICLR)*.
40. Nahian, A. and Khan, S. (2023). Levee Performance during Floods: A Finite Element Method Study of Transient Hydrodynamic Conditions. In *Dam Safety*.
41. Alzeghoul, O., Khan, S. and Rushing, T. (2023). Stabilization of Airfield Pavement Subgrade Using Recycled Plastic Pin. In *ASCE Transportation & Development Institute (T&DI)*.
42. Chia, H. and Khan, S. (2023). Field-Based Performance of Helical Piles Installed in High Expansive Clay. In *Deep Foundation*.
43. Nobahar, M., Worsley, G.; Spears, A.; Khan, S., Chakraborty, A., (2024) "Climate Adaptive Predictive Approaches for Geotechnical Infrastructure Components in Mississippi", Accepted at GeoCongress 2024.
44. Rahman, F., Nahian, A. and Khan, S, (2024) "Development of a Highway Slope Failure Warning System using Field Instrumentation", Accepted at GeoCongress 2024.
45. Nobahar M., Han, F.; Eslami, A.; Khan, S. and Amini, F. (2024) Stability Prediction of Highway Slope on Highly Plastic Clay using Particle Swarm Optimization (PSO) based Neural Network, Accepted at GeoCongress 2024.
46. Fariha Rahman, F.; Chakraborty A and Khan, S. (2023); "A Transformative Approach to stabilize Highway Slope Using Vetiver Grass" Accepted for ASCE Inspire Conference 2023.
47. Salunke, R; Khan, S., and Khan, M.F. (2023), Incorporating Advanced Imaging Techniques for Climate-Resilient Geotechnical Asset Management, Accepted for ASCE Inspire Conference 2023.
48. Alzeghoul O, Khan S., Rushing T., (2023), Stabilization of Airfield Pavement Subgrade Using Recycled Plastic Pin, ICTD - Pavements 2023, Austin, Texas, June 14-17, 2023.
49. Salunke, R.; Nobahar, M.; Alzeghoul, O., and Khan, M.S.; (2023), Soil Moisture characterization from UAV-based Optical and Thermal Infrared (TIR) Images, GeoCongress 2023 in Los Angeles, CA, from March 26-29, 2023
50. Salunke, R.; Nobahar, M.; and Khan, M.S.; (2023), A Cross-Platform Approach Using Remote Sensing and Geophysical Monitoring to Streamline Geotechnical Asset Management, GeoCongress 2023 in Los Angeles, CA, from March 26-29, 2023
51. Samir, S. and Khan, M. S., (2023), WB Cover Using Vetiver Grass in Subtropical Climate, GeoCongress 2023 in Los Angeles, CA, from March 26-29, 2023
52. Nobahar, M., Khan, M.S., Farshad Amini, F. (2023), An Efficient Optimal Neural Network Model in Prediction of the Stability Factor of a Highway Slope Constructed on High Plastic Clay Soil in Mississippi, GeoCongress 2023 in Los Angeles, CA, from March 26-29, 2023
53. Nobahar, M.; Salunke, R.; Khan, M.S.; and Amini, F. (2023), Early Warning Protocol For Highway Slope Failures In Mississippi, GeoCongress 2023 in Los Angeles, CA, from March 26-29, 2023
54. Khan M. S., Spears, A., Whalin R.W, Alzeghoul, O., and Chakraborty, A., (2023), Bio-Inspired Stabilization of a Levee Slope using Vetiver Grass on Highly Plastic Clay, GeoCongress 2023 in Los Angeles, CA, from March 26-29, 2023

55. Spears, A., Chakraborty, A., Alzeghoul, O., Khan, M. S., Whalin, R. W. (2022). "Performance of a Test Levee Slope using Bio-Engineered Stabilization on High Plasticity Clay." Proceedings. Dam Safety Conference, Association of State Dam Safety Officials, Inc., Lexington, KY, 492-499.
56. Shuman, N. M., Nobahar, M., Khan, M.S., Alzeghoul, O., and Chia, H. (2022), Grass Performance on A Distressed Highway Slope of High Plastic Clay Under Excessive Rainfall, Accepted for GeoCongress 2022 in Charlotte, North Carolina, from March 20-23, 2022.
57. Nobahar, M., Khan, M.S., Salunke, R., Chia, H., and Gardner, A., (2022), Condition Assessment of Highway Slopes using Field Instrumentation and Electrical Resistivity Imaging (ERI), Accepted for GeoCongress 2022 in Charlotte, North Carolina, from March 20-23, 2022.
58. Nobahar, M., Khan, M.S., Alzeghoul, O., Graham, G. and Young, K. (2022), Moisture Variation Monitoring of Failed and Not-Failed Highway Slope through Resistivity Imaging in Mississippi, Accepted for GeoCongress 2022 in Charlotte, North Carolina, from March 20-23, 2022.
59. Khan M. S., Nobahar M., Hossain, M.S., and Ivoke J. (2021), Investigation of a Highway Slope Failure on Yazoo Clay Using Electrical Resistivity Imaging, Proc. Geo-Extreme 2021 in Savannah, GA from Nov 7-10, 2021.
60. Nobahar M., Khan M. S., (2021) Prediction of Matric Suction of Highway Slopes Using Autoregression Artificial Neural Network (Ann) Model, Proc. Geo-Extreme 2021 in Savannah, GA from Nov 7-10, 2021.
61. Nobahar M., Khan M. S., and Ivoke J., Nur, M.S., Amini, F. (2021) Coupled Hydro-Mechanical Analysis of Highway Slopes on Expansive Soil Subjected To Rainfall, Proc. Geo-Extreme 2021 in Savannah, GA from Nov 7-10, 2021.
62. Khan M. S., Nobahar M., Stanley P.L., and Ivoke J. (2021), "Investigation of Underground Water Leakage using Ground Penetration Radar (GPR)", Proc. IFCEE 2021: International Foundations Congress & Equipment Expo. <https://doi.org/10.1061/9780784483435.002>
63. Khan M. S., Nobahar M., and Ivoke J. (2021), "Field Performance of a Highway Slope Made of Expansive Yazoo Clay in Mississippi", Proc. IFCEE 2021: International Foundations Congress & Equipment Expo. <https://doi.org/10.1061/9780784483435.003>
64. Khan M. S., Ivoke J., and Nobahar M., Kibria, G (2019), "Effect of wet-dry cycle on the void ratio of expansive yazoo clay soil", Proc. Geo-Congress 2019, ASCE, Ruston, VA
65. Khan M. S., Ivoke J., and Nobahar M., Kibria, G (2019), "Progressive Change in Shear Strength of Yazoo Clay Soil", Proc. Geo-Congress 2019, ASCE, Ruston, VA
66. Khan, M.S., Ahmed, A., and Hossain, M.S., (2017), "Determination of Spatial Variation of Unsaturated Vertical Permeability," *Proc. Pan-AM Unsat 2017, Dallas, Texas.*
67. Khan, M.S., Nobahar, M., Ivoke, J. and Amini, F., (2017), "Rainfall Induced Shallow Slope Failure Over Yazoo Clay In Mississippi", *Proc. Pan-AM Unsat 2017, Dallas, Texas.*
68. Ahmed, A., Hossain, M.S., Khan, M.S. and Shishani, A. (2017), "Data Based Real Time Moisture Modeling in Unsaturated Expansive Subgrade", *Proc. Pan-AM Unsat 2017, Dallas, Texas.*
69. Alam, M.J., Hossain, M.S., Ahmed, A. and Khan, M.S., (2017). "Comparison of Percolation of Flat and Slope Section Vegetated Lysimeters Using Field Soil Water Characteristic Curve" *Proc. Pan-AM Unsat 2017, Dallas, Texas.*
70. Ahmed, A., Hossain, M.S., Alam, M.J., and Khan, M.S. (2017), "Moisture and Matric Suction Behavior in Unsaturated Subgrade through Field Instrumentation and Numerical Modeling" *Proc. Pan-AM Unsat 2017, Dallas, Texas.*

71. Ahmed, A., Hossain, M.S., Khan, M.S., Greenwood, K. and Shishani, A. (2017). *Moisture Variation on Expansive Subgrade through Field Instrumentation and Geophysical Investigation*. GeoMEast 2017.
72. Mahedi, M., Hossain, M.S., Faysal, M., Khan, M.S. and Ahmed, A. (2017). *Prediction of Strength and Stiffness Properties of Pavement Base Materials Using Non-Destructive Test*. GeoMEast 2017.
73. Khan, M.S, Hossain, M.S., Khan, M.A. and Faysal, M. (2017), “Performance of Recycled Plastic Pin (RPP) for Slope Stabilization”, GeoMEast2017, Sharm El-Sheik, Egypt.
74. Salah, S. B., Hossain, M. S., Faysal, M., Bhattacharjee, S., Khan, M. S. (2017), “Effect of Wet-Dry Cycle on Durability of Cement-Stabilized Recycled Pavement Base Aggregates.” GeoMEast2017, Sharm El-Sheik, Egypt.
75. Mahedi, M., Sahadat Hossain, M. D., Ahsan, A. N., Ahmed, A., Khan, M. S., & Greenwood, K. Potential Applicability of Slab Impulse Response (SIR) in Geophysical Investigation of Pavement Structures. In *Airfield and Highway Pavements 2017* (pp. 222-231).
76. Khan, M.S., Hossain, M.S., Ahmed, A., Greenwood, K. and Shishani, A. (2017). *Parametric Study on Slope Stability using Recycled Plastic Pin*. GeoRisk 2017.
77. Khan, M.A., Hossain, M.S., Khan, M.S, Samir, S. and Aramoon Al (2017), “Stress-Strain Characteristics of High PI Clay with the Variation of Wetting and Drying Cycle”, Geotechnical Frontiers, Orlando, Florida, USA.
78. Faysal, M.; Hossain, M.S.; Salah, S.; Bhattacharjee, S.; Thian, B.; and Khan, M. S. (2017), “Characterization of Geo-Environmental Properties of Untreated or Cement Treated Recycled Base Materials in Pavement Base Layer Applications” Geotechnical Frontiers, Orlando, Florida, USA.
79. Khan, M. S., Hossain, M. S., and Lozano, N. (2014). “A Numerical Study on Slope Stabilization using Recycled Plastic Pin”. *Proc. Geo-Congress 2014, Geo-Characterization and Modeling for Sustainability*, Feb 23-26, ASCE, Reston, VA.
80. Khan, M. S., Hossain, M. S., Lozano, N. and Kibria, G. (2014). “Temporary Lateral Support of a Concrete Retaining Wall Footing using Recycled Plastic Pin”. *Proc. Geo-Congress 2014, Geo-Characterization and Modeling for Sustainability*, Feb 23-26, ASCE, Reston, VA.
81. Khan, M.S., Kibria, G. Hossain, M.S., Hossain, J., and Lozano, N (2013). “Performance Evaluation of a Slope Reinforced with Recycled Plastic Pin.” GSP-231, *Proc. Geo Congress 2013: 1733-1742*, March 3 – 6, ASCE, Reston, VA.
82. Khan, M.S., Hossain, M.S., Hossain, J., and Kibria, G., (2012) “Determining Unknown Bridge Foundation depth by Resistivity Imaging (RI) method.” GSP 225, *Proc. Geo-Congress 2012: 275-284.*, March 25-29, ASCE, Reston, VA.
83. Hossain, J., Hossain M.S., Lozano, N., Khan, M.S., and Kibria, G., (2012) “Investigation of Geohazard Potential of Highway Embankment Slope on Expansive Clay by using Geophysical method.” GSP 225, *Proc. Geo-Congress 2012: 634-642.*, March 25-29, ASCE, Reston, VA.
84. Kibria, G., Hossain, M., Hossain, J., and Khan, M.S., (2012) Determination of Moisture Content and Unit Weight of Clayey Soil Using Resistivity Imaging (RI). *GeoCongress 2012: pp. 3398-3407*.
85. Hossain, M.S., Kibria, G., Hossain, J., and Khan, M.S., (2012) “Investigation of Moisture Variation of Backfill Soil in MSE wall.” GSP 225, *GeoCongress 2012: 2629-2638*, Oakland, California, March 25-29, 2012.

### Other Conference Proceedings

86. Hossain, M.S., Ahmed, A., Khan, M.S., Aramoon, A., and Thian, B (2016). Expansive Subgrade Behavior in a State Highway in North Texas. *Geotechnical and Structural Engineering Congress*, February 14-17, Phoenix, Arizona.
87. Faysal, M., Mahedi, M., Hossain, M.S., Aramoon, A., and Thian, B and Khan, M.S. (2016). Strength Characterization of Untreated and Cement Treated Recycled Flex-Base Materials. *Geotechnical and Structural Engineering Congress*, February 14-17, Phoenix, Arizona.
88. Faysal, M., Mahedi, M., Aramoon, Al., Thian, B., Hossain, M.S., Khan, M.A., Khan, M.S. (2016). Determination of Structural Coefficient of Different Combinations of Cement Treated /Untreated Recycled Base Materials, *Proc. Geotechnical and structural engineering congress 2016*, Phoenix, Arizona, February 14-17, 2016.
89. Hossain, M. S., Khan, M. S. and Manzur, S. (2014). Monitoring Moisture Variations in an ELR/Bioreactor Landfill Using Resistivity Imaging. *Proc. ISWA 2014*, Sao Paulo-Brazil.
90. Hossain, M.S., Lozano, N., Hossain, J., and Khan, M.S., (2012) “Investigation of Geo-hazard Potential of Highway Embankment Slopes on Expansive Clay.” Proceedings of the 3<sup>rd</sup> International Conference on Geotechnical Engineering for Disaster Mitigation and Rehabilitation, Semarang, Central Java, Indonesia
91. Ahmed, M. Z., Siddiquee, S. A. and Khan, M. S. (2012) “Reliability and Construction Practices in Building Construction Industry of Bangladesh” Third International Conference in Developing Countries, 4-6 July, Bangkok, Thailand.
92. Ahmed, M. Z., Khan, M. S., Siddiquee, S. A., Hasan, M. M. and Kundu, K.K. (2012) “Risk Factors and Construction Practices in Building Construction Sector of Bangladesh” 3<sup>rd</sup> International Symposium (Jointly Organized by Bangladesh JSPS Alumni Association, Japan Society for the Promotion of Science and Embassy of Japan In Bangladesh, 24-25 February, Dhaka.

### **SELECTED RESEARCH REPORTS**

1. Khan, S., Whalin, R., Spears, A., and Chakraborty, A., (2023), Bio-Inspired Stabilization of Levee Slope on Expansive Yazoo Clay at the Maritime and Multimodal Transportation Infrastructure in Mississippi, Final report submitted to MarTREC at the University of Arkansas, a UTC funded by USDOT, Fayetteville, Arkansas. Pp 69.
2. Khan, S., Amini, F. Salunke, R. and Nobahar, M. (2023), “MDOT State Study 316 – Development of Advanced Landslide Investigation Protocol Using Geophysical Methods for Mississippi”, Final Report Submitted to Mississippi Department of Transportation, Pp 213.
3. Khan, S. and Alzoghoul, O., (2022), Stabilization of Airfield Pavement Subgrade Using Recycled Plastic Pin, Final report Submitted to USACE-ERDC, Pp 111.
4. Khan, M.S., Amini, F. and Nobahar, M. (2020), “State Study 286: Performance Evaluation Highway Slope Made of Yazoo Clay”, Final Report Submitted to Mississippi Department of Transportation, Pp 251.
5. Khan, M.S., Ivoke, J. & Nobahar, M., (2020), “Effect of Permeability Variation of Expansive Yazoo Clay at the Maritime and Multimodal Transportation Infrastructure in Mississippi”, Final report submitted to MarTREC at the University of Arkansas, a UTC funded by USDOT, Fayetteville, Arkansas. Pp 125.

6. Khan, M.S., Ivoke, J. & Nobahar, M., (2018), “Effect of Swell-shrink Characteristics on Landslides in Yazoo Clay”, Final report submitted to MarTREC at the University of Arkansas, a UTC funded by USDOT, Fayetteville, Arkansas. Pp 89.
7. Khan, M.S., Nobahar, M., Ivoke, J. (2017), “Development of a Design Protocol: Sustainable Stabilization of Slope Using Recycled Plastic Pin in Mississippi”, Final report submitted to MarTREC at the University of Arkansas, a UTC funded by USDOT, Fayetteville, Arkansas. Pp 76.
8. Hossain, M.S., Khan, M.S., Faysal, M., and Ahmed, A. (2014) “Site Investigation and Remedial Design using Recycled Plastic Pins on a Slope Failure along SH 183 in the TxDOT Fort Worth District”, Report Submitted to Texas Department of Transportation (TxDOT), Fort Worth District. Pp 36.
9. Hossain, M.S., Khan, M.S., Hossain, J., and Kibria, G. (2013) “Implementation of Slope Stabilization in Highway Loop 12 and US 287 slope using Recycled Plastic Pin” Final Report Submitted to Texas Department of Transportation (TxDOT), Dallas District. Pp 261.
10. Hossain, M.S., Hossain, J., Khan, M.S., and Kibria, G. (2013) “Stability Analysis of the Failed Slope along Highway US 287 S near St. Paul Overpass and Proposed Remedial Measure. Task 1: Moisture Monitoring” Final Report – Submitted to Texas Department of Transportation (TxDOT), Dallas District. Pp 180.
11. Hossain, M.S., Khan, M.S., Hossain, J. and Kibria, G. (2011) “Effect of Remolding on Shear Strength of High Plastic Clay Soil” Report Submitted to Texas Department of Transportation (TxDOT), Dallas District. Pp 89.
12. Hossain, M.S., Hossain, J., Kibria, G., Khan, M.S., and Samir, S. (2011) “Slope Stability Analysis of the Failed Slope along IH 30 WB and Proposed Remedial Measure” Final Report Submitted to Texas Department of Transportation (TxDOT), Dallas District. Pp 83.
13. Hossain, M.S., Kibria, G., Hossain, J., Khan, M.S., and Samir, S., (2011) “Determination of Geotechnical Properties of Clayey Soil from Resistivity Imaging (RI)” Final Report Submitted to Texas Department of Transportation (TxDOT), Dallas District. Pp 132.
14. Hossain, M.S., Hossain, J., Khan, M.S., Kibria, G., and Samir, S., (2010) “Stability Analysis of the MSE Wall on State Highway 342 (Dallas Avenue) at Lancaster, Texas” Final Report Submitted to Texas Department of Transportation (TxDOT), Dallas District. Pp 56.
15. Hossain, M.S., Hossain, J., Khan, M.S., Kibria, G., Samir, S., (2010) “Determination of Unknown Bridge Foundation on Mountain Creek over FM 2738, Fort Worth, Texas” Report Submitted to Texas Department of Transportation (TxDOT), Fort Worth District. Pp 24.
16. Hossain, M.S., Taufiq, T., Manzur, S., Sonia, S., and Khan, S. (2010) “Efficiency of Leachate Recirculation System for the City of Denton Landfill, Texas”. 5<sup>th</sup> Quarterly Report Submitted to Solid Waste Department, City of Denton, Texas. September 2010. Pp 67.
17. Hossain, M.S., Khan, M.S., Kibria, G., Samir, S. and Alam, M.Z. (2013) “Investigation of Moisture Profile within the MSW at Cefe Valenzuela Landfill using Resistivity Imaging”, Report Submitted to Solid Waste Department, City of Corpus Christi, Texas. August 2013. Pp 39.

## **TECHNICAL PRESENTATIONS**

### **TRB Webinar**

1. Khan, M.S. (2022), “Climate Change Effect on Moisture Variation in Highway Slopes on Expansive Soil” presented in TRB Webinar titled “Climate Change Effect in Geotechnical Asset”

(part of The National Academies of Sciences, Engineering, and Medicine) presented on July 13, 2022, sponsored by the AKG 40 committee.

2. Khan, M.S. and Stroud, M. (2021), “Infiltration that causes failure of Highway Slopes Made of Highly Plastic Clay”, TRB Webinar (part of The National Academies of Sciences, Engineering, and Medicine) presented on April 27, 2021, sponsored by the AKG 40 committee.

### **Conference Presentation**

1. Climate Adaptive Predictive Approaches for Geotechnical Infrastructure Components in Mississippi, Accepted for presentation at GeoCongress 2024.
2. Development of a Highway Slope Failure Warning System using Field Instrumentation”, Accepted for presentation at GeoCongress 2024.
3. Stability Prediction of Highway Slope on Highly Plastic Clay using Particle Swarm Optimization (PSO) based Neural Network, Accepted for presentation at GeoCongress 2024.
4. Evaluation of the Impact of Climate Variability on the Soil-Water Characteristics Curve, Accepted for Lectern Session at 103<sup>rd</sup> TRB meeting from January 7–11, 2024, Washington, D.C.
5. Nondestructive Evaluation of Mechanically Stabilized Earth Wall using GPR and SASW”, Accepted for Lectern Session at 103<sup>rd</sup> TRB meeting from January 7–11, 2024, Washington, D.C.
6. Data-Driven Prediction of Climate Change Impact on Soil Moisture Content in Yazoo Clay using Machine Learning, Accepted for Poster Presentation at 103<sup>rd</sup> TRB meeting from January 7–11, 2024, Washington, D.C.
7. Determination of Failure Depth of a Slope Using Electrical Resistivity Imaging and Drone, Accepted for Lectern Session at 103<sup>rd</sup> TRB meeting from January 7–11, 2024, Washington, D.C.
8. Predicting the Water Balance of a Test Levee Slope Improved with Vetiver Grass, Accepted for Lectern Session at 103<sup>rd</sup> TRB meeting from January 7–11, 2024, Washington, D.C.
9. Efficient Machine Learning Model for Settlement Prediction of Large Diameter Helical Pile in  $c - \Phi$  Soil, Accepted for Poster Presentation at 103<sup>rd</sup> TRB meeting from January 7–11, 2024, Washington, D.C.
10. Simulation of Extreme Rainfall during Hurricane IDA on Highway Slopes in Mississippi, Accepted for Lectern Session at 103<sup>rd</sup> TRB meeting from January 7–11, 2024, Washington, D.C.
11. Fragility Framework of Highway Embankment’s Slope Stability Under Climate Change- Induced Extreme Rainfall Patterns, Accepted for Poster Presentation at 103<sup>rd</sup> TRB meeting from January 7–11, 2024, Washington, D.C.
12. Post-Failure Highway Slope Evaluation Using Coupled Geophysical and Geospatial Approach, Accepted for Lectern Session at 103<sup>rd</sup> TRB meeting from January 7–11, 2024, Washington, D.C.
13. Investigation of Vetiver Efficiency in Expansive Soil Slope Repair. Poster Presentation at *AGU23 Fall Meeting from December 11-15, 2023 at San Francisco, CA.*
14. Evaluating the Subsurface Impact of Vetiver Grass using Electrical Resistivity Imaging and Multichannel Analysis of Surface Waves. Poster Presentation at *AGU23 Fall Meeting from December 11-15, 2023 at San Francisco, CA.*
15. Evaluating machine learning models for Identifying at-risk geo-infrastructure assets during extreme events. Poster Presentation at *AGU23 Fall Meeting from December 11-15, 2023 at San Francisco, CA.*
16. Neural Networks Applied to Geophysics for Subsurface Characterization. Poster Presentation at *AGU23 Fall Meeting from December 11-15, 2023 at San Francisco, CA.*
17. A Comparative Study of MASW, GPR and ERI For Subsurface Investigation. Poster Presentation at *AGU23 Fall Meeting from December 11-15, 2023 at San Francisco, CA.*
18. A Transformative Approach to stabilize Highway Slope Using Vetiver Grass, Poster presentation at ASCE Inspire Conference 2023.



19. Incorporating Advanced Imaging Techniques for Climate-Resilient Geotechnical Asset Management, Lectern presentation ASCE Inspire Conference 2023.
20. Levee Performance during Floods: A Finite Element Method Study of Transient Hydrodynamic Conditions, Poster Presentation in Dam Safety 2023 in Palm Springs, CA from Sep 17-21, 2023
21. Vetiver Grass Application for Landfill, Lectern Presentation in 2023 TxSWANA Annual Conference in Corpus Christi, TX, from June 12 to June 14, 2023.
22. Evaluation of Transportation Geo infrastructure Health using Near-Surface Remote Sensing and Geophysical Testing, Podium Presentation at the 2023 Southeast Symposium on Contemporary Engineering Topics (SSCET) and the Arkansas Engineering Forum (AEF), at University of Arkansas Little Rock, Little Rock, AR on Friday, September 15, 2023 (Invited Presentation).
23. Stabilization of Airfield Pavement Subgrade Using Recycled Plastic Pin, Poster Presentation at ICTD - Pavements 2023, Austin, Texas, June 14-17, 2023.
24. Field Based Performance of Helical Piles Installed in Expansive Soil, Lectern Presentation in Superpile 2023, in Atlanta, GA, from June 7 to 9, 2023.
25. Climate Resilient Stabilization of Levee Slope Using Deep Rooted Vetiver Grass, Podium Presentation at the 2023 USSD at Charleston, SC from April 17 - 21, 2023
26. Soil Moisture characterization from UAV-based Optical and Thermal Infrared (TIR) Images, Podium Presentation at GeoCongress 2023 in Los Angeles, CA, from March 26-29, 2023
27. A Cross-Platform Approach Using Remote Sensing and Geophysical Monitoring to Streamline Geotechnical Asset Management, Podium Presentation at GeoCongress 2023 in Los Angeles, CA, from March 26-29, 2023
28. WB Cover Using Vetiver Grass in Subtropical Climate, Poster Presentation at GeoCongress 2023 in Los Angeles, CA, from March 26-29, 2023
29. An Efficient Optimal Neural Network Model in Prediction of the Stability Factor of a Highway Slope Constructed on High Plastic Clay Soil in Mississippi, Poster Presentation at GeoCongress 2023 in Los Angeles, CA, from March 26-29, 2023
30. Early Warning Protocol For Highway Slope Failures In Mississippi, Podium Presentation at GeoCongress 2023 in Los Angeles, CA, from March 26-29, 2023
31. Bio-Inspired Stabilization of a Levee Slope using Vetiver Grass on Highly Plastic Clay, Poster Presentation at GeoCongress 2023 in Los Angeles, CA, from March 26-29, 2023
32. Slope Stabilization using Vetiver grass: A Transformative Approach, Podium Presentation at the 2022 Southeast Symposium on Contemporary Engineering Topics (SSCET) and the Arkansas Engineering Forum (AEF), at University of Arkansas Little Rock, Little Rock, AR on Friday, September 16, 2022 (Invited Presentation).
33. Sustainable Waste Management Research at Jackson State University: An Overview, Podium presentation at the 2022 MS SWANA Fall Conference in Natchez, MS, from October 11 to October 13, 2022. (Invited Presentation).
34. Slope Stabilization using Vetiver grass: A Transformative Approach, Podium Presentation at the 2022 Southeast Symposium on Contemporary Engineering Topics (SSCET) and the Arkansas Engineering Forum (AEF), at University of Arkansas Little Rock, Little Rock, AR on Friday, September 16, 2022 (Invited Presentation).
35. Performance of a Test Levee Slope using Bio-Engineered Stabilization on High Plasticity Clay. Podium presentation at Dam Safety Conference, Association of State Dam Safety Officials, Inc., Lexington, KY, 492-499.

36. Grass Performance on A Distressed Highway Slope of High Plastic Clay Under Excessive Rainfall, Poster presentation in GeoCongress 2022 in Charlotte, North Carolina, from March 20-23, 2022.
37. Condition Assessment of Highway Slopes using Field Instrumentation and Electrical Resistivity Imaging (ERI), Poster Presentation at GeoCongress 2022 in Charlotte, North Carolina, from March 20-23, 2022.
38. Moisture Variation Monitoring of Failed and Not-Failed Highway Slope through Resistivity Imaging in Mississippi, Poster Presentation at GeoCongress 2022 in Charlotte, North Carolina, from March 20-23, 2022.
39. *101<sup>th</sup> Transportation research board meeting in January 2022 at Washington D.C.*, Lectern presentation titled Mapping the Extent of Landslides on Highway Slopes using Electrical Resistivity Imaging, Drones and LiDAR Imaging (Sponsoring Committee: AKG 20 Standing Committee on Soil and Rock Properties)
40. *101<sup>th</sup> Transportation research board meeting in January 2022 at Washington D.C.*, Lectern presentation titled Climate Adaptive Landslide Repair Using Deep Rooted Vetiver Grass (Sponsoring Committee: AKG 40 Standing Committee on Mechanics and Drainage of Saturated and Unsaturated Geomaterials)
41. *101<sup>th</sup> Transportation research board meeting in January 2022 at Washington D.C.*, poster presentation titled AASHTO SWEET 16: Performance Evaluation of Highway Slopes on Yazoo Clay
42. *101<sup>th</sup> Transportation research board meeting in January 2022 at Washington D.C.*, poster presentation titled TRBAM 22-02608 Development of Soil Moisture Content and a Soil Matrix Suction Model Based on Field Instrumentation and Electrical Resistivity Imaging (Sponsoring Committee: AKG 40 Standing Committee on Mechanics and Drainage of Saturated and Unsaturated Geomaterials)
43. *101<sup>th</sup> Transportation research board meeting in January 2022 at Washington D.C.*, poster presentation titled TRBAM 22-02642 Identifying Unsaturated Variations of Highway Slopes Using Coupled Electrical Resistivity Imaging and Field Instrumentation (Sponsoring Committee: AKG 40 Standing Committee on Mechanics and Drainage of Saturated and Unsaturated Geomaterials)
44. *101<sup>th</sup> Transportation research board meeting in January 2022 at Washington D.C.*, poster presentation titled TRBAM-22-00799 Greening Roadway Infrastructure with Vetiver Grass to Support Transportation Resilience (Sponsoring Committee: AMR 10 Standing Committee on Critical Transportation Infrastructure Protection)
45. *101<sup>th</sup> Transportation research board meeting in January 2022 at Washington D.C.*, Lectern presentation titled TRBAM 22-03660 Performance-Based Design Method for Multiple Helices of Helical Pile in Cohesionless Soil (Sponsoring Committee: AKG 70 Standing Committee on Foundations of Bridges and Other Structures)
46. *101<sup>th</sup> Transportation research board meeting in January 2022 at Washington D.C.*, Lectern presentation titled TRBAM 22-03792 Numerical Investigation Hydraulic Conductivity Variation on Highway Slopes made of Expansive Yazoo Clay (Sponsoring Committee: AKG 40 Standing Committee on Mechanics and Drainage of Saturated and Unsaturated Geomaterials)
47. AGU Fall 2021 meeting in New Orleans, LA, from December 13-17, 2021, Podium Presentation titled, "Assessment of Failed Highway Slopes Constructed on Expansive Clay using Electrical Resistivity Imaging (ERI) and Field Monitoring Data"
48. AGU Fall 2021 meeting in New Orleans, LA, from December 13-17, 2021, Podium Presentation titled, "Multi-faceted slope performance monitoring of a failed slope built on expansive clay".

49. AGU Fall 2021 meeting in New Orleans, LA, from December 13-17, 2021, Podium Presentation titled, "Climate Resilient Landslide Repair Using Deep Rooted Vetiver Grass on Expansive Soil".
50. 2021 MS ASCE Section Meeting in Gulfport, MS from September 15-17, 2021, podium presentation, "Proactive Landslide Repair on Yazoo Clay Using Deep Rooted Vetiver Grass".
51. Geo-Extreme 2021 in Savannah, GA from Nov 7-10, 2021, podium presentation titled "Investigation of a Highway Slope Failure on Yazoo Clay Using Electrical Resistivity Imaging".
52. Geo-Extreme 2021 in Savannah, GA from Nov 7-10, 2021, podium presentation titled "Prediction of Matric Suction of Highway Slopes Using Autoregression Artificial Neural Network (Ann) Model".
53. Geo-Extreme 2021 in Savannah, GA from Nov 7-10, 2021, podium presentation titled "Coupled Hydro-Mechanical Analysis of Highway Slopes on Expansive Soil Subjected To Rainfall".
54. IFCEE 2021: International Foundations Congress & Equipment Expo in Dallas, Texas from May 10-14, 2021, podium presentation titled "Investigation of Underground Water Leakage using Ground Penetration Radar (GPR)".
55. IFCEE 2021: International Foundations Congress & Equipment Expo in Dallas, Texas from May 10-14, 2021, poster presentation titled "Field Performance of a Highway Slope Made of Expansive Yazoo Clay in Mississippi".
56. *100<sup>th</sup> Transportation research board meeting in January 2021 at Washington D.C., poster presentation titled "Stabilization of the Highway Slope Constructed on Expansive Soil Using Recycled Plastic Pins (RPPs)".*
57. *100<sup>th</sup> Transportation research board meeting in January 2021 at Washington D.C., poster presentation titled "Progressive Development of the Perched Water Zone in Highway Slopes Made of Highly Plastic Clay".*
58. *100<sup>th</sup> Transportation research board meeting in January 2021 at Washington D.C., poster presentation titled "Simplified Design Method for Small Diameter Helical Pile".*
59. *100<sup>th</sup> Transportation research board meeting in January 2021 at Washington D.C., poster presentation titled "Evaluation of Effective Stress-Beta Method's Design Coefficients Using Machine Learning".*
60. *100<sup>th</sup> Transportation research board meeting on January 2021 at Washington D.C., poster presentation titled "Data Driven Soil Moisture Prediction Model Using Artificial Neural Network (ANN)".*
61. *100<sup>th</sup> Transportation research board meeting in January 2021 at Washington D.C., poster presentation titled "Unsaturated Hydraulic Conductivity Variation of Expansive Yazoo Clay with Wet-Dry Cycles".*
62. *Louisiana Transportation Conference on March 1-4, 2020 at Baton Rouge, LA, podium presentation on "Slope Stabilization using Recycled Plastic Pins"*
63. *99<sup>th</sup> Transportation research board meeting on January 12 to January 16, 2020 at Washington D.C., Podium Presentation at AFS20, Standing Committee on Geotechnical Instrumentation and Modeling on "Artificial Neural Network (ANN) based predictive Soil Temperature model of High Plastic Yazoo Clay"*
64. *99<sup>th</sup> Transportation research board meeting on January 12 to January 16, 2020 at Washington D.C., Poster Presentation on "Artificial Neural Network (ANN) based predictive Soil Temperature model of High Plastic Yazoo Clay"*
65. *99<sup>th</sup> Transportation research board meeting on January 12 to January 16, 2020 at Washington D.C., Poster Presentation on "Artificial Neural Network (ANN) based predictive Soil Temperature model of High Plastic Yazoo Clay"*

66. 99th Transportation research board meeting on January 12 to January 16, 2020 at Washington D.C., Poster Presentation on "Failure Analysis of a Instrumented Highway Slope on Yazoo Clay"
67. 99th Transportation research board meeting on January 12 to January 16, 2020 at Washington D.C., Poster Presentation on "Safety Prediction Model for Reinforced Highway Slope Using Machine Learning Method"
68. SSCET 2019 in September 13, 2019 in New Orleans, LA, podium presentation titled "Highway slopes made of Yazoo clay: Failure Mechanism and Possible Repair"
69. 2019 Geo-Congress held on March 24 - 27, 2019 in Philadelphia, PA, poster presentation titled "Effect of wet-dry cycle on the void ratio of expansive yazoo clay soil".
70. 2019 Geo-Congress held on March 24 - 27, 2019 in Philadelphia, PA, poster presentation titled "Progressive Change in Shear Strength of Yazoo Clay Soil".
71. 98th Annual Meeting of Transportation Research Board, January 13-17, 2019, Washington, DC, USA, Poster Presentation titled "Impact of Wet-Dry Cycles on The Stability of Highway Slope Made of Yazoo Clay Soil".
72. 98th Annual Meeting of Transportation Research Board, January 13-17, 2019, Washington, DC, USA, Poster Presentation titled "Numerical Investigation of Slope Stabilization Using Recycled Plastic Pin on Yazoo Clay".
73. 98th Annual Meeting of Transportation Research Board, January 13-17, 2019, Washington, DC, USA, Poster Presentation titled "Progressive Change in Stability of A Highway Slope Made of Yazoo Clay Soil".
74. 97th Annual Meeting of Transportation Research Board, January 7-11, 2018, Washington, DC, USA, presented in TRB committee on soil and rock properties (AFP30) meeting. Presentation titled "Simplified Design Method of Slope Stabilization Using Recycled Plastic Pin."
75. 97th Annual Meeting of Transportation Research Board, January 7-11, 2018, Washington, DC, USA, poster presentation titled "Simplified Design Method of Slope Stabilization Using Recycled Plastic Pin."
76. 97th Annual Meeting of Transportation Research Board, January 7-11, 2018, Washington, DC, USA, poster presentation titled "Effect of Rainfall on Slope made of Yazoo Clay soil in Mississippi."
77. Pan-AM Unsat 2017, held on Nov 12-15, 2017 in Dallas, TX, Lectern Presentation Title: "Determination of Spatial Variation of Unsaturated Vertical Permeability".
78. Pan-AM Unsat 2017, held on Nov 12-15, 2017 in Dallas, TX, Lectern Presentation Title: "Rainfall Induced Shallow Slope Failure over Yazoo Clay in Mississippi".
79. GeoRisk 2017, held on June 4-7, 2017 in Denver, CO, Lectern Presentation Title: "Parametric Study on Slope Stability using Recycled Plastic Pin".
80. 9th Geo<sup>3</sup> T<sup>2</sup> Conference (2017), held on April 11 to April 12 in Cary, NC. Lectern Presentation title: "Design Method for Slope Stabilization Using Recycled Plastic Pin".
81. 9th Geo<sup>3</sup> T<sup>2</sup> Conference (2017), held on April 11 to April 12 in Cary, NC. Lectern Presentation title: "Case Studies: Long Term Performance of Highway Slopes Stabilized with Recycled Plastic Pin".
82. STGEC 2016: November 7 – 10, 2016, Biloxi, MS, Lectern presentation titled "Expansive Clay Problems in Transportation Geotechnics: Site Investigation, Performance Monitoring and Sustainable Solutions."
83. SSCET 2016, August 26, 2016, Jackson, MS, Lectern presentation titled "Sustainable Slope Stabilization Using Recycled Plastic Pin".

84. 95<sup>th</sup> Annual Meeting of Transportation Research Board, January 10-14, 2016, Washington, DC, USA, presented in TRB Subcommittee on Geophysics (AFP20(1)) meeting. Presentation titled “Site Investigation of Highway Slopes using Electrical Resistivity Imaging Technique.”
85. 95<sup>th</sup> Annual Meeting of Transportation Research Board, January 10-14, 2016, Washington, DC, USA, Poster presentation titled “Determination of Active Zone in Expansive Clay in North Texas through Field Instrumentation.”
86. MS ASCE section meeting, Sep 30-Oct 2, 2015, Raymond, MS, Lectern presentation titled “Site Investigation of Highway Slopes Using Electrical Resistivity Imaging Technique”.
87. MS ASCE section meeting, Sep 30-Oct 2, 2015, Raymond, MS, Lectern presentation titled “Stabilization of Shallow Slope failure on Expansive Clay using Recycled Plastic Pin”.
88. 8<sup>th</sup> Geo<sup>3</sup> T<sup>2</sup> Conference (2015), held on April 9 to April 10 in Cary, NC. Lectern Presentation title: “Stabilization of Shallow Slope failure on Expansive Clay using Recycled Plastic Pin”.
89. 8<sup>th</sup> Geo<sup>3</sup> T<sup>2</sup> Conference (2015), held on April 9 to April 10 in Cary, NC. Poster Presentation title: “Site Investigation of Highway Slopes Using Resistivity Imaging Technique”.
90. 8<sup>th</sup> Geo<sup>3</sup> T<sup>2</sup> Conference (2015), held on April 9 to April 10 in Cary, NC. Poster Presentation title: “Behavior of Expansive Subgrade on A State Highway in North Texas”.
91. 94<sup>th</sup> TRB (2015), held on January 11 to January 15, 2015 in Washington, D.C. Poster Presentation Title: “Effect of Shrinkage and Swelling Behavior of High Plastic Clay on the Performance of a Highway Slope Reinforced with Recycled Plastic Pin.”
92. 94<sup>th</sup> TRB (2015), held on January 11 to January 15, 2015 in Washington, D.C. Poster Presentation Title: “Investigation of Shallow Failure of a Highway Slope Constructed over Expansive Soil”.
93. GeoCongress 2014 held on February 23 to February 26, 2014 in Atlanta, GA, Poster Presentation title: “A Numerical Study on Slope Stabilization using Recycled Plastic Pin”
94. GeoCongress 2014 held on February 23 to February 26, 2014 in Atlanta, GA, Poster Presentation title: “Temporary Lateral Support of a Concrete Retaining Wall Footing using Recycled Plastic Pin”
95. Geo-Congress 2013, held on March 3 to March 6, 2013 in San Diego, CA. Lectern Presentation title: “Performance Evaluation of a Slope Reinforced with Recycled Plastic Pin”
96. 2013 Texas Section Spring Conference & Centennial Celebration held on March 19 to March 23, 2013 in Corpus Christi, TX. Lectern Presentation title: “Field Performance of A Highway Slope in Texas Reinforced with Recycled Plastic Pin”
97. 92<sup>nd</sup> TRB meeting (2013), held on January 13 to January 14, 2013 in Washington D.C. Lectern Presentation title: “A Comparative Study on Compressive Strength of Recycled Plastic Pin, Wood Lumber and Bamboo at Different Environmental Conditions”
98. Geo-Congress 2012, held on March 25 to March 29, 2012 in Oakland, CA. Poster presentation title: “Determining Unknown Bridge Foundation depth by Resistivity Imaging (RI) method”
99. Geo-Frontier 2011, held on March 13 to March 16, 2011 in Dallas, TX. Poster presentation title: “Determination of Unknown foundation depth using NDT methods”.

## REJECTED RESEARCH PROPOSALS

1. Khan et al., “UTC Tier 1 Center for Preservation of Transportation GEO-Infrastructure under Changing Climate (Preserve-TransGI),” proposal submitted to US Department of Transportation, Total Budget: \$10M, From August 2023 to July 2028, rejected.

2. Uddin et al., “UTC Region 4 Center for Adaptive and Resilient Transportation Infrastructure Solutions (ARTIS)”, proposal submitted to US Department of Transportation, Total Budget: \$750k, From August 2023 to July 2028, rejected.
1. Imran et al., “Large-scale CoPe: Community Opportunities and Outcomes for Antifragile Systems, Technology, and Learning Hub (COASTAL-Hub)”, Proposal submitted to NSF, Total Budget: \$2M, August 2022 to July 2027, rejected.
2. Khan, S. and Amini, F., “Excellence in Research: Climate-Driven Coupled Hydro-Mechanical-Time Dependent Model of Expansive Soil Subjected to Cyclic Wet-Dry Cycles,” Proposal submitted to NSF, Total Budget: \$500k, From August 2022 to July 2025, rejected.
3. Khan, M.S., “CAREER: Novel Bio-Inspired & Climate Resilient Landslide Repair Using Deep Rooted Vetiver Grass on Expansive Soil”, submitted to NSH Career program in August 11, 2020. Total Budget: \$540k, rejected.
4. Ahmed, A. and Khan, M.S., Early Prediction of Pavement Degradation Under Freeze-Thaw Loading Using Advanced, Multi-Sensor Tools, submitted to NJDOT on 09.30.2020, Total Budget \$1.5 M, JSU share: \$500k, rejected.
5. Twilley, R. et al., (2019) A National Center for Mississippi River Basin: Collaborative Ecosystem Design with Nature and Culture (MRB DESIGN CENTER). Submitted by LSU. My role: PI for JSU Share 250k, Rejected.
6. Amini, F., Khan, M.S., and Li, L., “EIR: Interaction of Vetiver Grass with Slopes on High PI clay under multi-hazard condition”, submitted to NSH HBCU UP in October 03, 2019. Total Budget: \$1M. rejected.
7. Khan, M.S, and Amini, F., “Excellence In Research: The Effect of Unsaturated Parameters on Electrical Resistivity of Soil” NSF HBCU UP EIR on October 02, 2018, Total Budget: \$500K. rejected.
8. Khan M.S, “Prioritizing Highway Slope Maintenance for Alabama Department of Transportation” submitted to UAH for possible funding through ALDOT on Sep 10, 2018, Total Budget \$155K.
9. Khan, M.S, and Amini, F., “Acquisition of Multichannel Electrical Resistivity Imaging System to Establish Geophysical Testing Capability for Jackson State University”, Submitted to ARO-DOD HBCU MI program, Total Budget: \$ 275K
10. Khan, M.S., Collaborative Proposal: Research Capacity Building at Two HBCUs on New Challenges in Sustainable Solid Waste Management Research. Submitted to NSF HBCU UP EIR on March 01, 2018, Total Budget: \$1M-JSU Share 500k. My Role: Co-PI.
11. Khan, M.S., Collaborative proposal: large scale swell-shrink characterization of Expansive soil, Proposal submitted to NSF with a collaboration of JSU and USRA. My Role: PI. Budget 180,845.
12. Khan, M.S., “Research Initiation Award: Investigation of the Effect of Moisture Content and Matric Suction on Electrical Resistivity of Clay Soil”. Submitted to NSF HBCU UP on October 2017, Total Budget \$300K, rejected.
13. Khan, M.S., “Career: Effect of Excessive Drought and Rainfall on Landslides over Expansive Soil”, Submitted to NSF CMMI in June 2017. Total Budget \$539K, rejected.
14. Khan, M.S., “Career: Effect of Climate Change on Slope Failure over Expansive Soil. Submitted to NSF CMMI in June 2016. Total Budget \$518K, Rejected.
15. Khan, M.S., “RII Track 4: Collaborative Research to Advance Enhanced Landfill Mining”, Submitted to NSF EPSCoR program, Total Budget: \$213,676. Rejected.
16. Khan, M.S., “Gulf Research Fellowship for Early Career Faculty. Fellowship”, budget amount: \$75000, Rejected



17. Das, H and Khan, M.S., “Building Louisiana coastal resilience to shocks and stressors through collaborative citizen-expert data collection, analysis, and intervention” (Submitted to Gulf Research Institute, Major Research Institute: Northwestern University, Project Director a Total Budget 1.5M, JSU share \$150K), Rejected.
18. Khan, M.S. and Amini, F. “Acquisition of Multichannel Electrical Resistivity Imaging System for Interdisciplinary research at Jackson State University”, Submitted to Army Research Office, Total Budget \$273.7K, Rejected.
19. Khan, M.S., “Career: Effect of Climate Change on Slope Failure over Expansive Soil. Submitted to NSF CMMI in June 2016. Total Budget \$518K, Rejected.
20. Khan, M.S. and Amini, F. “Development of Climate Adaptive Design Protocol For Highway Slope on Yazoo Clay”, Submitted to Mississippi Department of Transportation in summer 2016, Total Budget \$305K., Rejected.
21. Khan M.S. and Amini, F. “Concept Paper: Highway Slope Stabilization using Recycled Plastic Pins”, Submitted to Mississippi Department of Transportation, rejected
22. Das, H and Khan, M.S., “Expression of Interest (EOI): Development of Climate Change Resilient Flood Management System in Bangladesh. Submitted to US AID. Rejected.
23. Khan, M.S and Das, H. “Marsh Habitat Monitoring”, Proposal Submitted to Mississippi department of environmental quality, budget: \$820,000, rejected.

## **TEACHING EXPERIENCE**

### **Graduate Level Course**

#### ***Development of New Courses***

1. CIV 672 Advanced Geomechanics (Fall 2020, Fall 2022 JSU)
2. CIV 680- Unsaturated Soil Mechanics (Spring 2023, JSU)
3. CIV 681-Excavation Support Systems and Retaining Structures (Fall 2018, JSU)
4. CIV 682- Computational Geotechnics (Fall 2019, JSU)
5. CIV 683-Soil Structure Interaction (Fall 2017, Spring 2020 JSU)
6. CIV 684- Advanced Site Characterization and Instrumentation (Spring 2017, Fall 2021 JSU)

#### ***Improved existing Curriculum***

7. CIV 542- Advanced Design of Concrete Structures (Spring, 2017, Spring 2018-JSU)
8. CIV 640- Finite Element Methods (Fall 2016, JSU)
9. CIV 675- Earth Dam and Slopes (Spring 2016, Spring 2018, Spring 2020 JSU, Fall 2023)
10. CIV 679-Advanced Topics in Geotechnical Engineering-Computational Geotechnics (Fall 2015, JSU)
11. CE 6313-Design of Earth Dams (Spring 2015, UTA)
12. CE 5369-Computational Geotechnics (Spring 2014, Spring 2015, UTA)

### **Undergraduate Level Course**

1. CIV 477- Advanced Design of Concrete Structures (Spring 2017, JSU)
2. CIV 451- Computer Methods for Civil Engineers (Fall 2016, Fall 2017, Fall 2018, Fall 2019 JSU)

## **GRADUATE STUDENT ADVISEMENT**

### **Current Students:**

1. **Henry Chia, Ph.D. Student**

Dissertation Title: “Field Performance Evaluation of Helical Pile based Foundation System in Expansive Soil”

Tentative Graduation Date: Summer 2024

2. **Avipriyo Chakraborty, Ph.D. Student**

Dissertation Title: “Soil Water Balance of Slope Reinforced with Deep Rooted Vetiver Grass”

Tentative Graduation Date: Spring 2025

3. **Omer Alzghoul, Ph.D Student**

Dissertation Title: “Investigation of Levee Performance under Extreme Events”

Tentative Graduation Date: Fall 2025.

4. **Audrika Nahian, PhD Student**

Dissertation Title: “Data-Driven Risk Assessment of MS River Levee System under Changing Climate”

Tentative Graduation Date: Spring 2026.

5. **Fariha Rahman, PhD Student**

Dissertation Title: “CO<sub>2</sub> sequestration using Vetiver grass on Infrastructure”

Tentative Graduation Date: Spring 2026

6. **Fahimuzzaman Khan, MS Student**

Thesis Title: “Evaluation of Blast Loading on Fiber Reinforced Concrete.”

Tentative Graduation Date: Spring 2024.

7. **Sayedul Kibria, MS Student**

Thesis Title: “Sensor Network for Early Detection of Failure of Transportation Geo-Infrastructure.”

Tentative Graduation Date: Spring 2024.

8. **Abdulraheem Alzghoul, MS Student**

Thesis Title: “Structural Capacity of the Recycled Plastic Carbon Fiber Composite”

Tentative Graduation Date: Spring 2024.

9. **Saimum Hossain, MS Student**

Thesis Title: “Pore Water Pressure in the Railroad Subgrade using Electrical Resistivity Imaging”

Tentative Graduation Date: Spring 2025.

10. **A. Q. M. Zohuruzzaman, MS Student**

Thesis Title: “Bio-Inspired Building materials from Dredged Silt”

Tentative Graduation Date: Spring 2025.

11. **Anika Mahzabin, MS Student**

Thesis Title: “Phytoremediation of Heavy Metals using Vetiver Grass”

Tentative Graduation Date: Fall 2026.

12. **Rahul Biswas, MS Student**

Thesis Title: “Nature Based Erosion Control promoting Sedimentation”

Tentative Graduation Date: Fall 2026.

**Former Students**

1. **Amber Spears (Ph.D.)**

Dissertation Title: “The Hydrologic Balance of Earthen Embankments and Levees with Vetiver Grass”

Graduation Date: Spring 2024

2. **Rakesh Salunke (Ph.D.)**  
Dissertation Title: “Smart Geotechnical Asset Management Framework for Climate Adaptive Infrastructure”  
Graduation Date: Fall 2023
3. **Avipriyo Chakraborty, (M.S.)**  
Thesis Title: Implementation of Vetiver Root as Bio-Anchor  
Graduation Date: Spring 2023
4. **Masoud Nobahar (Ph.D)**  
Dissertation Title: “Development of An Early Warning Protocol of Highway Slopes on Yazoo Clay”  
Graduation Date: Summer 2022
5. **John Ivoke (Ph.D.)**  
Dissertation Title: “Effect of Wet-Dry Cycles on Hydromechanical Properties of Expansive Yazoo Clay”  
Graduate Date: Fall 2020
6. **Omer Alzghoul (M.S.)**  
Thesis Title: “Stabilization of Airfield Pavement reinforced with Recycled Plastic Pin”  
Graduation Date: Spring 2022.
7. **Amier Gardner (M.Eng.)**  
Tentative Graduation Date: Summer 2022.
8. **Henry Chia (M.E.)**  
Graduate Date: Fall 2020
9. **Kang Du (M.S.)**  
Dissertation Title: “Correlation of Pavement Texture with Skid Resistance Measurements in Mississippi”  
Graduate Date: Fall 2019
10. **Devin Crawford (M.E.)**  
Graduate Date: Spring 2019
11. **John Ivoke (M.E.)**  
Graduate Date: Spring 2018

## **UNDER-GRADUATE STUDENT INVOLVEMENT IN RESEARCH**

1. Paris Coleman
2. Sierra. T. Basden
3. Sierra Tyler
4. Tyra-Nicole Whyte
5. Spencer Ballenger
6. Steven Soublet
7. Aqurios Jones
8. Capryka. Hunt
9. Edalit Viveros Amador
10. Tyler Wells
11. Shawn Miller
12. George Graham

13. Kyle Young
14. Sidney Wright
15. Patrick Stanley
16. Katia Lele
17. Dante Thornton

### STUDENT'S SUCCESS

1. Rakesh Salunke and Avipriyo Chakraborty received 3<sup>rd</sup> prize on SWANA's 2022 International Solid Waste Design Competition (SWDC).
2. Amber Spears nominated as 2022 NHERI RAPID Graduate Scholar.
3. Rakesh Salunke nominated for travel grant for 2022 NHERI Rapid Workshop
4. Masoud Nobahar received Outstanding Dissertation Award from the Civil Engineering Department at Jackson State University.
5. Masoud Nobahar won 1<sup>st</sup> prize in university wise 2019 graduate research paper competition from Academic Affairs at Jackson State University.
6. Patrick Stanley won 2020 ASCE Student Leadership Award from ASCE.
7. Patrick Stanley won 2019 ASCE Civil Engineering Student of the Year from ASCE MS Section.
8. Patrick Stanley won 2<sup>nd</sup> prize in Mead paper competition in 2018 Deep South Conference in Ruston, LA.

### PROFESSIONAL AFFILIATION

Co-founder and Director (June 2017 – Present)

**Resilient Slope LLC (former Swashbuckling LLC)**  
Arlington, Texas

Project Coordinator (April 2009- December 2009),  
Assistant Manager, (December 2007- March 2009),

**Sinamm Engineering Limited**  
Dhaka, Bangladesh.

Assistant Engineer, (June 2007- November 2007),

**China National Electric Wire & Cable Import/Export Corporation (CCC)**  
Dhaka, Bangladesh.

### UNIVERSITY SERVICES

1. Faculty Advisor: ASCE student chapter at Jackson State University, from Fall 2017 to Summer 2022.
2. Senator at Faculty Senate, from Fall 2019 to Spring 2023.
3. Member, University Undergraduate Curriculum Committee, from Fall 2016 to Summer 2017
4. Department Representative to Faculty Senate (August 2018-present)
5. Member, College Performance-Based Compensation (August 2018-present)

### REVIEW ACTIVITIES

1. Journal of Transportation Research Record
2. ASCE Journal of Geotechnical and Geoenvironmental Engineering

3. ASCE Journal of Pipeline Systems Engineering and Practice
4. ASCE International Journal of Geomechanics.
5. ASCE Journal of Materials in Civil Engineering
6. Springer Sustainable Civil Infrastructures
7. Geotechnical and Geological Engineering
8. Transportation Geotechnics
9. ASTM Geotechnical Testing Journal
10. Journal of Transportation and Traffic Engineering
11. Geomatics, Natural Hazards and Risk
12. Landslides
13. ASCE Geotechnical Special Publication

#### **GUEST EDITOR**

1. Khan, M.S. and Ahmed, A. (2022), Slope Stability Analyses and Remedial Measure of Failed Slopes, Special Issue in Geosciences (ISSN 2076-3263) MDPI.
2. Islam, M.R.; Khan, M.S. and Ahmed, A. (2022) Geomaterials for Transportation Infrastructures, Special Issue in Infrastructures (ISSN 2412-3811) MDPI.
3. Khan, M.S. (2022), "Climate Adaptive Sustainable Solutions in Geotechnical and Geo-Environmental Engineering", Special Issue in Sustainability (ISSN 2071-1050) MDPI.

#### **PROFESSIONAL AFFILIATION**

1. Member of American Society of Civil Engineers (ASCE)
2. Member Society of American Military Engineers (SAME)
3. US Society of Dams (USSD).
4. Association of State Dam Safety Officials (ASDSO)
5. Deep Foundation Institute (DFI)