Asif Jawad

Software Engineer @ Samsung Research

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Research Interests
My research interests are broad and driven primarily by challenging, open-ended problems. I am particularly interested in *Physical & Embodied AI, World Models, Computer Vision, Multimodal & Human-Centered AI, and AI Systems*.

Education

University of Dhaka Jan 2019 – Jan 2024
B.Sc. in Computer Science and Engineering **CGPA:** 3.58/4.00

> **Undergraduate Thesis:** *Utility-based Hypergraph Mining*
> This research formed the basis of the **ADMA 2026** publication *UHGMiner: A Framework and Algorithm for High-Utility Hypergraph Mining*.

Publications

1 RaPTGS: Render-Agnostic Post-Training Compression of 3D Gaussian Splatting 2026
***Asif Jawad**, K. M. Azwad Hossain*
ECCV 2026 | Paper | Poster

> 3D Gaussian Splatting enables real-time, high-fidelity rendering of novel viewpoints, but its large point-based representation creates substantial storage costs that limit distribution and deployment on resource-constrained devices. RaPTGS addresses the model-only setting, in which training images, camera poses, and the rendering pipeline are unavailable. The method scores Gaussian importance using geometric, spatial, and appearance cues, prunes redundant elements, and restores local coverage through training-free refinement. Spatial reordering, vector quantization, and entropy coding further compact the representation. Across standard benchmarks, RaPTGS achieves about $30\times$ compression while maintaining competitive visual quality, making trained assets easier to archive, share, and deploy.

2 UHGMiner: A Framework and Algorithm for High-Utility Hypergraph Mining 2026
***Asif Jawad**, Jawad Habib, Md. Tanvir Alam, Md. Fahim Arefin, Chowdhury Farhan Ahmed, Carson K. Leung*
ADMA 2026

> Hypergraphs model relationships among several entities at once, such as coauthor groups or product bundles. Existing mining methods largely prioritize frequency, even though the most frequent patterns are not necessarily the most valuable. UHGMiner formulates the search around utility, allowing it to identify patterns whose combined value exceeds a chosen threshold. Its HWU and REU pruning methods eliminate unpromising candidates before expensive pattern matching. Experimental results validate the efficiency of the approach and show that the discovered patterns offer greater practical value than frequency-based alternatives.

Work Experience

Software Engineer, Samsung R&D Institute Bangladesh Feb 2024 – Present

Home World Physical AI *(Python, NVIDIA Isaac Sim)* Jul 2026 – Present

> Developing a simulation framework for multiple autonomous humans in NVIDIA Isaac Sim by integrating navigation, animation, and behavior systems. The resulting indoor environments support walking, sitting, and pick-and-place interactions, providing controllable scenarios for Physical AI and embodied AI research.

3D Content Editor *(Vulkan, C++)* Sep 2025 – Jun 2026

> Contributed to a mobile application for viewing and interacting with 3D reconstruction models, with a focus on performance-critical sorting components. Prototyped GPU-accelerated parallel key–value sorting using Vulkan compute shaders, validating a high-performance alternative to an existing CPU bottleneck. Also implemented a production-grade C++ version of a parallel linear-assignment sorting algorithm based on academic literature, translating the method into efficient application code.

Samsung Notes *(UWP, WinUI 3, C#, C++)* Feb 2024 – Jun 2026

Contributed to Samsung Notes across its UWP/C# implementation and subsequent transition to WinUI 3/C++. During the UWP phase, analyzed the startup path and resolved system-level bottlenecks, reducing launch time by 30%. Built a proof of concept for double ListView virtualization with on-demand item population to improve UI scalability for large datasets. Later, led the initial migration of core components from C# to C++ and developed a C++ SDK module to support the new architecture. Implemented key authoring and document workflows in WinUI 3, including text input and rendering, thumbnail generation, page previews, PDF insertion, clipboard operations, drag-and-drop support, and drawing capabilities.

Achievements

45th ICPC World Finals 2022

Represented the University of Dhaka at the 45th ICPC World Finals. Received an **Honorable Mention** at the championship round of ICPC, the world's oldest, largest, and most prestigious collegiate programming contest. The edition's published scale was over 59,000 contestants from more than 3,400 universities in 111 countries. Only 137 advanced to the World Finals. ICPC scale | Standings

ICPC Dhaka Regional 2019 – 2026

Won the 2020 regional contest by placing first among 1,280 entries, securing qualification for the World Finals. Returned to finish 2nd Runner-up in 2025 and 1st Runner-up in 2026, alongside several other strong finishes across the 2019–2026 period. 2020 standings | 2025 standings | 2026 standings

Inter-University Programming Contests 2019 – 2025

Won the UIU Inter-University Programming Contest in 2025. Also finished 1st Runner-up at the AUST contest in 2025 and the BUET contest in 2024. Maintained a strong record across major national inter-university contests between 2019 and 2025. UIU standings | AUST standings | BUET standings

Bangladesh Olympiad in Informatics 2014

Won the Junior Category of the national informatics olympiad, an early distinction in algorithmic problem solving and competitive programming. News

National High School Programming Contest 2015

Won the Senior Category of the nationwide high-school programming contest. News

National High School Programming Contest 2016

Won the Senior Category for a second consecutive year, sustaining the national title across two editions. News

Codeforces

Achieved the **Candidate Master** title, ranking in the top 4% of users globally through sustained performance in timed algorithmic contests. Profile

Meta Hacker Cup 2024

Placed 763rd among more than 22,000 participants in Meta's global programming competition, finishing within roughly the top 3.5% of the field. Certificate

Professional Recognition

Samsung Icon Award Award

Awarded in recognition of outstanding contributions to Samsung.

Samsung Software Competency Professional Certificate

Passed Samsung's global, time-constrained Professional assessment in algorithms and data structures.

Samsung Code Contest

Served as lead judge and problem author for two editions of the annual programming competition.

Technical Mentorship

Mentored colleagues across multiple years for Samsung's Internal Capability Certification.

Undergraduate Projects

CryptoWallet *(Android Native, Firebase)* GitHub

Android application for tracking cryptocurrency prices and personal portfolios. It shows real-time gains and losses using market data from an API, with Firebase Realtime Database providing persistent synchronization.

Hematosphere *(React, Django)* Demo

Blood-bank platform connecting donors and recipients within the University of Dhaka community. It supports donor search by blood group, proximity, and availability, provides recipient-to-donor matching, and recognizes frequent contributors through a leaderboard.

Naruto *(C++, SDL2)* Demo

Infinite runner game built entirely in C++ with SDL2, demonstrating low-level game development and real-time rendering.

Technical Skills

Programming Languages

C++, Python, C# and Java

Platforms and Frameworks

PyTorch, NVIDIA Isaac Sim, Vulkan, UWP, WinUI 3

Application Development

React, Django, SDL2, Firebase, SQLite, Git