

Nazia Shehnaz Joynab

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EDUCATION

- **Military Institute of Science and Technology**

Bachelor of Science in Computer Science and Engineering; CGPA: 3.65/4.00

Dhaka, Bangladesh

Feb. 2019 – May 2023

EXPERIENCE

- **Samsung R&D Institute Bangladesh**

Software Engineer I (DevOps), Full-time, Onsite

Dhaka, Bangladesh

Dec 2023 - Present

- Contributed to the development and maintenance of an internal distributed CDN infrastructure named ADS (Artifact Delivery Service) which leverages proprietary network accelerators, intelligent caching, proxies and public cloud to optimize large binary artifact delivery across different global R&D centers of Samsung Electronics.
- Engineered administrative portal and plugins using **Django and J2EE**, implementing deployment processes with **Bash, Fabric, Docker, and QuickBuild** to enhance system functionality and operational efficiency.
- Participated in comprehensive system monitoring, administrative actions while handling user Q/As to ensure optimal service performance and reliability.
- Supported R&D initiatives by contributing to AI model development and achieving 5th place in internal AI Proof-of-Concept competition.
- Utilized technical expertise in **Python, Java, Bash, Django, MySQL, Docker** to drive innovative technological solutions.
- Collaborated in peer programming and system design related discussions, fostering team productivity and innovative problem-solving approaches in complex DevOps scenarios.

Full Stack Development Intern, Full-time, Onsite

Jun 2023 - Dec 2023

- Designed and developed new features using **Laravel, CodeIgnitor, PHP and MySQL** for work process automation such as customized notification system, automated leave balance calculation, and graphical data visualization. Also implemented middleware protected route authentication and payload encryption methods on HTTP requests etc.
- Shipped two Laravel applications developing them from scratch.
- Fixed technical issues and bugs of 4 internal monolithic applications - 1) Employee award information tool, 2) Intern attendance tool, 3) Organization dashboard and 4) Patent & ideation file management tool.
- Documented the design process and logical overview of the systems for future reference.

PROJECTS

- **Shopner Pathshala**

Web based E-Learning Platform for Special Children

- Successfully designed a comprehensive web application using **Laravel 8 and Oracle 11g**, featuring advanced database programming with **PL/SQL** techniques including stored procedures, triggers, sequences, and robust exception handling. Developed a multi-module system encompassing appointment management, online blog forum, course registration, and student result management with role-based authentication. Also integrated dynamic data visualization using **Chart.js**.
- We achieved a position in the top 100 at a national idea competition with this idea.

- **Thesis project: Federated Learning Aided Cervical Cancer Classification**

- Proposed a CNN-based federated learning architecture for cervical cancer classification which showed test accuracy of 94.36% and 78.4% on an IID (Independent and Identically Distributed) and a non-IID setting respectively.

- **Joyita**

A ML-Based Android Application for Screening, Facilitating the Cervical Cancer Treatment.

- Created re-usable widgets, maintained a structured codebase while developing the whole project in **Flutter**. Used **Cloud Firestore** in the backend to store doctor appointment details, patients' blogs. The ML model predicted the possibility of having cervical cancer based on user inputs of pre-defined questionnaire. Hosted ML model using **Flask and Heroku**. Testing of the application was done by almost **50+** users. It was a department funded project.

- **AlertTrace**

A Wearable SOS Alert System

- **Hardware Development:** Used Arduino Nano, GSM module, and GPS module to make a wearable device. If a user pressed the SOS button from the wearable device, his latitude-longitude with the device id was stored in **Firestore Realtime Database** and sent to connected android device.
- **Android Application Development:** Developed a **Flutter** application featuring OTP authentication, emergency contact setup, SOS alert generation, and real-time victim tracking on Google Maps. Utilized Cloud Firestore for secure user data management, creating a comprehensive personal safety technology solution.
- We achieved 2nd Runners-up position in DevMania 2022 for this idea.

- **Finetuning Whisper for Automatic Speech Recognition and Transcription**

- Fine-tuned a pre-trained Whisper model on Common Voice and Multilingual LibriSpeech datasets for speech transcription tasks. Word Error Rate (WER) was used as the evaluation metric. The final model was converted into GGML format for offline inference via android device.

- **Bengali Sign Language Recognition Using Deep Learning**

- Compared five pre-trained models for recognizing 38 classes using pre-trained models of Pytorch - **Densenet121, VGG16, Mobilenet v3 small, Mobilenet v2, and Resnet50**; achieved an overall test accuracy of 96.57%, 95.13%, 92.82%, 95.52%, 96.31% respectively for each model.

PUBLICATIONS

Joynab, N. S., Islam, M. N., Aliya, R. R., Hasan, A. R., Khan, N. I., & Sarker, I. H. (2024). A federated learning aided system for classifying cervical cancer using pap-smear images. *Informatics in Medicine Unlocked*. (link, pdf, data and materials)

PROGRAMMING SKILLS

- **Languages:** Bash, Python, C++, Java, SQL, JavaScript
- **Backend:** Django, Laravel, CodeIgnitor, Flask, Apache
- **Database:** MySQL, Oracle, Firebase
- **Android:** Dart, Flutter
- **Machine Learning:** PyTorch, TensorFlow
- **Others:** Linux, Docker (Basic), Kubernetes (Basic), AWS (Basic), Quickbuild, Github, Perforce, Swarm, Splunk

ACHIEVEMENTS

- 2nd Runners-up (MIST.Constants) Devmania 2022, BDOSN
- top 100/1000 teams at Mujib 100 Idea Contest(2021)
- 34th position (Bitchamps), Inter University Girls' Programming Contest Season 2, NSU
- Placed 15th position in the preliminary contest of Code Samurai hackathon 2022

EXTRA-CURRICULAR ACTIVITIES

- **MIST Innovation Club**

Supervisor and Team Leader of Application Dev (2022)

- Conducted a workshop on the basics of Python **Object Oriented Programming**.
- Prepared video tutorials of **Django**

PROBLEM SOLVING PROFILE

Solved 600 problems across all platforms.

Leetcode (nazia32), Hackerrank (geek_a_byte32), Vjudge (dheerania), CSES (geek_a_byte32)