

# Biggo Bushon Routh

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Sylhet, Sylhet Sadar - 3100, Bangladesh

## OBJECTIVE

To join a reputed, research-focused program where I can collaborate with dynamic and innovative teams to learn, apply, and contribute to the fields of Machine Learning, AI, and Computer Science. I aim to leverage my combined experience in the software industry and academic research to drive impactful projects and advance groundbreaking studies. My ultimate goal is to develop practical, innovative solutions that address real-world challenges and contribute meaningfully to technological progress and the well-being of humanity.

## WORK EXPERIENCE

- **Ezycourse** July, 2023 - PRESENT  
Software Engineer L2 Sylhet, Bangladesh
  - Develop and maintain the Ezycourse mobile application, focusing on scalability, efficiency, issue resolution, and enhancing user experience, while collaborating with teams to implement new features.
- **Intex Research Lab** Sep. 2023 - PRESENT  
Undergraduate Research Assistant Sylhet, Bangladesh
  - Conduct research on machine learning and deep learning. Assist in thesis projects by collaborating with senior researchers to design and implement models, contributing to research papers. Continuously stay informed on the latest developments in ML and DL technologies.

## EDUCATION

- **Bachelor of Science in Computer Science and Engineering** Jan. 2020 - Dec. 2023  
Leading University Sylhet, Bangladesh
  - Final grade: 3.65 out of 4 | Type of credits: Bangladesh Credit System | Number of credits: 152

## RESEARCH EXPERIENCE & PUBLICATIONS

- **Multi-Model Attentional Fusion Ensemble for Accurate Skin Cancer Classification** 🌐 IEEE ACCESS  
Status: Under Revision
  - An ensemble combining ResNet50V2, MobileNetV2, and EfficientNetV2 with attention mechanism to improve skin cancer classification accuracy.
  - Achieved 92% precision and 96% recall for Dermatofibroma, and 99% precision and recall for Vascular lesions, demonstrating superior results across varied skin lesion types.
  - Utilized resampling, augmentation, and hair removal techniques to address class imbalance in the HAM10000 dataset, enhancing overall model performance.
- **Performance Analysis of Machine Learning Algorithms in Chronic Kidney Disease Prediction** 🌐 IEEE Xplore  
Status: Published [IEMCON 2022]
  - Analyzed eight machine learning models, including Random Forest, SVM, and Logistic Regression, for Chronic Kidney Disease (CKD) diagnosis.
  - Addressed missing data in the UCL CKD dataset using "mean/mode" and "Random sampling" techniques for improved model performance.
  - Achieved 99% accuracy with Random Forest and Logistic Regression, outperforming other models such as AdaBoost, XGBoost, and KNN (73%).
- **Retinal Optical Coherence Tomography (OCT) Image Classification for Glaucoma Detection**  
Status: Ongoing
  - Plan to develop a deep learning model for Retinal OCT image analysis using CNN, leveraging transfer learning and robust techniques like dropout and batch normalization.
  - Curate and preprocess a diverse dataset with resizing, normalization, and data augmentation, aiming to optimize performance through hyperparameter tuning and cross-validation.

## SKILLS

**Software Development:** Programming Languages: C, C++, Java, Python, Dart, Swift, Kotlin | System Paradigms: OOP, SOLID principles, MVC, MVVM, Clean Architecture | Frameworks: Flutter, Swift UI, Java Swing | Web Technologies: HTML, CSS, Javascript | Databases: MySQL, Sqlite | Tools and Software: Firebase, Version Control (Git & Github), Android Studio, Xcode, VS Code

**Machine Learning Technologies:** Languages: Python | ML Python Libraries: Numpy, Pandas, ScikitLearn, Tensorflow | Tools and Software: Matlab, Jupyter Notebook, Google Colab, Kaggle

**Others:** Problem Solving: Solved 450+ problems in online judges i.e. Codeforces, Codechef, Leetcode etc.

## PROJECTS

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### • Skin Lesion Detector

 [Github](#)

- This project's main feature is to detect skin lesions among seven types.
- The machine learning model identifies the type, and the app receives the response via API.
- Using Fast API, Flutter etc.

### • Machine Learning Basics

 [Github](#)

- This repository contains several machine learning projects, with a focus on healthcare and data analysis.
- Diabetes Prediction System | Cardiovascular Disease Prediction System
- Linear Regression Exercises | Experimenting Principal Component Analysis (PCA)

### • Social Feed App

 [Github](#)

- Demonstrates clean architecture with a focus on REST API (mock), dependency injection, and state management using Riverpod.
- Distinction between UI and business logic, modular code.

## RECOGNITION & ACHIEVEMENTS

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### • Presentation at IEEE CS BDC Summer Symposium 2023

*Jan. 2023*

- Presented an extended abstract of my thesis at the IEEE CS BDC Summer Symposium 2023, Islamic University, Kushtia, Bangladesh (Paper ID: 162), gaining valuable insights and sharing my research with experts and peers.

### • Conference Presentation at IEEE IEMCON 2022

*Oct. 2022*

- My co-authors and I successfully presented our paper titled "Performance Analysis of Machine Learning Algorithms in Chronic Kidney Disease Prediction" at the 2022 IEEE IEMCON.

### • Participation in Code Samurai Hackathon 2022

*Dec. 2022*

- My team placed 27th nationwide in the preliminary round of the Code Samurai Hackathon 2022, out of around 500 teams. We qualified for the finals at Dhaka University, where we presented our project and gained valuable experience.

### • Participation in Tech Storm-4 Onsite Programming Contest 2021

*May. 2021*

- My team and I participated in the onsite programming contest at Leading University during "Tech Storm-4 2021," where we secured 3rd place.

## CO-CURRICULAR ACTIVITIES & VOLUNTEERING

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### • Secretary, IEEE Computer Society LU SB Chapter

*May. 2023 – Sep.2024*

- Organized events such as seminars and webinars, leading content writing and operations teams.
- Strengthened my network while enhancing leadership and communication skills.

### • Membership Coordinator, IEEE Computer Society LU SB Chapter

*June. 2022 - May 2023*

- Led membership campaigns and coordinated events, creating content and reports that improved project management and teamwork skills.

### • Programming Contest Organizer & Invigilator, EzyCourse

*Jan. 2024*

- Volunteered as a problem setter and invigilator for a programming contest aimed at recruiting fresh interns, enhancing my problem-solving and event management skills.

## CERTIFICATIONS

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### • Developing Advanced Security Professionals in Bangladesh (DASPiB)

*2024*

- Completed a 4-day workshop, gaining foundational insights into computer security and advanced cybersecurity practices, with a focus on enhancing security awareness and protocols.

### • LU Research Bootcamp

*2021*

- Participated in a comprehensive bootcamp focused on improving research skills and understanding the standards of conducting research in the field of computer science.

## PROFESSIONAL MEMBERSHIPS

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### • The Institute of Electrical and Electronic Engineers (IEEE), Membership ID: 96831582

*2021 - Present*