Nazia Shehnaz Joynab

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Education

- **Military Institute of Science and Technology** — Dhaka, Bangladesh
  Bachelor of Science in Computer Science and Engineering; CGPA: 3.65/4.00 — *Feb. 2019 – Feb. 2023*
- **Holy Cross College** — Dhaka, Bangladesh
  Higher Secondary School Certificate; GPA: 5.00/5.00 — *2016 – 2018*
- **Holy Cross Girls' High School** — Dhaka, Bangladesh
  Secondary School Certificate; GPA: 5.00/5.00

Experience

- **Samsung R&D Institute Bangladesh** — Dhaka, Bangladesh
  Software Engineer I (DevOps), Full-time, Onsite — *Dec 2023 - Present*
  - **Main task**: At samsung as a DevOps engineer, I am currently working on Artifact Delivery System (ADS). ADS (Artifact Delivery Network) is an artifact delivery network used for faster delivery of large artifacts over 21 global Samsung R&D centers (GRCs). We collaborate with HQ and provide full support to other GRCs here. It is built on a microservice based architecture. My technical skills here include **Python, Java, Bash, Django, MySQL, and Docker**. I am currently involved in the development work of the admin portal mostly.
  - **Side tasks/achievements**: 5th in internal Generative AI contest.

  Full Stack Development Intern, Full-time, Onsite — *Jun 2023 - Dec 2023*
  - Database design, query optimization, middleware design, manual testing and bug fixing of 3 internal applications using **Laravel, CodeIgnitor, PHP and MySQL**. Collaboration with team members using Github Enterprise.

Publications

Journals

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)

Projects

- **Thesis project: Federated Learning Aided Cervical Cancer Classification**
  - Proposed a CNN-based federated learning architecture which showed test accuracy of 94.36% and 78.4% on an IID (Independent and Identically Distributed) and a non-IID setting respectively.
    My Contributions:
    1. fedavg-iid-pytorch_94.36%
    2. fedavg-non-iid-pytorch_78.4%
    3. fedavg-iid-tensorflow_82.18%
    4. fedavg-iid-tensorflow_87%
    5. fedavg-iid-tensorflow_88.46%
- **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.

- **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.

- **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.

- **Shopner Pathshala**
  Web based E-Learning Platform for Special Children
  - Created ER and Schema Diagram, used **PL/SQL** (procedure, trigger, sequence, cursor, exception handling) and constraints. CRUD operations were added for automated appointment system, online forum, new course addition, result displaying options and role based authentication. Used **Laravel8** and **Oracle 11g** as backend. Dynamic graph generation of a student's result data using **Chart.js**. We achieved a position in the top 100 at a national idea competition with this idea.

Programming Skills

Languages: Python, C++, Java, SQL, JavaScript, Bash
Backend: Laravel, CodeIgnitor, Flask, Django, Apache.
Database: MySQL, Oracle, Firebase
Android: Dart, Flutter.
Machine Learning: PyTorch, TensorFlow
Others: Linux, Docker (Basic), Kubernetes (Basic), AWS (Basic), Github, Heroku, Render, Vercel.

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

Certifications

Hackerrank: Problem Solving (Basic), SQL, Python(Basic)
Kaggle: Intro to Machine Learning, Intermediate Machine Learning, Data Cleaning, Intro to Deep Learning.
MIST Innovation Club: Android and IOS development in Flutter
She Thinks Code: Introduction to Natural Language Processing by building a simple app.

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 (dheeranazia)**, **CSES (geek_a_byte32)**