

Partha Sarker

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Education

B.Sc. (Engg.) in Computer Science and Engineering

Sylhet, Bangladesh | **Feb 2017 – Jun 2021**

Shahjalal University of Science and Technology

- **CGPA: 3.76/4.0** (Ranked 10th out of 107 students)
- **Thesis:** A Notification-Based Nudge for Handling Excessive Smartphone Use
- **Advisor:** [Marium-E- Jannat](#)

Test Scores

IELTS Academic: Overall 7.5 (Listening: 8.0, Reading: 8.0, Writing: 6.5, Speaking: 6.5)

Jul 2025

GRE General: Overall 309 (Quant: 162, Verbal: 147, Analytical Writing: 3.5)

Apr 2025

Research Interest

- **HCI:** Focusing on digital wellbeing and user-centered design to improve human-technology interaction.
- **AR/VR:** Developing immersive systems for education, accessibility, and medical applications.
- **Computer Vision:** Advancing visual recognition and image analysis techniques across diverse domains.

Research Experience

Thesis: A Notification-Based Nudge for Handling Excessive Smartphone Use. [\[arXiv\]](#)

Jan 2020 – Jun 2021

- Developed *App Usage Monitor* [\[GitHub\]](#), an **Android** app that reduces smartphone overuse using **notification-based nudges**, grounded in **Human-Computer Interaction (HCI)** principles. The app enhances user **self-awareness** without causing frustration or annoyance.
- **Reduced smartphone usage by over 6%** through a **three-week experiment**.

Lab Project: Handwritten Word Segmentation. [\[GitHub\]](#)

Jan 2020 – Dec 2020

- Implemented **word segmentation** from **handwritten documents** using **Python** and **OpenCV**.

Work Experience

Software Engineer I | [MarginEdge](#) | Remote

Arlington, Virginia, USA | **Aug 2024 – Present**

Project: [MarginEdge](#) Platform

Comprehensive restaurant management software integrating with 60+ POS systems for automated invoice processing, inventory management, and real-time P&L insights.

- **Systems Optimization:** Reduced data processing time by **97% (100min → 3min)**
- **Monitoring Infrastructure:** Created real-time AWS dashboards cutting incident triage by 60%
- **Data Integrity:** Developed migration validation system preventing data loss
 - Spring Boot, Postgres, React, AngularJS, AWS (CloudWatch, DynamoDB, S3, EC2, Lambda, SQS)

Software Engineer | [Dynamic Solution Innovators](#) | Onsite

Dhaka, Bangladesh | **May 2021 – Jul 2024**

Project: IEIMS (Integrated Education Information Management System)

May 2021 - Dec 2023

National digital platform managing 20M+ student' educational operations for Bangladesh Ministry of Education.

- **Large-Scale Systems:** Developed national education platform serving **20M+ students**
- **Performance Engineering:** Optimized database queries (**50s → 4s** response time)
- **Process Automation:** Created **QR attendance system** reducing manual work by 80%
- **Distributed Systems:** Containerized microservices using Docker/Kubernetes
 - Spring Boot, Kubernetes, Docker, Next.js, MS SQL Server, Jenkins

Project: CRVS (Civil Registration and Vital Statistics)

Jan 2024 - Jul 2024

National system for recording birth, death, marriage, divorce with automated digital ID creation for 10M+ entries.

- **Automation:** Automated digital ID creation for **10M+ records**
- **System Optimization:** Optimized database queries (**50s** → **4s** response time)
 - Laravel, Oracle Database

Awards & Recognition

Perfect Performance Review MarginEdge	2025
<ul style="list-style-type: none"> • Rated <i>Exceeding Expectations</i> across all performance evaluation categories 	
2nd Runner-up, National Hackathon LICT SUST Techfest	2019
<ul style="list-style-type: none"> • Developed ECHO sign language interpreter to help disabled people communicate 	
Merit Scholarship Shahjalal University of Science and Technology	2017 - 2021
<ul style="list-style-type: none"> • Awarded for academic excellence (Top 10%). 	
Competitive Programming Achievement	2017 - Present
<ul style="list-style-type: none"> • Problem Solving (Basic) HackerRank Certificate • Solved 500+ data structure, algorithmic problems on various online judges. LeetCode, StopStalk. 	
Machine Learning Foundations Certificate	University of Washington Jun 2020
<ul style="list-style-type: none"> • Covered case study approach to ML applications and algorithms 	

Technical Projects

- **AR Girl (Augmented Reality):** AR character controller for real-world navigation using **Unity**, **ARCore** and **C#**
- **App Usage Monitor:** Android app tracking usage with **target notifications** to reduce smartphone overuse
- **ECHO:** Sign language interpreter for text/speech conversion developed with **Android Studio** and **Java**
- **FIGHT:** 3D local multiplayer fighting game with 1v1 combat mechanics created with **Unity** and **C#**
- **Shikha:** 2D side-scrolling puzzle-adventure game with level progression built with **Unity** and **C#**
- **Linear Equation Solver:** Gaussian solver and Petri Net simulator with visualization built with **Unity** and **C#**
- **P2P Messaging App:** Peer-to-peer local network communication with **file sharing** built with **Android Studio**
- **Spring SSO:** Single Sign-On implementation using **OAuth2** developed with **Spring Boot** and **Java**
- **Glut Polygon Drawing:** Interactive **polygon rendering** and transformation tool built with **C++** and **OpenGL**

Skills & Technologies

Programming Languages: Java, Python, JavaScript, TypeScript, C#, SQL, C++, PHP

ML/AI: PyTorch, TensorFlow, Keras, OpenCV, Scikit-learn, NumPy, Pandas, Matplotlib

Game Development & Design: Unity, Unreal Engine, Blender, AR Development, Photoshop

Cloud & DevOps: AWS (EC2, S3, Lambda, CloudWatch, DynamoDB), Docker, Kubernetes, Jenkins, Vercel

Databases: PostgreSQL, SQL Server, MySQL, Oracle Database, Firebase

Tools & Platforms: Mockito, Jest, RabbitMQ, Liquibase, MinIO, Lens, Android Studio, Spring Boot, React, Next.js

Extracurricular & Leadership Activities

SUST Tech Fest	Apr 2019
<ul style="list-style-type: none"> • Responsibilities in the Food and Convenience Section for participants • Participated in Inter-University Programming Contest 	
Silver Jubilee Reunion	Feb 2018
<ul style="list-style-type: none"> • In charge of the Entertainment section (focused on alumni's children) 	
SUST CSE Carnival	Aug 2017
<ul style="list-style-type: none"> • Handled the gaming competition section • Participated in Inter University Programming Contest 	
General Member	2017 - 2020
<ul style="list-style-type: none"> • CSE Society, Shahjalal University of Science and Technology 	