

Partha Sarker

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Education

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

Sylhet, Bangladesh | 2017 – 2021

Shahjalal University of Science and Technology

- CGPA: **3.76/4.0**
- Thesis: A Notification-Based Nudge for Handling Excessive Smartphone Use
- Advisor: [Marium-E- Jannat](#)

Research Experience

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

2020 – 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 with 16 participants.

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

2020 – 2020

- Implemented word segmentation from handwritten documents built using python library OpenCV.

Teaching Experience

Guest Lecturer | Metropolitan University

Sylhet, Bangladesh | November 2024

Conducted specialized sessions on machine learning algorithms: Feature engineering, Naive Bayes, regression, SVMs, decision trees, and PCA

Work Experience

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

Arlington, Virginia, USA | August 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 – July 2024

Project: IEIMS (Integrated Education Information Management System)

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)

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
• Rated <i>Exceeding Expectations</i> across all performance evaluation categories	
2nd Runner-up, National Hackathon LICT SUST Techfest	2019
• Developed <i>ECHO</i> sign language interpreter to help disabled people communicate	
Merit Scholarship Shahjalal University of Science and Technology	2017 - 2021
• Awarded for academic excellence (Top 10%).	
Competitive Programming Achievement	2017 - Present
• Problem Solving (Basic) HackerRank Certificate	
• Solved 500+ data structure, algorithmic problems on various online judges. LeetCode , StopStalk .	

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

Certifications

Machine Learning Foundations Certificate	University of Washington June 2020
• Covered case study approach to ML applications and algorithms	
Chatbot Development with Rasa Certificate	Coursera May 2020
• Built conversational AI systems using Python	

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	April 2019
• Responsibilities in the Food and Convenience Section for participants	
• Participated in Inter-University Programming Contest	
Silver Jubilee Reunion	February 2018
• In charge of the Entertainment section (focused on alumni's children)	
SUST CSE Carnival	August 2017
• Handled the gaming competition section	
• Participated in Inter University Programming Contest	
General Member	2017 - 2020
• CSE Society, Shahjalal University of Science and Technology	