

Rahat Ibn Nabi

PhD Applicant, Spring/Fall 2026

Dhaka, Bangladesh

Website | rahatnabi@gmail.com | [Mobile](#)

[LinkedIn](#) | [Github](#) | [ResearchGate](#) | [Google Scholar](#)

Education

Master of Science in Civil & Geotechnical Engineering

Bangladesh University of Engineering and Technology (BUET)

Status: Ongoing

Sep 2024 – Dec 2025

Dhaka, Bangladesh

Bachelor of Science in Civil Engineering

Bangladesh University of Engineering and Technology (BUET)

CGPA: 3.54/4.00

Apr 2019 – Jul 2024

Dhaka, Bangladesh

Major: Geotechnical Engineering | Minor: Transportation Engineering

Publications

- **Seismic Hazard Assessment for Mymensingh City**

Al-Hussaini, T. M., Hamza, S., Hossain, S., **Ibn Nabi, R.**, Vaccari, F., Romanelli, F. (2025). In: Kumar, A., Sarkar, R., Maheshwari, B. (eds) *Seismic Hazard Analyses, Wave Propagation and Site Characterization*. ICORAGEE 2024. Lecture Notes in Civil Engineering, vol. 571. Springer, Singapore. https://doi.org/10.1007/978-981-96-1352-6_10

- **Development of Low-Cost Seismic Monitoring System for Field Application in Bangladesh**

Al-Hussaini, T. M., Baten, M. Z., **Ibn Nabi, R.**, Islam, K., Ghosh, P., Khan, T., Alam, A., Hossain, T., Hamza, S., Rashid, A. B. M. H. [Abstract submitted and presented (oral) at the IAGA/IASPEI Joint Scientific Meeting 2025, Lisbon, Portugal, 31 Aug–5 Sep 2025.]

Research Experience

Research Assistant, RISE, BUET

Sep 2024 – Present

Project: *Development of Low-Cost Methods for Monitoring and Early Warning for Geohazard*

Grant: \$12,000

PI: [Prof. Dr. Tahmeed M. Al-Hussaini](#)

Co-PI: [Prof. Dr. Md Zunaid Baten](#)

- Engaged in interdisciplinary collaboration with the Department of Electrical and Electronic Engineering, BUET
- Designed and built low-cost accelerometers, inclinometers, and tiltmeters for field deployment
- Implemented embedded firmware (C/C++) on ESP32 and Arduino platforms
- Developed system-level programs (Python) on the Raspberry Pi platform
- Implemented data pipelines and cloud architecture (Microsoft Azure) for continuous acquisition and storage
- Developed Android application for inclinometer data logging
- Developed cross-platform desktop GUI tools for data conversion and processing

Undergraduate Thesis

Title: *Enhancing the H/V Spectral Ratio Technique for Site Frequency Determination: Development of an Automated Algorithm Utilizing Various Filters*

Supervisor: [Prof. Dr. Tahmeed M. Al-Hussaini](#)

- Conducted field surveys to collect microtremor data
- Analyzed site natural frequencies and amplification effects
- Evaluated site response characteristics using DEEPSOIL (now RSSEismic)
- Designed and implemented automated H/V spectral ratio calculations robust to anthropogenic noise

Research Achievements

- BUET Low-Cost Accelerometer (BLCA) verified with shake-table testing.
- Deployed 6 BLCA devices across 4 districts in Bangladesh, recording continuous seismic data.
- First earthquake recorded on 31 July 2025 with BLCA at CUET; event reference: [USGS](#).

Research Interests

Geotechnical earthquake engineering; Natural hazard assessment; Structural health monitoring; Digital Twin; Site characterization; Sensing and instrumentation; Geohazard early warning; Computational tools for structural analysis; Engineering applications of machine learning

Skills

Programming	C/C++, Python, JavaScript, MATLAB
Embedded Systems	ESP32, Arduino, Raspberry Pi
Frameworks/Tools	React, React Native, Next.js, Qt, Django, TensorFlow
Libraries	Pandas, NumPy, Matplotlib, SciPy, OpenCV
Databases	PostgreSQL, MongoDB
Platforms/DevOps	Linux, Git, Docker, Microsoft Azure, AWS
Software	AutoCAD, Microsoft Excel, DEEPSOIL (RSSeismic), ETABS, SAP2000, ArcGIS
Others	HTML, CSS, LaTeX
Research	Proposal/report writing, experimental lab work, data and numerical analysis
Soft skills	Leadership, communication, integrity & work ethics
Languages	Bangla (native), English (fluent)

Selected Projects

Beam Analysis Tool	Python, Qt
Cross-platform app to generate SFD/BMD for simply supported beams using singularity functions. Open-source: code demo	
Interaction Diagrams Web App	React, Next.js
Web app to generate RC column interaction diagrams. live demo	
Community Seismic Network (BLCA)	Systems, Cloud, Web
Establishing a low-cost seismic sensor network (ongoing); progress: updates	

Certifications (selected)

- **Machine Learning Specialization** — Stanford & DeepLearning.AI ([Coursera](#))
- **Introduction to Linux** — The Linux Foundation ([edX](#))
- **Algorithmic Toolbox** — UC San Diego ([Coursera](#))

Full list: [website](#)

Co-curricular Activities

- Team Member, Titumir Hall Football Team (Inter-Hall Tournament)
- Member, BUET Chess Club; Champion, Inter Hall Tournament (2019)
- Member, Badhon (a voluntary blood donors' organization), BUET Zone
- Volunteer, 5th Annual Paper Meet & 2nd Civil Engineering Congress (2022)
- Participant, Seismic Design Competition, CEismic (2023)

References

Available upon request (or provided within application portals).