

Abdullah Al Nafees

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EDUCATION

Shahjalal University of Science and Technology (SUST) Sylhet, Bangladesh
Bachelor of Science in Civil Engineering (Sylhet Engineering College) Dec 2019 to July 2025
Cumulative GPA: **3.79 / 4.00 (With Distinction)** — Rank: **Top 10% of class (4th out of 47)**
Undergraduate Thesis: *Multi-Objective Optimization of Intersection Control under Heterogeneous Traffic Conditions: A Case Study in Zindabazar, Sylhet.* Supervised by Prof. Md. Jahir Bin Alam.
Key Focus: Calibrated a SUMO microscopic model using drone-captured vehicle trajectories to replicate mixed-traffic dynamics. Developed an adaptive controller to optimize signal phasing, outperforming static (Webster's) methods.

RESEARCH INTERESTS

Intelligent Transportation Systems (ITS), Predictive Traffic and Transit Modeling, Connected and Automated Vehicles (CAV), Adaptive Traffic Signal Control, Travel Behavior and Road Safety Evaluation, and ML, XAI & LLM Applications in Transportation Engineering.

RELEVANT COURSEWORK

CE 651	Transportation Engineering I	CE 753	Transportation Engineering II
CE 855	Transportation Engineering III	CE 652	Transportation Eng. Sessional I
CE 854	Transportation Eng. Sessional II	CE 600	Research Tools and Techniques
CE 103	Surveying	CE 450	Remote Sensing and GIS
STA 201	Statistics	CE 403	Applied Mathematics for Engineers
CE 683	Project Management	CSE 411	Introduction to Computer Language

Academic Performance: Earned a perfect **4.0/4.0** in all Transportation Engineering and Laboratory courses.

RESEARCH EXPERIENCE

B'Deshi Emerging Research Lab *Perlis, Malaysia (Remote)*
Research Assistant Sept 2023 to Present

- Collaborated remotely with international researchers to publish **8 peer-reviewed publications**.
- Developed a computer vision pipeline using YOLOv8 and OpenCV to detect and classify vehicles in Malaysian traffic video feeds, achieving 96% accuracy.
- Conducted bibliometric analysis on Big Data and Machine Learning applications in ITS using R.
- Modeled Gap Acceptance parameters for roundabouts using VISSIM to optimize flow in unbalanced traffic scenarios.

UniV Bangladesh *Zaragoza, Spain (Remote)*
Intern, Research and Development Unit May 2025 to Present

- Executed advanced data visualization and formatting for scholarly research outputs and academic blog content.
- Moderated international webinars and online courses focused on smart city infrastructure and sustainable engineering.

LANGUAGE PROFICIENCY

IELTS Academic – Band Score: 8.0 (Listening: 9.0, Reading: 9.0, Speaking: 6.5, Writing: 6.5)

SCIENTIFIC PUBLICATIONS

0.1 Journal Articles

1. **Nafees, A. A.**, Hassan, M., Investigating risky riding behaviors among young motorcyclists in Bangladesh using a modified motorcycle rider behavior questionnaire (MRBQ), Transportation Research Part F: Traffic Psychology and Behaviour, Volume 118, 2026, 103552, ISSN 1369-8478, <https://doi.org/10.1016/j.trf.2026.103552>.
2. Hassan, M., Mahin, H. D., **Nafees, A. A.**, et al. (2025). "Big data applications in intelligent transport systems: a bibliometric analysis and review." *Discover Civil Engineering* (Springer), 2, 49. <https://doi.org/10.1007/s44290-025-00205-z>
3. Hassan, M., **Nafees, A. A.**, Shrabon, S. S., et al. (2025). "Application of machine learning in intelligent transport systems: a comprehensive review and bibliometric analysis." *Discover Civil Engineering* (Springer), 2, 98. <https://doi.org/10.1007/s44290-025-00256-2>

4. Hassan, M., An, H. K., Mahin, H. D., **Nafees, A. A.**, et al. (2025). "Investigating the performance of metering methods in managing unbalanced roundabouts using VISSIM." *ASEAN Journal of Scientific and Technological Reports*, 28(2). <https://doi.org/10.55164/ajstr.v28i2.255674>
5. Hassan, M., **Nafees, A. A.**, Shrabana, S. S., et al. (2024). "A comprehensive review on the impact of gap parameters for multiple types of roundabouts in different traffic conditions." *International Journal of Integrated Engineering*, 16(9), 1-20. <https://doi.org/10.30880/ijie.2024.16.09.001>

0.2 Conference Papers

1. **Nafees, A. A.**, Hassan, M., Shrabana, S. S., et al. (2024). "Public transport ridership forecasting using machine learning: A case study of Rapid Bus KL in Malaysia." *27th International Conference on Computer and Information Technology (ICCIT)*. <https://doi.org/10.1109/ICCIT64611.2024.11021879>
2. Hassan, M., Mahin, H. D., Jusoh, M., **Nafees, A. A.**, et al. (2024). "Vehicle class detection and counting on a Malaysian road using YOLOv8 and OpenCV." *IEEE International Conference on Artificial Intelligence in Engineering and Technology (IICAET)*. <https://doi.org/10.1109/IICAET62352.2024.10729957>
3. Hassan, M., Mehjabin, F., **Nafees, A. A.**, et al. (2024). "A study on the impact of the newly constructed metro rail in Dhaka on travel behavior." *13th Asia-Pacific Conference on Transportation and the Environment (APTE)*, published in *Lecture Notes in Civil Engineering*. https://doi.org/10.1007/978-981-96-9642-0_9

0.3 Conference Papers Accepted for Publication

1. **Nafees, A. A.**, Islam, M. A., et al. (2025). "Predicting household vehicle travel emissions using explainable machine learning techniques." Accepted for the *28th International Conference on Computer and Information Technology (ICCIT)*.
2. Hassan, M., Akter, S. T., Paul, A., **Nafees, A. A.** (2025). "Analyzing public transit service patterns using GTFS data: A machine learning approach." *16th International Conference on Computing, Communication and Networking Technologies (ICCCNT)*, Delhi, India.
3. Hassan, M., Ahmed, F., **Nafees, A. A.** (2024). "Assessing the Role of Government Policies in Accelerating Electric Vehicle in Malaysia: Insights from Car Registration Data." *4th International Conference on Future Ready Bangladesh through Sustainable Business (ICFRSB)*.

0.4 Manuscripts Under Preparation

1. Hassan, M., **Nafees, A. A.**, Imam, H., Rambe, A. H., Jusoh, M., Nagy, Z. (2025). "A machine learning based integrated framework for taxi trip duration prediction with XAI and LLM-assisted interaction."

AWARDS AND HONORS

- **University Merit Scholarship:** Awarded for maintaining a position in the top 10% of students based on academic excellence
- **Winner – Mechanics Olympiad:** Secured 1st place at SEC Civil Day, Phase III (2020)

TECHNICAL SKILLS

Programming and Data Science

- **Python:** NumPy, Pandas, Scikit-Learn, TensorFlow
- **R:** Bibliometrix, ggplot2, psych, dplyr
- **Other:** C, SQL, LaTeX

Software and Engineering Tools

- **Simulation:** PTV Vissim, SUMO, SIDRA
- **Engineering:** AutoCAD, ETABS
- **Statistical:** SPSS, Microsoft Excel

CERTIFICATIONS

- **PTV VISSIM and VISWALK Basics:** Transport Studies (2025).
- **Basic Programming with Python (60 Hours):** ICT Division & SUST, Government of Bangladesh (2025).
- **Step into Python for Data Science:** Dataskool (2025).
- **Aspire Leaders Program (2025):** Leadership development by Aspire Institute (Harvard-founded).

COMMUNICATION & LEADERSHIP

- **Science Communication:** Founder of "Ami Nafees" YouTube channel (157k+ viewers); author of technical blogs and webinars on smart city technologies.
- **Research Leadership:** Former Vice President, CE Centre of Research (SEC). Mentored junior students in research methodology and coordinated international publication submissions.

- **Intercultural Competence:** Alumni of the **Aspire Leaders Program** (Harvard-founded), trained in leadership within diverse global cohorts.
- **Conference Presentations:** Presented research findings at national and international academic conferences, communicating technical results to multidisciplinary audiences and engaging in scholarly discussion.
- **Student Member**, American Society of Civil Engineers (ASCE). ID: 000012496983.
- **Student Member**, American Concrete Institute (ACI). ID: 2307103.

REFERENCES

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