FAHIM FAISAL RAUNAQ

Dhaka, Bangladesh
fahimfaisalraunaq@gmail.com
linkedin.com/in/fahimfaisalraunaq
Fahim Faisal Raunaq — Portfolio

RESEARCH FOCUS

Data-driven safety & decision analytics in **socio-technical systems**, with a focus on **human–technology interfaces** utilizing

- Decision Analysis
- Supply-Chain & Operations Analytics
- Optimization
- Machine Learning
- Operations Research
- Data Science

EDUCATION

M.Sc., Industrial & Production Engineering   *Jun 2023–Present*
Bangladesh University of Engineering & Technology (BUET); CGPA: 3.00/4.00

B.Sc., Industrial & Production Engineering   *Feb 2017–May 2023*
Bangladesh University of Engineering & Technology (BUET); CGPA: 2.88/4.00

PUBLICATIONS & MANUSCRIPTS

Published

- **Raunaq, F. F.**, Islam, S., Anam, M. Z., & Bari, A. B. M. M. (2025). Assessing the challenges to digital technology adoption in the healthcare sector: Implications for sustainability in emerging economies. *Informatics and Health*, 2, 194–209. https://doi.org/10.1016/j.infoh.2025.09.001.

Under Review

- **Raunaq, F. F.**, Mahbub, N., Kaiyum, A., Hasanat-e-Rabbi, S., Ali, S. M. Decoding Mode-Specific Crash Dynamics in Work Zones through Machine Learning: Uncovering Spatial–Temporal Patterns for Policy-Oriented Interventions. *Safety Science*.
- Kaiyum, A., Mahbub, N., **Raunaq, F. F.**, Ali, S. M. A Data-Driven Approach to Construction Accident Prevention in Developing Countries: Insights from Bangladesh. *Accident Analysis and Prevention*.
- Khan, M. R., Aziz, R. A., Karmaker, C. L., **Raunaq, F. F.**, & Agarwal, P. A Data-Driven Approach to Stance Detection Combining Topic Modelling and BanglaBERT: A Case Study in Social Media Rumors. *Language Resources and Evaluation*.

In Preparation

- **Raunaq, F. F.**, Mahbub, N. A Gold-Standard Bengali UGC Corpus for Translation-Agnostic Sentiment Analysis. (***M.Sc. Thesis)***
- **Raunaq, F. F.**, Aziz, R. A. Efficient Hyperparameter Optimization of Topic Models: A Taguchi–CRITIC MCDM framework with LDA and BERTopic. (*Project*)

RESEARCH EXPERIENCE

M.Sc. Thesis   **Supervisor: Dr. Nafisa Mahbub | In progress**
Machine Translation vs. Language-Specific Models: A Benchmarking Framework for Low Resource Sentiment Analysis

- Built a gold-standard benchmark to test whether sentiment survives translation by explicitly linking MT quality (BLEU/chrF/SAM/COMET) to downstream macro-F1/accuracy.
- Stress-tested English pipelines under MT noise with two principled tweaks—protected stopword lists and simple negation marking—and audited failure modes via phenomenon-tagged slices (negation, intensifiers, idioms, honorifics).
- Ran translation-free baselines (BanglaBERT, Bengali VADER) on the same gold labels; validated the "comment-as-a-unit" assumption with sentence-level ablations and McNemar tests; expect protected-stopwords+negation to stabilize English pipelines while Bangla stopword removal offers no lift.

Undergraduate Thesis   **Supervisor: Dr. Nafisa Mahbub | May 2023**
An Unsupervised Machine Learning Approach to Unfold Online Toxicity Pattern: A Look at the Bangladeshi Community

- Built an analysis-grade Bangla toxicity corpus (**Approx. 18k comments**) that preserves context—reactions, timestamps, gender and location—so patterns reflect community behavior, not just word counts.

- Applied K-Prototypes on mixed features to reveal a "slow-burn" toxicity cluster (longest post to comment delay) and Dhaka-centered, male-skewed participation missed by standard NLP.
- Contrasted human-coded signals with BanglaBERT, uncovering "Haha/Like" gravity around toxic threads and isolating social response vs. model bias—pivoting my focus to low-resource safety tooling.

TEACHING & MENTORSHIP

Lecturer (Adjunct), Asian University of Bangladesh (AUB), Bangladesh   *Sep 2024–Jan 2025*
    Courses: *C Programming & Algorithm Design*
    Delivered lectures and labs; designed assessments; emphasized clarity, reproducibility, and code quality.

Coach → Senior Coach, X- Culture (Remote)   *Spring 2020–Fall 2021*
    Mentored global virtual consulting teams (40+ countries) on planning, cross-cultural collaboration, and deliverables; supported program administration and new-coach training.

INDUSTRY EXPERIENCE

Sales Engineer, Blue Bay Bangladesh Ltd., Dhaka   *Feb 2025–Aug 2025*
    Analyzed material specs and supplier performance to optimize procurement; coordinated stakeholders for on-time, compliant delivery to industrial clients.

Product Owner, MEKANICC Software Solutions, Dhaka   *May 2023–Sep 2024*
    Led discovery and product requirements document (PRD) writing; maintained feature roadmaps; produced wireframes (Figma/Adobe XD) and bridged between the developers and the clients.

Industrial Training, Berger Paints Bangladesh Ltd., Dhaka   *Apr 2022–May 2022*
    Mapped manufacturing flows; contributed to warehouse layout and storage; developed a SolidWorks automation concept to reduce downtime in mixing machine; assisted QC implementation.

ACADEMIC PROJECTS

- **Paddle-Powered Water Purifier** *(Product Design II; Industrial & Marketing Management)*
Conceived and led a human-powered purifier for low-resource communities (aligned with **SDG-6**).
  - Requirements capture, concept generation, and design-for-constraints analysis.
  - Full CAD and bill-of-materials with cost sheet; **QFD** to translate user needs into specs.
  - Go-to-market outline and **lean business model** tailored to **urban informal settlements**.
- **X-Culture Global Virtual Team — Market Expansion Project** *(Certificate)*
Collaborated across **6 countries / 4 time zones** to deliver a client-ready expansion plan for **University of North Carolina Greensboro** (UNCG).
  - Market analysis and sizing, operations ramp-up design, staged implementation roadmap.
  - Financial assumptions, risk register, and execution milestones for cross-border rollout.
  - *Focus:* Market entry strategy, operations planning, implementation.
- **Geneva-Wheel Liquid Filling Machine** *(Product Design I)*
Semi-automated filling system using a Geneva mechanism.
  - Mechanism synthesis, station timing/throughput calculations; tolerance-aware 3D assembly.
- **F1 Race Car (Ferrari SF90) — Parametric CAD Model** *(Course Project)*
Detailed chassis/bodywork model with multi-part assemblies.
  - Surface + solid modeling; mates and drafting for 2D/3D deliverables using SOLIDWORKS.
- **PlayStation 5 Enclosure — Reverse Engineering** *(CATIA Exercise)*
Industry-style modeling of a complex consumer-electronics enclosure.
  - Multibody surfacing, part-to-assembly workflows, manufacturing drawings using CATIA V5.
- **AutoCAD 2D/3D Drafting Practicum**
Hands-on drafting and 3D modeling of mechanical parts and assemblies.
  - Layer management, GD&T-aware dimensioning, sectioning, and visualization.
- **Foundry & Welding Shop Practicum**
Practical joining/manufacturing exercises.
  - Performed TIG/MIG processes; executed butt- and T-joints with proper setup, safety, and inspection basics.

SKILLS & TOOLS
- **Methods:** Machine Learning, Optimization, Decision Analysis, Operations Research.
- **Computing:** Python, MATLAB.
- **CAD/Eng.:** SOLIDWORKS; CATIA; AutoCAD
- **Design/Vis.**: Figma, Adobe XD, Adobe Illustrator

RELEVANT COURSEWORK
- Calculus, Matrix & LA
- Numerical Analysis
- Machine Learning
- Ergonomics & Safety
- Probability & Statistics
- Operations Research
- Quality Engineering
- Decision Analysis
- Differential Equations & Laplace
- Project & Environment Management
- Supply Chain Management
- Industrial & Business Management

CERTIFICATIONS, AWARDS & ACHIEVEMENTS
- **ISCEA Certified Supply Chain Analyst (CSCA™)**.
- **United Nations & World Bank Road Safety Champion** — 1st Runners-up (2020).
- **X-Culture Best Coach Award** (2020).
- Awarded as one of the top 40 X-Culture students.
- **AEMC-2019 Champion**.
- KUET IPE Fest 2018 (Case Solving & Poster) **Champion**
- **Robolution-2018 (MIST) 1st Runners-up**.

CONFERENCES, WORKSHOPS & SESSIONS
- X-Culture Global Symposium (Academy of **International Business-Southeast Chapter Annual Conference**) participant (2020)
- Banglalink Tiger's Den FGD training
- Host/Coordinator, "Corporate Views with Kamran Bakr (Non-Executive Director, Robi Axiata; former Chairman & MD, Unilever Bangladesh)" executive talk series.

SERVICE & LEADERSHIP
- **Campus Envoy, Edward M. Kennedy (EMK) Center**
  Helped student foster the cultural and environment differences by committing to open dialogue, informed action, individual and artistic expression, and personal and professional development.
- **Co-Chair, X-Culture Best Report Selection (2020)**
  Judged top reports among 5,000+ MBA/business students from 140+ universities (40 countries).
- **Event Manager, BUET Career Club — Study Tour**
  Organized a university-approved study tour for **38 students**: negotiated transport and venue permissions, coordinated schedules with host organizations, and delivered a safety/risk plan. Managed budget, vendor contracts, and post-event debrief; prepared learning objectives and briefing notes for participants and faculty.
- **Vice Representative, Industrial & Production Engineering Festival, BUET**
  Co-led program operations for the department festival: event scheduling, logistics, volunteer coordination, and stakeholder communication. Liaised with sponsors and campus units; produced timelines/SOPs to ensure on-time execution across multiple sessions.

REFERENCES

Dr. Nafisa Mahbub
Industrial & Production Engineering,
Bangladesh University of Engineering & Technology
nmahbub@ipe.buet.ac.bd

Dr. Ridwan Al Aziz
Assistant Professor
Industrial & Production Engineering,
Bangladesh University of Engineering & Technology
ridwanalaziz@ipe.buet.ac.bd

Dr. Vasyl Taras
Founder & Director, X-Culture
Head of the Department & Professor, International Business, UNC Greensboro
Program Director, Master's of Science in International Business, UNC Greensboro
Fellow of the Academy of International Business, Southeast USA
v_taras@uncg.edu