

Nahiyan Al Farook
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Profile Links
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Research Interests

Ground Improvement	Granular Pile Foundation	Sustainable Materials	Finite Element Method
Reclaimed Asphalt Pavement	Geo-textile	Artificial Neural Network	Foundation Engineering
Structural Analysis	Liquefaction	3D Printing	Steel Structure

Research Experience

1. RESEARCH ASSISTANT (May, 2026 – Present))

Resilient and Innovative Bridges and Structures (RIBS) Lab,
Schulich School of Engineering, University of Calgary, Calgary, AB, Canada
(Under the supervision of Associate Professor Dr. Muntasir Billah)

- Responsibilities:**
- Developing nonlinear finite element models of earthquake-resilient structures and bridges using OpenSees to simulate seismic behavior and evaluate structural performance.
 - Conducting numerical analysis to investigate the dynamic response of civil infrastructure under seismic loading conditions.
 - Reviewing and synthesizing literature on seismic resilience, structural dynamics, and advanced modeling techniques to support ongoing thesis research.
 - Collaborating with faculty and research team members to design experimental frameworks for validating computational models.

2. RESEARCH ASSISTANT (Part-time) (July, 2024 – January, 2026)

Geotechnical Engineering Lab, Islamic University of Technology
(Under the supervision of Professor Dr. Hossain Md. Shahin)

- Responsibilities:**
- Mentored undergraduates in experimental design, data analysis, and laboratory techniques.
 - Designed custom instrumentation and conducted geotechnical testing as per ASTM standards.
 - Trained undergraduates on the development of column behavior models using PLAXIS 3D.
 - Analyzed experimental and numerical data to assess technical and economic feasibility.

3. UNDERGRADUATE RESEARCHER (Senior Year) (July, 2023 – June, 2024)

Geotechnical Engineering Lab, Islamic University of Technology
(Under the supervision of Professor Dr. Hossain Md. Shahin)

- Responsibilities:**
- Designed custom instrumentation and conducted ASTM-compliant testing to determine soil parameters.
 - Developed PLAXIS 3D finite element models to simulate the behavior of RAP-infused granular piles.
 - Analyzed experimental and numerical data to analyze the behavior of RAP-infused granular piles.
 - Executed comprehensive literature reviews and contributed to thesis proposal development.

4. UNDERGRADUATE RESEARCHER (Junior Year) (January, 2022 – June, 2023)

Environmental Engineering Lab, Islamic University of Technology
(Under the supervision of Associate Professor Dr. Amimul Ahsan)

- Responsibilities:**
- Developed Artificial Neural Network models to forecast industrial impact on urban river water quality.
 - Acquired 20 years of surface water quality data through coordination with government agencies.
 - Performed data analysis, including time-series and correlation studies, to identify key pollution parameters.
 - Conducted literature reviews and supported thesis development on hydrological systems.

Academic Credentials

Master of Science (Civil Engineering)
University of Calgary
Specialization: Structural Engineering & Solid Mechanics

(May, 2026 – Present)

Bachelor of Science (Civil Engineering)
Islamic University of Technology
Specialization: Geotechnical Engineering

(January, 2020 – June, 2024)

Undergraduate Thesis:
Experimental and numerical analysis of reclaimed asphalt pavement-infused granular piles for lean clay improvement. (Published)
Supervisor: Prof. Dr. Hossain Md. Shahin
CGPA: 3.44 out of 4.00

Higher Secondary School Certificate
Notre Dame College
Dhaka, Bangladesh
Specialization: Science
GPA: 5.00 out of 5.00

(May, 2017 – April, 2019)

Publications

1. Farook, N. A., Mahtab, A., Shahin, H. M., Musaddik, N., Kabir, M. U., & Zahid, C. Z. B. (2026). Experimental and numerical analysis of reclaimed asphalt pavement-infused granular piles for lean clay improvement. *International Journal of Pavement Research and Technology*.
DOI: <https://doi.org/10.1007/s42947-026-00756-z>

2. Mahtab, A., Farook, N. A., Kabir, M. U., Tashfiah, R., & Musaddik, N. "Axisymmetric laboratory model testing of a single floating RAP–stone granular pile in reconstituted clay and sand under vertical loading." (Abstract Submitted for Peer Review)

3. Tashfiah, R., Farook, N. A., Musaddik, N., Mahtab, A., & Shahin, H. M. "Sustainable ground improvement with granular piles incorporating recycled asphalt pavement (RAP)." (Submitted for Review)

4. Farook, N. A., Mahtab, A., Abrar, M. F., Rafi, M., Koatha, I. A. & Ahsan, A. "Predicting the impact of industrial effluent on the Buriganga and Turag Rivers in Dhaka using artificial neural networks and regression analysis." (Manuscript in preparation)

Laboratory Experience

GEOTECHNICAL ENGINEERING LAB
Particle Size Distribution (ASTM D7928), Liquid Limit and Plasticity Index Determination (ASTM D4318), Specific Gravity Test of Soil Solids (ASTM D854-23), and Hydrometer Analysis (ASTM D7928), **Standard Proctor Compaction Test (ASTM D698)**, Unconfined Compressive Strength Test (ASTM D2166), Direct Shear Test (ASTM D3080), **Triaxial Compression Test (ASTM D4767)**, and the **California Bearing Ratio (CBR) Test**, Sieve Analysis of Fine and Coarse Aggregates (ASTM C136), Absorption Test for Coarse Aggregates (ASTM C127), Bulk Specific Gravity Test of Coarse Aggregates (ASTM C127), and Unit Weight and Voids in Aggregate Test (ASTM C29).

Key Characteristics & Research Tool Proficiency

Software Skills:

- AutoCAD
- Fusion 360
- CSI ETABS
- CSI SAP
- CSI SAFE,
- Bentley STAAD Pro
- Bentley PLAXIS 3D
- MS Office
- Origin Pro

Programming Language:
C, C++, Python

Design & Creative:

- Adobe Photoshop
- Adobe Illustrator
- Adobe Lightroom
- Adobe After Effects
- Adobe XD
- Adobe Audition
- Photography
- Videography
- Web Development

Soft Skills:

- Strong interpersonal & communication skills
- Leadership

- Ability to work collaboratively as part of a team
- Problem-solving

- Attention to detail
- Report/Proposal Writing

English Language Proficiency (IELTS)

Overall Score	Listening	Reading	Writing	Speaking	CEFR Level
8.0	8.5	8.5	6.5	7.5	C1

Professional Memberships

Institute Name	Type of Membership	Membership No.	Validity
The Institute of Engineers, Bangladesh (IEB)	Associate Member	A-28914	October, 2025 – October, 2027

Professional Experience

1. STRUCTURAL ENGINEER

(January, 2025 – March 2026)

Dimension Nano Engineering (DNEL)

Uttara, Dhaka 1230, Bangladesh

Responsibilities:

Structural & Retrofitting Design, Structural Analysis using ETABS, SAFE & STAAD Pro, Developing BOQ, Proposal Writing, Project Management

Project Experience:

1. 2025 – Design & Construction of a **4 Storied Steel Structure** for Bancoff Ltd. in Narayganj, Dhaka
2. 2025 – Design & Construction of a **Single Storied Generator Building** for Stella Manufacturing Bangladesh Ltd. At Bay Economic Zone.
3. 2025 – Detailed Engineering Assessment (DEA) & Retro-fitting design for Lantabur Apparels Ltd.
4. 2025 – Detailed Engineering Assessment (DEA) & Retro-fitting design for Cherry Intimate Ltd.
5. 2025 – Detailed Engineering Assessment (DEA) & Retro-fitting design for Swanlon Co. Ltd.
6. 2025 – Detailed Engineering Assessment (DEA) & Retro-fitting design and RSC Approval for KAIXI Fashion Ltd Bangladesh

2. FOUNDER & CREATIVE DIRECTOR

(June, 2022 – Present)

Nafarin Atelier (formerly Nahiyen's Shot)

Uttara, Dhaka 1230, Bangladesh

About:

As the Founder and Principal Designer of Nafarin Atelier, I leverage over five years of expertise in corporate graphics, web development, and photography to deliver integrated design solutions. I established this venture to formalize my creative practice and build a distinguished brand identity, operating parallel to my civil engineering career.

Responsibilities:

My responsibilities encompass the full client lifecycle, from initial consultation to final delivery, providing corporate clients with modern graphic design, exclusive photography, and intuitive, user-friendly web designs that effectively elevate their digital presence.

3. SUSTAINABILITY ENGINEER

(September, 2021 – January, 2025)

The Sustainability Nexus Ltd. (SusNex)

Uttara, Dhaka 1230, Bangladesh

Responsibilities: Management System Audits (ISO 9001, 14001, 45001), Training Management, Business development, Proposal writing, **Detailed Engineering Assessment**, Energy Assessments, ETP Assessments, GRI Sustainability Reporting, Material Traceability & Circular Economy research, Graphics Designing, Photography, Videography & Web Development.

Project Experience:

1. 2024 - Detailed Engineering Assessment (DEA) & Retro-fitting design for Teen Age Modern Fashion Ltd || Engineer (Civil)
2. 2024 - Assessment of **NOSTRI Fire Safety Lab** requirement & **architectural design** with **German Development Agency (GIZ)** || Sustainability Engineer (Civil)

3. 2023–24 - Environment Sustainability & **Climate Change Assessment** of Fred Hollows Foundation || Sustainability Engineer
4. 2022–24 - Pilot project with **BGMEA** on **ESG Data Reporting**/ Sustainability Report issuance as per GRI Standard for 4 member factories. || Sustainability Developer
5. 2023 - Management System Audit for **ISO 9001: 2015** of The Sustainability Nexus Ltd. || Internal Management System Auditor
6. 2023 - Research Support to German Development Agency (GIZ) on **JHUT Market System of Bangladesh** || Sustainability Developer
7. 2023 - Assessment of Electrical and Mechanical Equipment i.e., **Energy Audit** of Pioneer Group || Sustainability Engineer
8. 2022–23 - Developing Sustainability Strategy and Writing **Sustainability Report for Bashundhara Group** || Sustainability Developer

Professional Certifications

Analysis & Design of RC Structure with code provision (BNBC 2020 & ACI 318) by Zahid Hasan Khan, Executive Engr. (PWD)	Development Technologies Ltd.	July, 2024 (12 Week-long)
GRI Certified Training on Sustainability Report Writing & SDGs	Global Reporting Initiative	December, 2024 (3 Day-long)
Industrial Training Program on River Modelling Geographic Information Systems (GIS) Surveying Hydraulic Structures Environmental Impact Assessment (EIA)	Institute of Water Modelling (IWM)	June, 2023 (3 Week-long)
IRCA/CQI Certified ISO 45001:2018 OHS Lead Auditor Course	SGS Bangladesh Ltd	January, 2024 (5 Day-long)
IRCA/CQI Certified ISO 14001:2015 EMS Lead Auditor Course	SGS Bangladesh Ltd	February, 2022 (5 Day-long)
ETP Operation and Functionality Assessment Preparedness	Kingsley Engineering Service Corporation	January, 2025
GHG Emissions Inventory Preparation for SBTi	The Sustainability Nexus Ltd.	January, 2023
Sustainable Materials Circularity & Traceability	The Sustainability Nexus Ltd.	October, 2023
ETP Operation, Performance, Analysis & Improvement	The Sustainability Nexus Ltd.	November, 2023
Wastewater Recycling & Zero Liquid Discharge	The Sustainability Nexus Ltd.	May, 2022
An Insight into Green Building & Rating System	The Sustainability Nexus Ltd.	May, 2022

Extra-Curricular and Voluntary Experience

GENERAL SECRETARY (October, 2024 – Present)

BM Global Foundation

Floral Park, NY 11002, United States of America

Responsibilities:

Leading a U.S.-based non-profit foundation dedicated to philanthropic initiatives in Bangladesh. In this capacity, I spearheaded the establishment and operational management of our country office in Bangladesh. My leadership encompassed end-to-end project execution, including the design and implementation of field surveys on women's reproductive health in underserved communities of Kushtia, followed by the distribution of essential sanitary supplies. Furthermore, I organized and managed a community outreach program to provide nutritious iftaar meals during Ramadan, ensuring successful delivery and alignment with our mission of sustainable support.

VOLUNTEER United Nations Volunteers (January, 2018- February, 2021)

VOLUNTEER Bidyanondo Foundation (January, 2020- December, 2020)

SECRETARY Notre Dame College Eco & Space Club (June, 2017- April, 2019)
(Festival & Outreach Department)

References

Dr. Hossain Md Shahin

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Islamic University of Technology
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Dr. Mozaher Ul Kabir Mahadi

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