Tahsin Zaman Jilan

Software Engineer
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Website | Google Scholar | Github | LinkedIn | Codeforces | Leetcode

EDUCATION

BRAC University, Dhaka, Bangladesh
Bachelor of Science in ***Computer Science (C*****GPA:** 3.37) **Class of 2024**
Thesis: An Interpretable Diagnosis of Retinal Diseases Using Vision Transformer and Grad-CAM
Supervisor : Dr. MD. Ashraful Alam, PhD

RESEARCH INTERESTS

Software Engineering, machine learning, computer vision, large language models (LLM), AI security, explainable AI

PUBLICATIONS

Jilan, T.Z., Bhuiyan, M.H., Haldar, S., Chowdhury, M.S., & Bushra, N. (2025). An Interpretable Diagnosis of Retinal Diseases Using Vision Transformer and Grad-CAM. In *Proceedings of the 2025 International Conference on Electrical, Computer and Communication Engineering (ECCE).* DOI : https://doi.org/10.1109/ECCE64574.2025.11013100

Jilan, T.Z. (2025). The Effectiveness of Different Deep Learning Models in Detecting Hate Speech. In *Proceedings of the 2025 International Conference on Electrical, Computer and Communication Engineering (ECCE).*
DOI : https://doi.org/10.1109/ECCE64574.2025.11013825

RESEARCH EXPERIENCE

Working Under Noshin Tahsin
Shaheer, S., Islam, R., & **Jilan, T. Z.** (2025). Beyond the Benchmark: Innovative Defenses Against Prompt Injection Attacks
Manuscript submitted to *JMLIS journal* for publication. DOI : https://doi.org/10.5281/zenodo.17263648

- Proposed a novel defense framework for small **LLMs (LLaMA)** to mitigate **goal-hijacking** attacks.
- Used **Chain-of-Thought** seed prompts for iterative refinement, greatly improving detection and reducing false positives.

Working Under Annajiat Alim Rasel

- Conducting research on **Bangla OCR** by collecting and curating handwritten Bangla datasets.
- Designing data preprocessing and annotation pipelines to enable accurate machine learning models for handwriting recognition.

TEACHING EXPERIENCE

Instructor | BUCC Study Corner, Dhaka, Bangladesh ***Mar 2021 - Dec 2021***

- Taught **Data Structures and Algorithms** to **150+ students**, covering fundamental concepts, problem-solving strategies, and coding implementation in Python and C++.
- Designed lecture materials, assignments, and coding exercises to strengthen conceptual understanding and practical skills.

PROFESSIONAL EXPERIENCE

Software Engineer I **Pathao** ***Jan 2025 - Present***
Pathao *is a leading Bangladeshi tech platform offering ride-sharing, food delivery, and logistics services across Bangladesh and Nepal.*

- Spearheaded the development of a critical driver-training web dashboard, streamlining onboarding and reducing new driver hiring time by **40**%.
- Improved new user adoption for a fintech website by optimizing registration flows and adding transaction/reward features, increasing user activation by **25**% within three months.
- Developed a rental booking capability for agents, increasing rentals by **18**% and improving service accessibility for users without direct app access.
- Identified, diagnosed, and resolved over **20** critical bugs and performance bottlenecks across multiple projects, improving system reliability and reducing customer support tickets by **30**%.
- Built multiple interactive dashboards with optimized data loading and state management (Pinia/Vuex), reducing load times by **25**%, decreasing page size by **18**%, and improving Lighthouse scores, resulting in faster and smoother user experience.
- Migrated a Vue.js 2 codebase to Nuxt.js, enhancing page performance, SEO, and developer productivity across ~**50**k LOCs for a 5-engineer team, resulting in faster page loads and improved user experience.

Associate Software Engineer ***May 2024 - Dec 2024***

- Increased user engagement by **12**% in the first quarter by building a responsive customer complaint UI using Remix.
- Enabled merchants to perform CRUD operations on offers via a points management dashboard, boosting customer engagement and retention by **15**% through timely, personalized reward points using Nuxt, REST APIs, and Pinia.
- Modernized the frontend by replacing an outdated internal component library with PrimeVue, delivering a bug-free UI that improved user adoption by **30**% and reduced UI-related complaints by 40%.
- Enhanced API reliability for the points management dashboard used by ~5,000 merchants, implementing server-side validation and error handling in Node.js, reducing failed reward transactions by **25**% and ensuring accurate customer point balances.
- Streamlined merchant workflows by implementing real-time offer notifications and dashboard alerts, increasing timely reward redemptions by **20**% and enhancing overall customer engagement.

Software Engineer Intern ***Jan 2024 - April 2024***

- Implemented a MapLeaflet-based slotting feature within the existing dashboard, optimizing foodman distribution and driving a **22**% increase in order volume, **70**% faster deliveries, and **82**% higher efficiency.
- Built an interactive route map using Leaflet, improving navigation efficiency and reducing driver route errors by **18**%.
- Improved responsiveness by **12**% by implementing Vuex-based state management, ensuring seamless data handling.

DEVELOPMENT SKILL SET

Languages, Libraries and Frameworks: Python, TypeScript, JavaScript, C, C++, SQL, HTML, CSS, PHP, Bootstrap, Vue.js, Nuxt.js, React.js, Next.js, Node.js, Express, REST API
Machine Learning & Data Analysis: Pandas, NumPy, Scikit-learn, TensorFlow, Keras, PyTorch, Matplotlib, Seaborn
Databases: MySQL, PostgreSQL, MongoDB
Development Tools: Git, GitHub, Linux/UNIX, Postman, Figma, Jupyter Notebook, Google Colab, Jira,

PROJECTS

Dhaka Waste Management (2025) | Next.js, NextAuth, Prisma, Drizzle, Tailwind CSS | Created a full-stack waste management system with features to track waste, optimize collection routes, and schedule data-driven operations. Integrated authentication and sustainability-focused design.
NeuralPredict (2024) | Keras, MinMaxScaler | Developed machine learning solutions for label classification, using MinMaxScaler preprocessing to improve performance. Achieved 86% accuracy with a neural network built on Keras API.
Hate Speech Detection (2024) | TensorFlow, Keras, BiLSTM, LSTM, GRU, Conv1D, BERT | Designed multiple deep learning models to detect hate speech. Applied tokenization and undersampling to handle class imbalance, achieving 99% accuracy with a BiLSTM model.
HearHub (2024) | Next.js, MongoDB, TypeScript, PayPal, Stripe | Developed a full-stack e-commerce website with authentication, search, and cart functionality. Integrated PayPal and Stripe for secure transactions, and built a robust admin panel with CRUD operations for products, orders, and users.
Cricket-Live (2023) | React.js, Cric API | Built a real-time cricket match application with live scores, match status, and updates. Implemented match sorting by team ranking and date to highlight recent top matches for users.

ACHIEVEMENTS AND AWARDS

Hackathon	**2024** Code Samurai (Top 5%) **2022** Robi Datathon 2.0 (Ranked 15th)
Programming Contests	**2022** AUST IUPC (Top 50%) **2021** BRACU Intra Programming Contest (3rd)

Certifications & Tests

- IELTS Academic – Overall 7.5 (Listening: 9.0, Reading: 7.5, Writing: 6.0, Speaking: 6.5), Dec 2024
- GRE**:** Verbal 153, Quantitative 151, September 2025

EXTRA-Curricular

- Solved 400+ problems on **Codeforces, Leetcode** ranging in various difficulties.
- Contributed to **Girlscript Summer of Code** 2023 where I fixed a UI bug leading to a better UX. Pull Request

Organizations

Dhaka Toastmaster | General Member ***Jan 2024 – Present***
Gave 5 prepared speeches focused on communication and leadership development. Mentored 2 new members, providing guidance on speech delivery, structure, and confidence building.