CURRICULUM VITAE

DR. NUR MOHAMMAD SHUMAN, EIT

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Dr. Nur M. Shuman's research is in Geotechnical and Geomatics Engineering, particularly focusing on complex Finite Element Modeling and Geospatial Data Analysis. He held a Ph.D. research position at Jackson State University. He received a fellowship from the Department of Transportation, Mississippi, to develop an advanced landslide investigation protocol using geophysical methods in Mississippi. Dr. Shuman was a member of a prestigious project, "Climate Resilient Landslide Repair on Expansive Soil Using Vetiver Grass," funded by the National Science Foundation (NSF). Dr. Shuman traveled to Mali, Africa, in a professional capacity and contributed to various successful engineering projects in the Kidal Super Camp in Mali under the United Nations (UN). He also worked as a remote pilot at JSU and developed a digital 3D map of the JSU campus with a UAS (Drone).

Dr. Shuman's Ph.D. dissertation won an award for Outstanding Dissertation from Jackson State University — a commendable achievement for any student of the prestigious institution. He also holds an M.Sc. in Geotechnical Engineering from Jackson State University of Mississippi, USA, and a B.Sc. from BUET, Dhaka, Bangladesh.

Publications

Journal Paper

- Imam, M. H., Mohiuddin, M., Shuman, N. M., Oyshi, T. I., Debnath, B., Liham, M. I. M. H., 2024. Prediction of seismic performance of steel frame structures: A machine learning approach, Structures, Volume 69, 107547, ISSN 2352-0124, https://doi.org/10.1016/j.istruc.2024.107547.
- Shuman, N.M., Khan, M.S. and Amini, F., 2024. Efficient machine learning model for settlement prediction of large diameter helical pile in c—Φ soil. AI in Civil Engineering, 3(1), pp.1-26.
- Shuman, N.M., Khan, M.S. and Amini, F., 2023. Performance-Based Design Method for Multiple Helices of Helical Pile in Cohesionless Soil. Transportation Research Record, 2677(5), pp.77-91.
- Shuman, N.M., Khan, S. and Amini, F., 2023. Settlement based load capacity curve for single helix helical pile in c-ϕ soil. Soils and Foundations, 63(1), p.101265.
- N. M. Shuman, 2021. Capacity review of large diameter helical pile in cohesive and Cohesionless soil. DOI: 10.13140/RG.2.2.29427.45607.

Conference Paper

- Nobahar, M., Khan, M.S., Ivoke, J., Shuman, N.M. and Amini, F., 2021. Coupled Hydro-Mechanical Analysis of Highway Slope on Expansive Soil Subjected to Rainfall. In *Geo-Extreme 2021* (pp. 167-177).
- Mohammad, S.N., Masoud, N., Mohammad Sadik, K., Alzeghoul, O. and Henry Kini, C., 2022. Vetiver grass performance on a distressed highway slope of high-plastic clay under excessive rainfall. In *Geo-Congress 2022* (pp. 268-278).
- Ahmed, M., Shuman, N.M., Chowdhury, N.A., Abrar, M.A. and Ahmed, K.S., 2023, July. Effective Machine Learning Models for Predicting SPT N of Reclaimed Jolshiri Area, Dhaka. In *International Conference on Advances in*

Civil Infrastructure and Construction Materials (pp. 291-299). Cham: Springer Nature Switzerland.

Lecture Presentation

- Shuman, N. M.; Khan, M. S.; and Amini, F. 2021, "Performance Based Design Method for Multiple Helices of Helical Pile in Cohesionless Soil" TRB 101st Annual Meeting, January 9-13

Poster Presentation

- Salunke, R.; Shuman, N. M.; and Khan, M. S. 2020, "Evaluation of Effective Stress-Beta Method's Design Coefficients Using Machine Learning" 2021 TRB virtual 100th Annual Meeting, January 15-21
- Shuman, N. M.; Khan, M. S.; and Amini, F. 2020, "Simplified Design Method for Small Diameter Helical Pile" 2021 TRB virtual 100th Annual Meeting, January 15-21
- Shuman, N. M.; and Khan, M. S.; and Kethireddy, S. 2021 "Landslide Hazard Potential Mapping in Mississippi based on Field Investigation and Remote Sensing" AGU Fall meeting, December 13-17
- Shuman, N. M.; Khan, M. S.; Nobahar, M.; and Amini, F. 2020, "Downscaling Remotely Sensed Soil Moisture Variations Using Satellite and Unmanned Aerial Vehicle (UAV) Photogrammetry" AGU Fall meeting, December 13-17

TEACHING EXPERIENCE

Assistant Professor
Department of Civil and Environmental Engineering
North South University (NSU)
January 2025 to present.

CEE 340: Advanced Foundation Engineering
CEE 210: Engineering Mechanics
CEE 214: Engineering Materials
ARC 281 Building Structures I- Basic Principles
ARC 282 Building Structures II

Associate Professor
Department of Civil Engineering
University of Information Technology & Sciences (UITS)
Feb 2024 to Dec 2024.

CE 321: Principles of Soil Mechanics,
CE 495: Socio-Economic Aspects of Development Projects
CE 421: Earth Retaining Structures,
CE 424: Geotechnical Engineering Lab II
CE 324: Geotechnical Engineering Lab I
CE 323: Foundation Engineering
CE 302: Remote Sensing and GIS Lab
CE 490: Project/Thesis

Assistant Professor Department of Civil Engineering Military Institute of Science and Technology (MIST) Jan 2015 to Jan 2024	CE 201: Engineering Materials, CE 205: Numerical Methods for Engineering, CE 210: GIS and Remote Sensing, CE 212: Structural Mechanics and Materials Sessional, CE 101: Analytical Mechanics, CE 300: Civil Engineering Students' Internship Programme (CESIP), CE 316: Concrete Structures Design Sessional I, CE 442: Geotechnical Engineering Sessional II, CE 342: Geotechnical Engineering Sessional, CE 400: Final Year Research Project (FYP) from Elective Courses, GERM 352: Fundamentals of Research Methodology
Part-time Faculty Department of Civil and Environmental Engineering North South University (NSU) May 2023 to Dec 2024.	CEE 210: Engineering Mechanics ARC 281 Building Structures I- Basic Principles ARC 282 Building Structures II
Part-time Faculty Department of Civil Engineering United International University (UIU) Jan 2024 to Jul 2024	CE 3241: Geotechnical Engineering I (Soil Mechanics) CE 3242: Geotechnical Engineering Laboratory

ACADEMIC QUALIFICATION

- **Ph.D.**, Jackson State University, Jackson, Mississippi, USA (2023)
- **M.Sc.**, Jackson State University, Jackson, Mississippi, USA (2021)
- **B.Sc.**, Bangladesh University of Engineering and Technology (BUET) (2007)
- **H.S.C**., Notre Dame College (2001)
- **S.S.C.**, Motijheel Govt. Boys' High School (1999)

PROFESSIONAL AFFILIATIONS

- Member of the Institute of Engineers Bangladesh (MIEB)
- Member of the Institute of Civil Engineers (UK)
- American Society of Civil Engineers (ASCE)
- American Concrete Institute (ACI)
- Accredited Intern Engineer, USA by the Mississippi Board of Licensure (EI-32361)
- Professional Remote Pilot, USA by Federal Aviation Administration (Certificate Number-4356737)

RESEARCH INTERESTS

- Geo-Infrastructure Resilience with Nature-Based Solution

- Retaining Structures
- Numerical modeling
- Geotechnical Instrumentation and Performance Monitoring
- Geophysical Testing
- Climate and Seasonal Effects on Infrastructures

PROFESSIONAL EXPERIENCE

PROYASH
Institute of Special Education
Jan 2015 to Apr 2018

Project In Charge of a Project for Special Children
Important Activities:

- Prepare the Development project proposal (**DPP**) of PROYASH and arrange for approval.
- Design and modify a sensory garden with the coordination of BCA(Singapore) and the University of Malaya.
- Vertical Extension and construction of an English medium school, Design and Construction of a 6-storied adult leisure and learning School.
- Construction of a 14-story accommodation building.
- Design and Construction of 8-story Proyash Center Building with a basement.
- Design and construction of the drainage system of the Proyash complex.

Bangladesh Engineer Construction Company in **MINUSMA, MALI**
Feb 2014 to Jan 2015

Project Officer and Horizontal Platoon Commander under UN Contingent
Dr. Shuman participated in various successful engineering projects in Kidal Super Camp in Mali under the United Nations as an engineer officer.
Important Activities:

- Detailed planning of Kidal Super Camp, considering ground requirements, which had been sent to UN HQ for incorporation in the final planning.
- Solving a pipe connection problem of around 1500m from an external borehole of discharge $10m^3/hr$, including internal pipe networking.
- Design and construct a road using laterite and locally available material to carry a load of 15 tons.
- Design and execution of Chain link fence and security system in Kidal Airport
- Digital survey of Kidal Super camp with total station.

19 ECB (Engineering Construction Battalion), Chittagong
Apr 2011 to Feb 2014

Staff Officer (Work) for Road Construction
Staff officer of work in 19 Engineering Construction Battalion (ECB).
Important Activities:

- Prepare and correct the Development Project Proposal (**DPP**) on road projects and revise on occasion.
- Coordinate with the civil authority and the local entity for the timely implementation of projects.

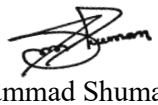
Project In Charge of a Road Construction Project
As the project in charge, Dr. Shuman was affiliated with three road projects connecting all three hilly districts (Khagrachori, Rangamati, and Bandarban) in a total road network of 121 km.
Duties included:

- Provide subject matter expertise on slope protection, land compaction, and the drainage facility of the project.
- Supervise and control the quality of the work and overall responsibility of implementation within time and budget.
- The names of the road projects are mentioned below:
  a. **Chittagong- Hathajari- Rangamati road project.**
  b. **Ghagra- Chondroghona-Bangalhalia-Bandorban road project.**
  c. **Bangalhalia-Rajasthali road project.**

COURSEWORK (During M.Sc. and Ph.D.)
Soil Mechanics, Soil-Structure Interaction, Earth Dams and Slopes, Hazardous Waste Engineering, Computational Geotechnics, Advanced Geomechanics, Advanced Design of Hydraulic Structure, Design, Excavation Support Systems, Engineering Hydrology, Hydrogeology, Advanced Site Character & Instrumentation, Data Analysis Methods, Geospatial Data Analytics, Physics of Earth and Planetary Materials, Introduction to Reflection Seismology, Geographic Information System, Advanced Foundation Engineering, Small Watershed Hydrology, Unsaturated Soil Mechanics

SOFTWARE SKILLS
R, Python, ArcGIS, RS Pile, Slide, GeoStudio (Seep/W, Slope/W), PLAXIS, Abaqus, MATLAB, AutoCAD, SAP, ETABS, STAAD Pro, Microsoft Office

I HEREBY CERTIFY THAT THE ABOVE-NOTED STATEMENTS ARE TRUE AND CORRECT:



Dated: June 15, 2025 Nur Mohammad Shuman