



Mowaz Mohammed Abdul Karim

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About

A diligent Civil and Environmental Engineer with a strong foundation in water quality monitoring, pollution control, and sustainable infrastructure design. Experienced in field and lab-based water quality assessments, with hands-on skills in analyzing contaminants and managing large-scale surveys. Proficient in deep learning, Hydrodynamic and Hydraulic modeling, and finite element analysis. Have technical expertise in MODFLOW, SWMM, EPANET, ANSYS, AutoCAD, SPSS, and Python. Adept at data analysis, coordinating multidisciplinary teams, and ensuring quality assurance in research and project delivery. A research-driven problem solver with excellent communication skills, committed to delivering technically sound and environmentally responsible solutions that drive real-world impact.

Education

2025	B.Sc in Civil and Environmental Engineering <i>Shahjalal University of Science and Technology</i>	CGPA: 3.12
2018	XII- Dhaka Board <i>Government Science College, Dhaka, Bangladesh</i>	GPA: 4.67
2016	X- Dhaka Board <i>Motijheel Model School and College, Dhaka, Bangladesh</i>	GPA: 5.00

Work Experience

Research Assistant, Department of Civil and Environmental Engineering, SUST (Jan 2025 – Present)

Supervisor: Dr. Md. Imran Kabir

Developing an efficient mechanism to utilize crowd spaces and high-density population of Bangladesh to harvest renewable energy from human footsteps.

Key Responsibilities

- Managed research initiatives from planning through completion, meeting all milestones and project goals while maintaining strict adherence to timelines and deliverables.
- Designed and implemented data collection tools, including surveys and interview guides, for qualitative and quantitative research.
- Performed data preprocessing and statistical analysis using SPSS and Python while conducting FEA simulations using ANSYS to ensure accurate and reliable research outcomes.
- Engaged with clients and key stakeholders by presenting findings and ensuring transparent communication throughout the project timeline.
- Prepared research reports and summaries, translating findings into practical recommendations for decision-makers.

Projects

Water Sanitation and Hygiene Survey of Basirpur Village in Sylhet City

Prepared a comprehensive statistical report combining questionnaire survey data with field and laboratory analysis of iron, arsenic, and fecal coliform levels to assess household sanitation and hygiene practices.

VisionX

Built an AI-powered smart goggles to enable blind individuals read digital and physical texts, identify objects, count finances and manage small business all through voice control; received grant of BDT 60,000 from World Bank.

Projects

▪ MedPunctual

Developed a pill box designed to ensure timely medication delivery, daily health monitoring, and pill supply management using computer vision to detect and quantify pills, sorting them according to user preferences.

▪ I-Braille

Engineered a low-cost portable Braille display focusing on user ease, enabling blind and deaf individuals to read digital and physical text. Received grant of 1M BDT from ICT Division.

Skills

Language C, C++, Python, Matlab.

Software MODFLOW, SWMM, EPANET, VS Code, AutoCAD, Fusion 360, ArcGIS, QGIS, Ansys, SPSS, Google Earth Engine.

Tools Microsoft Office Suite, Google Suite, Microsoft Azure, KoboToolbox, Adobe Illustrator.

Industry Water Quality Assessments, Pollution Control, EIA, Hydrodynamics and Hydraulics, Artificial Intelligence.

Workshops and Seminars

▪ Detailing of Building Structure — (4th and 5th Oct 2024)

Keynote speaker:

Dr. Khan Mahmud Amanat,

Professor, Department of Civil Engineering, BUET

Organized by: Prothom Alo, GPH Ispat at the University of Asia Pacific (UAP), Dhaka

▪ Introduction to BNBC 2020 — (15th Oct 2023)

Keynote speaker:

Zahid Hasan Khan,

Executive Engineer, PWD, 28th BCS

Organized by: Department of Civil & Environmental Engineering, SUST

▪ Advanced Civil Engineering Aviation Sector — (15th Oct 2023)

Keynote speaker:

Mohammad Mehedi Hasan,

Executive Engineer, Civil Aviation Authority

Organized by: Department of Civil & Environmental Engineering, SUST

Organizational Experience

▪ Graduate Mentor, ACI SUST Student Chapter, Shahjalal University of Science and Technology

Instructed undergraduate students about technical writing and presentation. Mentored 15 students individually about three types of competitions including CAD Drawings, Poster Presentation and Truss Design.

▪ General Secretary, AAJ Muktomancho, Shahjalal University of Science and Technology

Organized 4 events and 2 workshops for performing and visual arts. Performed as an artist and instructor of Mime arts.

▪ Joint Secretary, RoboSUST, Shahjalal University of Science and Technology

Arranged 3 workshops and 2 events. Instructed basic robotics for high school and elementary schools twice. Developed 4 robotics project for solving real-life problems.

Scholastic Achievements

- MIT Solve 2025: Featured on MIT Solve website for the project of [VisionX](#).
- Microsoft Imagine Cup 2024: Qualified for third phase for the project of MedPunctual.
- Pitch Propel Prosper (Top 3): Qualified as top 3 business ideas for the project VisionX.
- Battle of Minds 2023 (Bootcamp): Qualified for third phase of Battle of Minds 2023 case competition.
- Hult Prize at SUST 2023 (Finalist): Qualified for final round of Hult Prize at SUST 2023.
- IC4IR 2021: Idea Contest (Champion) – Gathered 1M BDT as pre-seed fund for the I-Braille Project.
- University Innovation Hub Program SUST-IC3 (Runner-Up) – Gathered 60K pre-seed fund for VisionX.

Scholastic Achievements

- IEEE Satellite Expedition Contest 2023 (Runner-Up) – A satellite for tracing pollutant origins in the atmosphere.
- bdSTEM Competition 2021: National STEM Competition (Finalist) – Energy production from CSP.
- Mechnovation 2022: Robonix LFR competition (Runner-Up) – Built a line follower bot for an obstacle course.
- IEEE YESIST 12-2021 WePOWER Track (Finalist) – Developed a method Energy generation from footstep.
- International Poster Competition organized by UniV (Gold Award) – For the research work of energy generation.

Research Experience

▪ Prediction of Seismic Effect on Structure using Deep Learning [Under Review]

Undergraduate Thesis

Developed deep learning models consisting of a cGAN and ANN architecture to predict von mises stress plot and maximum stress value of a structural element due to vertical and lateral loading.

▪ Water Sanitation and Hygiene Survey of Basirpur Village in Sylhet City [Ongoing]

Generated a statistical report based on questionnaire survey alongside field and lab test to analyze iron, arsenic and fecal coliform concentrations to understand sanitation and hygiene practices of different households.

▪ Public Perception on Quarantine during the COVID-19 Outbreak in Bangladesh: A Community Survey-based Study

Doi: 10.29333/jcei/11703

Conducted statistical analysis based on public survey report to provide outcomes of public perception on COVID-19 outbreak in the community.

▪ Archetype of energy generation system from concentrated solar power and thermal gradient of water bodies and atmosphere

Doi: 10.1109/ICDRET60388.2024.10503636

Presented a methodology to harvest energy from thermal gradient caused by concentrated sunlight using the temperature difference.

▪ An IoT Based Smart Vault Security and Monitoring System with Zero UI

Doi: 10.1109/ICREST57604.2023.10070057

Proposed a security vault system with three level security that functions without any physical contact.

▪ A novel archetype of energy generation from human footsteps. [Preprint]

Doi: 10.36227/techrxiv.14998014.v1

Introduced an energy harvesting system that converts compression to energy using fluid dynamics method.

Courses

▪ Build Basic Generative Adversarial Networks (GANs)

Delivered by deeplearning.ai on Coursera.

▪ Supervised Machine Learning: Regression and Classification

Offered by deeplearning.ai on Coursera.

▪ Neural Networks and Deep Learning

Issued by deeplearning.ai on Coursera.

▪ Python for Data Science, AI & Development

Provided by IBM on Coursera.

Reference

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