

Wahid Al Azad Navid

📍 Dhaka, Bangladesh ✉ wahidnavid@gmail.com 🔗 [navid-089.github.io](https://github.com/navid-089)
🌐 [wahid-al-azad-navid](#) 🗣 Navid-089 🆔 0009-0007-8511-2675

Research Interests

Computational genomics: algorithms and probabilistic models for sequence analysis; machine learning for biological sequence data; multimodal learning and its interpretability.

Education

Bangladesh University of Engineering and Technology (BUET)

B.Sc. in Computer Science and Engineering

Dhaka, Bangladesh

Jan 2022 – June 2026

- **CGPA: 3.96 / 4.00.** Dean's List in all years.
- Thesis: *kRISP-meR: A Reference-free Guide-RNA Design Tool for CRISPR/Cas9*. Supervisor: [Dr. Atif Hasan Rahman](#).

Notre Dame College

HSC, Science

Dhaka, Bangladesh

Aug 2018 – Jan 2021

- GPA: 5.00 / 5.00

Research Experience

Undergraduate Thesis, [BUET CSE](#), [kRISP-meR](#): reference-free CRISPR/Cas9 guide-RNA design

Dhaka, Bangladesh

May 2025 – June 2026

Supervised by [Dr. Atif Hasan Rahman](#), in collaboration with [Dr. Mahmudur Rahman Hera](#).

- Designs CRISPR/Cas9 guide RNAs directly from the raw sequencing reads of the individual being edited, without a reference genome or a genome assembly.
- Models the k-mer frequency spectrum of the reads as a Poisson mixture fitted with expectation-maximization to infer genomic copy number, and from it the expected number of cuts of every candidate guide.
- Benchmarked against CRISPOR and GuideScan2 on human, mouse, and yeast data; rejects guides that appear unique in the reference genome but are duplicated in the individual (CHM13 vs. GRCh38, N22 rice vs. Nipponbare).

[LimbicsAI](#), Software and ML Engineer (part-time)

Remote

May 2025 – present

- Co-developed a multimodal pavement assessment model fusing roadway video, vehicle-mounted IMUs, and GPS (paper under review at TRB), and built the automated AWS pipeline that processes the field data end to end.
- Built a model on InSAR ground-deformation data; implemented PSI and PCI pavement condition scoring and integrated it into the product.
- Set up the LoRaWAN sensor data pipeline (ChirpStack, EMQX, InfluxDB) and a bridge scour monitoring test system, including the physical sensor setup.
- Wrote crawlers for roadway data collection; rebuilt the company web front end, integrated an AI co-pilot, and deployed the internal documentation server.

Papers Under Review and Preprints

A Multimodal Framework for Pavement Condition Assessment Using Roadway Imagery and Vehicle Response

July 2026

Shams E Shifat, **Wahid Al Azad Navid**, Ashrafur Rahman, AQM Zohuruzzaman, Zhao Gao, Nasif Shafi, Mosharaf Chowdhury, Sadik Khan

Under review, [Transportation Research Board \(TRB\) Annual Meeting](#)

Bengali-Loop: Community Benchmarks for Long-Form Bangla ASR and Speaker Diarization

2026

H. M. Shadman Tabib, Istiak Ahmmed Rifti, ..., **Wahid Al Azad Navid**, et al.

[arXiv:2602.14291](#)

Manuscripts in Preparation

- kRISP-meR: A Reference-free Guide-RNA Design Tool for CRISPR/Cas9** 2026
Wahid Al Azad Navid, Fuad Ahmed Udoy, Mahmudur Rahman Hera, Atif Hasan Rahman
Benchmarking complete; manuscript being finalised
- Disentangling Cross-Modal Information Pathways via Mechanistic Interpretability of Multimodal Fusion Models** 2026
Abrar Rahman Abir, *Wahid Al Azad Navid*, Sheikh Azizul Hakim
- DocTalkBN: A Novel Dataset of Expert Telemedicine Conversations in Bengali** 2026
Anik Saha, Mst. Fahmida Sultana Naznin, Sadatul Islam Sadi, Ananya Shahrin Promi, *Wahid Al Azad Navid*, Rifat Shahriyar

Teaching

- Presidency University**, Lecturer, Department of Computer Science and Engineering Dhaka, Bangladesh
June 2026 – present
- **Fall 2026:** Object Oriented Programming (theory and lab); Microprocessors and Embedded Systems.
 - **Summer 2026:** Structured Programming Language (theory and lab); Digital Logic Design Lab.

Honors and Service

- **Dean's List**, BUET (2022 – 2026)
- **University Merit Scholarship** and **BUET Technical Scholarship** (2022 – 2026)
- **Best UI/UX Award**, Hackathon, BUET CSE Fest (2024)
- **Runners-up**, Project Showcasing, IUT Skill Innovation Fest (2024)
- Government Scholarships: HSC (2021), SSC (2018), JSC (2016)
- Regional Winner, Bangladesh Junior Science Olympiad (2018)
- **Lead Organiser**, [BUET CSE Fest 2026](#): 7 events, 100+ universities; secured title and supporting sponsors
- Logistics Director, [BUET Cyber Security Club](#) (May 2025 – May 2026); regular capture-the-flag participant

Selected Projects

- GradPilot** July 2025
• ML-assisted platform for graduate applications (university matching, SOP review) built as microservices with CI/CD. Spring Boot, Next.js, MySQL, Docker, GitHub Actions.
- DHCP Starvation and Spoofing Attack** June 2025
• Simulated both attacks in an isolated lab, measured network disruption, and evaluated DHCP snooping and port security. Python, Scapy, ns-3.
- 4-bit MIPS Processor** Feb 2024
• Designed the datapath and control unit for a custom instruction set and built it on physical ICs with an ATmega32A.
- C Compiler** Dec 2023
• Compiler for a subset of C with scoped symbol tables, type checking, and code generation. Flex, Bison.

Technical Skills

Programming: Python, C/C++, Java
ML and Bioinformatics: PyTorch, NumPy, Pandas, Matplotlib; Jellyfish, Bowtie2, Pilon
Systems and Cloud: AWS, Docker, Git, xv6, ns-3, LoRaWAN (ChirpStack, EMQX, InfluxDB)
Databases and Web: MySQL, PostgreSQL, MongoDB; Node.js, React, Next.js, Spring Boot