

Dewan Tanjil Hossain

Dhaka, Bangladesh (GMT+6)

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Research Interests

Vision-language models, spatio-temporal reasoning, accessibility-aware AI systems, benchmark design, and visual grounding / hallucination evaluation.

Education

Bangladesh University of Engineering and Technology (BUET) 2023 – 2026
M.Sc. in Computer Science and Engineering
Dhaka, Bangladesh

Ahsanullah University of Science and Technology 2017 – 2022
B.Sc. in Computer Science and Engineering
Dhaka, Bangladesh

Research Experience

Spatio-Temporal Route Reasoning in Vision-Language Models, with an Accessibility-Conditioned Evaluation 2025 – Present
M.Sc. Thesis Research, BUET

- Built the first benchmark for comparative, multi-frame route reasoning in real outdoor pedestrian environments, where a vision-language model must integrate visual evidence across sequences of street-view frames and recommend the best route for a stated accessibility need.
- Designed a persona-presence ablation to test whether model recommendations genuinely depend on the stated accessibility need, versus generic, persona-agnostic answering.
- Developed a visual-grounding / hallucination check to quantify whether a model’s cited visual justification for its route choice is actually present in the frames.
- Constructed a core dataset of 200 entries across four accessibility personas (aged, general, physical mobility, sensory impairment) from Google Street View route collages.
- Built an evaluation pipeline with dual-judge scoring, human-label validation (agreement via Cohen’s κ), and Wilson confidence intervals.

Publications

1. N. Sakib, **D. T. Hossain**, and T. H. Kheya, “REFLECT-R: A Real-World Dataset and Restoration Method for Obstructed Smartphone Lenses,” in *Proc. Int. Conf. on Computer and Information Technology (ICCIT)*, 2025.
ieeexplore.ieee.org/document/11491453
2. **D. T. Hossain** and N. Sakib, “Adoption and Usability of AI Tools in Bangladesh: Opportunities and Challenges,” in *Proc. Int. Conf. on Computer and Information Technology (ICCIT)*, 2025.
ieeexplore.ieee.org/document/11491700

Professional Experience

Software Engineer II, TechCare Inc.
Dhaka, Bangladesh

May 2026 – Present

- Contributing to a Canadian mental health support platform across web and mobile applications, spanning an admin console, client-facing web app, and mobile app, with therapist matching, rematching, scheduling, and care delivery workflows.
- Collaborating on platform architecture for high-availability, healthcare-focused systems.

Software Engineer, Metadesign Solutions
Dhaka, Bangladesh

2022 – March 2026

- Architected and delivered full-stack production systems serving 500+ active users, owning system design from frontend architecture to backend services and database modeling.
- Designed and implemented WebSocket-based real-time synchronization ensuring consistent multi-user state across concurrent sessions and devices.
- Engineered complex scheduling engines with strict collision detection, deterministic insertion logic, and dynamic viewport scaling for high-interaction, state-heavy workflows.
- Mentored 2–3 junior engineers through structured code reviews and architectural guidance.

Technical Skills

- **Languages:** JavaScript, TypeScript, Python, Java, C++, SQL
- **AI / ML:** TensorFlow, PyTorch, Scikit-learn, OpenCV, NumPy, Pandas
- **Frontend:** React.js, Next.js, React Native, Three.js, Tailwind CSS
- **Backend & Data:** Node.js, Express.js, NestJS, MongoDB, MySQL, Supabase
- **Cloud & Tools:** AWS (S3, Cognito, Lambda), Git

Honors & Awards

- First Runner-Up, Intra AUST Project Showcase (2019)
- Junior Scholarship (2011)
- Primary Scholarship (2008)
- First Runner-Up, Math Olympiad (2008), Youth Ending Hunger Bangladesh

Languages

English (Fluent) · Bangla (Native)