

K. M. Abesh Ahsan

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Education

Islamic University of Technology (IUT) ↗

Jun 2021 – October 2025

Bachelor of Science in Computer Science and Engineering (CSE)

Gazipur, Bangladesh

CGPA: 3.72/4.0

Experience

Battery Low Interactive ↗ – Game Development Trainee

Oct 2024

During my industrial training as a Game Developer Trainee, I learned to conceptualize and program games from inception using Unity and C#. I engineered several mini-games to grasp mechanics, scoring algorithms, and physics-driven interactions. For my final project, I developed a 2D centrifugal-force game in which players maneuvered a stone to strike targets, implementing custom game logic, score tracking, and responsive UI components. I also integrated animations, curated assets, and designed scenes. I also explored the fundamentals of AR/VR during that time.

Research

Weakly Supervised Semantic Segmentation With Image Labels ↗

January 2024 – October 2025

I designed a transformer-based approach to enhance object detail recognition in weakly supervised segmentation. Using UniCL with a Swin Transformer, I improved class activation map (CAM) quality and fine-grained feature extraction via windowed attention. My method incorporated advanced CAM refinement, affinity calculations, and encoder intermediate features. This model generated highly detailed masks for most classes, though accuracy dropped for a few categories like person and chair. Achieving a mean IoU of 50%, the approach delivered substantial fine-grained segmentation improvements, despite being below the state-of-the-art result of 74%.

Skills

Programming Languages: C, C++, Python, Java, C#, Dart, JavaScript, TypeScript, HTML, CSS, Bash, SQL

Frameworks and Libraries: Flutter, React, Next.js, Node.js, Express.js, JavaFX, PyQt6, Bootstrap, Tailwind, Material-UI

Tools and Technologies: Git, GitHub, Docker, Visual Studio, IntelliJ, Unity, JDBC

Databases: SQLite, MySQL, MongoDB

Projects

VS-Leet ↗

2025 — VS Code Extension API, Node.js, React.js, Tailwind CSS

A VS Code extension that eliminates browser-editor context switching for LeetCode users, letting you browse/filter problems, code in C++/Java/Python/JS/TS, run tests with real-time feedback, and submit solutions—all within your IDE to streamline DSA practice and crush technical interviews.

Voice Reminder ↗

2025 — Flutter, SQLite, BLoC, Speech Recognition, NLU

An intelligent task management mobile app with a split-screen interface where the top half displays the visual todo list and the bottom half features a conversational chatbot. Features advanced NLU for natural voice command processing, SQLite database integration for persistent storage, and BLoC state management for real-time synchronization between voice interactions and visual updates.

Semantic Segmentation From Scratch ↗

2024 — PyTorch, NumPy, Matplotlib, PIL

Implemented and trained U-Net and DeepLabV3+ semantic segmentation models from scratch in PyTorch on a personal PC for educational purposes, applying them to Kaggle's Carvana (binary) and Cityscapes (multi-class) datasets with integrated visualization tools. Evaluated performance using pixel accuracy and mIoU, deriving actionable insights for autonomous driving and image editing applications.

Photo Wizard ↗

2024 — NumPy, PyQt6

A desktop app with image editing features including crop, resize, blur, sharpen, exposure, brightness, contrast, saturation, warmth, mirror, rotate, and filters. Supports custom filter creation. All processing implemented from scratch using NumPy, without OpenCV or PIL.

Tilawah ↗

2024 — jQuery, JavaScript, Axios, EJS, Node.js, Express.js, MySQL

A single-page web application (SPA) for listening to Quran recitations from various Qaris. Features include seamless playback with resume support, search by Surah or Qari, favorites, playlist management, and live updates – all implemented using EJS and jQuery without modern frontend frameworks.

Programming Achievements

IUT Intra First-Year Programming Contest 2021 ↗

2021 — 1st out of 32 teams

CodeRush 1.0: Programming Competition ↗

2023 — 7th out of 37 teams