# Tahsin Zaman Jilan

**Software Engineer**
Pathao Limited, Dhaka, Bangladesh
Phone: +8801760642727 | Email: tahsin.zaman.jilan@g.bracu.ac.bd
**Website | Google Scholar | Github | LinkedIn | Codeforces | Leetcode**

## EDUCATION

**BRAC University, Dhaka, Bangladesh**
*Bachelor of Science in* ***Computer Science (*****CGPA:** 3.37) **Class of 2024**
**Thesis:** An Interpretable Diagnosis of Retinal Diseases Using Vision Transformer and Grad-CAM
Supervisor : 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)*. | LINK | PDF

- Hybrid model (**VGG16 + Swin Transformer**) achieved **98.8%** accuracy, surpassing performance of standalone models.
- Addressed medical AI interpretability challenges using **Grad-CAM** visualizations for clearer model explanations.

**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)*. | LINK | PDF

- Evaluated performance of attention-based models, **CNNs**, and **LSTMs** on hate speech detection from social media posts.
- Analyzed the impact of training data size and pre-trained embeddings on overall model accuracy and performance.

## WORKING RESEARCH

Shaheer, S., Islam, R., & **Jilan, T. Z.** (2025). Beyond the Benchmark: Innovative Defenses Against Prompt Injection Attacks [Working Paper]

- 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.

## 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.*

- Contributed to mobile app UI development and internal dashboards, improving delivery speed across teams.
- Adapted to team workflows and tech (**Nuxt.js**, **REST APIs**, **Pinia**), cutting API response time by **6%** per internal benchmarks.

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

- Developed a points management dashboard using **NUXT**, **REST API**, and **PINIA**, improving data flow efficiency by **10%**.
- Boosted mobile engagement by **5%** through responsive design and accessibility improvements using Remix.
- Designed intuitive, **PRIMEVUE**-based UI components, significantly improving user satisfaction and overall engagement.

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

- Created an interactive route visualization map using **Leaflet**, improving navigation features.
- Implemented state management with **Vuex** to ensure smooth data handling and reliable performance.

## DEVELOPMENT SKILL SET

**Languages, Libraries and Frameworks:** C, C++, Python, Javascript, Typescript, SQL, HTML, JS, CSS, PHP, Bootstrap, VueJs, NUXT ReactJS, NEXTJS, NodeJS, Express, REST API, Pandas, NumPy, Scikit-learn, Tensorflow, OpenCV
**Development Tools:** Git, Github, Linux/UNIX, MySQL, MongoDB, Postman, Firebase, Figma, Jupyter Notebook, Google Colab, Jira

## PROJECTS

**HEARHUB | LIVE | GITHUB**
An e-commerce website **- NextJS, MongoDB, TypeScript**

- Developed a full-stack e-commerce website with key features including **authentication**, a search bar, and a **cart** system.
- Implemented secure **payment** processing by integrating **PayPal** and **Stripe**, ensuring safe and seamless transactions.

- Developed a robust and user friendly **admin** panel for managing products, orders, and users with **CRUD** operations.
- Used MongoDB to efficiently store and retrieve products, ensuring fast loading and smooth performance.

**CRICKET-LIVE | LIVE | GITHUB**
A real-time cricket match live app with ReactJS.
- Fetched Cric API for live updates, match status, and live scores ensuring information is up-to-date and accurate.
- Implemented feature to **sort** matches by team ranking and date to show recent top matches higher in the list in the page.
- Used **React** for dynamic pages, **Vanilla** CSS for styling, and **react-loader-spinner** to manage loading animation.

**HATE SPEECH DETECTION | GITHUB**
Hate speech detection with Deep Learning Models
- Detected Hate Speech with the development of **BiLSTM, LSTM, GRU, ConV1D, and BERT** using **Tensorflow** and **Keras** API.
- Implemented tokenization and random undersampling to improve data handling and address class imbalance issues.
- Accomplished an exceptional accuracy rate of **99%** by leveraging a BiLSTM (Bidirectional Long Short-Term Memory) model.

**NeuralPredict | GITHUB**
Label Classification, **Keras**, **MinMaxScaler**
- Successfully developed multiple solutions to predict outcomes effectively using Machine Learning techniques.
- Employed the **MinMaxScaler** pre-processing technique to enhance the performance and accuracy of label column data.
- Achieved **86%** accuracy by implementing a Neural Network model using the **Keras** API for efficient classification.

**DHAKA WASTE MANAGEMENT | GITHUB**
A fullstack waste management app
- Built a full-stack waste management system using **Next.js**, **NextAuth**, **Prisma**, **Drizzle**, and **Tailwind CSS**.
- Designed features to track waste, optimize collection routes, and promote sustainability through data-driven scheduling.

## ACHIEVEMENTS AND AWARDS

| | |
|---|---|
| **Hackathon** | **2024** Code Samurai ( Top 5% )<br>**2022** Robi Datathon 2.0 ( Ranked 15th) |
| **Programming Contests** | **2022** AUST IUPC ( Top 50% )<br>**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

## Extra-Curricular

- Solved 400+ problems on **Codeforces, Leetcode** ranging in various difficulties.

## Open Source Contribution

- Contributed to **Girlscript Summer of Code** 2023 where I fixed a UI bug leading to a better UX. Pull Request
- Contributed to LightOJ solutions list, a top-rated programming platform in Bangladesh. 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.

**BRACU Duburi | Machine Vision Engineer** ***Mar 2020 – Jan 2021***
Developed and implemented computer vision algorithms for underwater object detection using **OpenCV** in C++. By optimizing the detection pipeline, I enhanced real-time performance and achieved a 3% improvement in overall efficiency.

**Robotics Club of BRAC University | Associate of IT** ***Jan 2020 – Jan 2021***
Contributed to video editing using Adobe Premiere Pro and taught video editing during *Traction 2020*.