

Mehedi Hasan Bijoy

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[LinkedIn](#) • [GitHub](#) • [Google Scholar](#) • [Portfolio](#)

Experience

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| Jan 23 - Present | Lecturer
Department of CSE, Bangladesh University of Business and Technology
Courses: <ul style="list-style-type: none">• CSE111 - Structured Programming Language• CSE121, 122 - Object Oriented Programming Language and Lab• CSE231, 232 - Data Structures and Lab• CSE467 - Pattern Recognition |
| Mar 22 - Present | Research Assistant
Institute for Advanced Research, United International University
Project: Development of Deep Learning Based Bangla Spell & Grammar Checker |
| Feb 22 - Jan 23 | Lab Instructor
Department of Electrical & Computer Engineering, North South University
Courses: <ul style="list-style-type: none">• CSE225L - Data Structures and Algorithms Lab (C++)• CSE115L - Programming Language I Lab (C) |
| Oct 20 - Sep 21 | Teaching Assistant
Department of Mathematics & Physics, North South University
Course: MAT361 - Probability & Statistics |

Academic Credential

- B.Sc. in Computer Science & Engineering
North South University
CGPA: **3.81 / 4.00**
Specialization: **Artificial Intelligence**
May 2017 - Sep 2021

Awards & Scholarships

- Summa Cum Laude in Bachelor of Science.
- Partial tuition fee waiver grant for undergraduate studies at North South University.

Research Interests

Meta-learning, Natural Language Processing, Speech Processing, Computer Vision

Publication

- Image Tagging by Fine-tuning Class Semantics Using Text Data from Web Scraping
ICCIT2021 / [Paper](#) / [Oral Presentation](#) / Publisher - IEEE
Mehedi Hasan Bijoy, Nirob Hasan, Md. Tahrim Faroque Tushar and Shafin Rahman

Open-source

- **Imgclassifier** ([code](#))

A python library developed on top of PyTorch that allows a user to do image classification by writing only one line of code. (Current Version: 0.0.2)

Programming Skills

- **Languages:** Python, C, C++, SQL, Java
- **DL Frameworks:** PyTorch, Keras
- **ML Libraries:** Scikit-learn, NLTK, Gensim, Pandas, Numpy, Matplotlib, Seaborn
- **Databases:** MySQL, PostgreSQL, SQLite
- **Data Visualization Tool:** Tableau
- **Web Scraping Libraries:** Selenium, BeautifulSoup, Requests, Urllib, Wikipedia-API
- **Developer Tools:** LaTeX, Git, Google Colab, Jupyter Notebook, Eclipse, SSMS, SQL Workbench

Research Projects

- **DPCSpell: A Denoising Transformer-based Detector-Purificator-Corrector Framework for Spelling Error Correction of Bangla and Resource-Scarce Indic Languages** (*NLP, Transformer*)
[\[code\]](#), [arXiv](#)

The contributions of this article are summarized below:

- I. We propose a novel detector-purificator-corrector framework named DPCSpell, which is based on denoising transformers, for the SEC of Bangla and resource-scarce Indic languages such as Hindi and Telugu.
- II. We compare our method with state-of-the-art methods in different languages. It has become the new state-of-the-art method for Bangla SEC.
- III. A comprehensive comparison among rule-based, RNN-based, convolution-based, and transformer-based methods is performed for the SEC task.
- IV. We introduce a method for developing a large-scale parallel corpus from scratch that overcomes the resource scarcity issue of left-to-right scripted languages. A large-scale parallel corpus for Bangla SEC is developed using our method and made publicly available, making Bangla no longer a low-resource language for the SEC task.

- **A Deep Learning Approach to Detecting Rice Leaf Diseases** (*CNN, Transfer Learning*)
[\[code\]](#)

The contributions of this article are summarized below:

- I. We propose a lightweight dCNN architecture for rice leaf disease detection that outperforms previous works with significantly fewer parameters.
- II. We compare our proposed model with seven benchmark architectures namely AlexNet, MobileNetV2, MobileNetV3, ResNet50, DenseNet121, ResNeXt50, and ShuffleNetV2, and achieve competitive performance with a much lower parameter size, hence, asymptotic complexity.
- III. We enhance the previous rice leaf disease dataset by collecting data, at least 95 unique RGB images, from the internet and manually annotating them by experts.
- IV. We developed a crop health monitoring system for farmers which includes a website and an android app. Also, we developed an open API.

On-going Research Projects

- Bangla Grammatical Error Correction
- Review of Bangla Natural Language Processing
- Generalized Zero-Shot Character Recognition by Tweaking Vision Transformer

Standard Test Scores

- International English Language Testing System (IELTS)
Overall - 7.0 | Speaking - 8.0

Referees (Available Upon Request)

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