Md Akibul Islam Alvee

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EDUCATION

Shahjalal University of Science & Technology, Sylhet

Feb 2018 – March 2023

BSc(Engg.) in Computer Science & Engineering

CGPA: 3.66/4.00 (**3.87** in last two years)

Research Experience

Undergraduate Thesis

Enhancement and Improvement of Underwater Image Semantics Using Multi-Domain Neural Rendering, Supervised by Summit Haque (Assistant Professor, SUST), Sowmen Das(Research Engineer, Mediatek Research UK) [Report]

- Identified common image degradation issues and challenges in underwater environments. Focused on overcoming the low-light conditions, blurriness, and saturation distortions in underwater images.
- Used Normalizing Flows combined with multiple color spaces to extract complex features from raw images. Focused on richer feature representations for limited scene diversity in the underwater image dataset.
- Proposed model was motivated by OpenAI's *Glow* architecture, and delivered results that matched the results of the state-of-the-art methods.

Innovation at Samsung Research

- Selected to present Enhanced Underwater Image Mode for Camera at Samsung AI PoC Exhibition.
- Worked on multiple patentable innovations (DOI) including a novel methodology for early hypothermia detection, intent-based gesture system for HMD devices, and UWB-based gaze estimation
- Submitted multiple innovative solutions in Samsung Mobile Developer Conference, including device control system using wristwatch interfaces and Smart AI Notification framework for IoT camera devices.

Work Experience

Samsung R&D Institute Bangladesh | Visit

April 2023 – Present

Senior Software Engineer

- Worked on the CameraPlugin, Summary and HomeInsightSettings module of Samsung SmartThings.
- Designed and implemented a reactive system (using Rx.NET) to process REST API responses and store data efficiently in SQLite DB, enabling instant app startup with cached data and real-time updates upon remote changes.
- Developed live-streaming, two-way-talk and frame capture pipeline from scratch for **IoT Cameras** using WebRTC and Gstreamer framework in C++.
- Developed the streaming pipeline from **Push Notification** for IoT CameraDevices with efficient Server Sent Event(SSE) handling during the streaming.
- Worked with SDP Offer exchange protocol, media stream transmission/receiving through the RTCTransceiver module, and **P2P** Connection establishment between server and IoT camera devices via **WebRTC** in C++.
- Implemented hardware-accelerated rendering using Hardware Pointer in C++ and utilized AppServiceConnection and Systray for efficient IPC communication.
- Diagonised and resolved *deadlock* and *concurrency* issues using *multithreading* and *mutex* mechanisms, resulting in an almost 90% reduction of FCs.
- Optimized app performance and stability by preventing memory leakages and conducting thread, memory, and CPU profiling using tools like Visual Studio Profiler.

Academic Projects

FitmentCraft | 😯

June 2022 – Aug 2022

Used Technologies: NodeJS, ReactJS, ExpressJS, MongoDB

- Simulated an e-commerce system integrating an online retailer, a backend supplier, and a bank to handle transactions
- Managed the Bank and Supplier APIs, facilitating seamless transactions between users, the e-commerce platform, and the supplier

TourGuide | • Nov 2021 – Dec 2021

Used Technologies: Python, Django, PostgreSQL

- Web platform for the reservation of tours and flights, sharing experiences, rating recommendations, and providing feedback
- Led backend development for tour bookings, user authentication, blogging, and airline reservations

Coloring-Black-and-White-Photos | 😯

July 2021

Used Technologies: Tensorflow-keras, openCV

• Implemented and trained an adversarial model based on the paper of *ChromaGAN* that successfully colorizes BnW images by learning perceptual and semantic correlations between color distributions and class features

Participations & Accomplishments

Excellence Award, Samsung R&D Institute Bangladesh

Nov 2024

 Received Excellence award for my contribution in SmartThings Windows Project development in July-September on the year 2024

Samsung Software Competency Test - Professional Level Acquired

March 2024

• Monetary award of 40,000 BDT for passing Samsung's Software Competency Test

Samsung AI PoC Exhibition 2024 | Visit

Jan 2024

• Developed and showcased a Proof of Concept for *Underwater Image Enhancement* to over 500 attendees, and securing a *Top Ten* position in the exhibition based on audience voting

SUST SWE Technovent Capture The Flag

Jan 2023

• Finished the event in 5^{th} postion among 25 teams

Leading University CSE Carnival Hackathon

June 2019

• Our team developed a mobile application with some unique features focusing on easy interaction between the students and teachers.

COMMUNITY LEADERSHIP

Class Representative

Jan 2019 – March 2023

Dept. of CSE, SUST

 Acted as the key link between students and faculty, communicated student concerns, coordinated class activities, maintained clear communication, and cultivated a positive learning atmosphere

Creative Executive Nov 2019 – Dec 2021

SUST ACM Student Chapter | Visit

• Managed multimedia operations for various workshops and effectively represented them on digital platforms

Team Leader Apr 2019 - Mar 2019

LICT SUST Tech Fest 2019

• Organized and executed the event **Project Showcasing**

SKILLS

Progamming Skills: Solved 1200+ problems on LeetCode, CodeForces, LightOJ, VJudge, StopStalk

Languages: CPP, C, C#, Python, Java, Javascript

Framework: Pytorch, .NET, Gstreamer, WebRTC, UWP, WPF, Django, ReactJS

Version & Task Management: GitHub, Gerrit, Jira

STANDARDIZED TEST SCORES

Graduate Record Examinations (GRE): 302 (Q: 162, V: 140, AW: 3.0)

Test of English as a Foreign Language (TOEFL): 91(R:25, L:26, S: 19, W: 21)