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Md. Rezwanul Haque

Career Objective

Looking for a career to demonstrate the best of my professional ability, research thinking, and strategies to improve my knowledge as well as to contribute to the best of my potential in my institution.

Research Interests

Artificial Intelligence, Machine Learning, Deep Learning, Computer Vision, and Natural Language Processing.

Academic Credentials

2015 – 2019 **Bachelor of Science in Computer Science and Engineering**,
Khulna University of Engineering & Technology (KUET).
CGPA: 3.**/4.00

2012 – 2014 **Higher Secondary Certificate**,
Rajshahi Govt. City College, Rajshahi.
GPA: 5.00/5.00

2007 – 2012 **Secondary School Certificate**,
Balahar B.L. High School, Dinajpur.
GPA: 5.00/5.00

Research Works

Published Articles

- **Md. Rezwanul Haque**, S. M. Taslim Uddin Raju, Md. Asaf-uddowla Golap, M.M.A Hashem, *"A Novel Technique for Non-Invasive Measurement of Human Blood Component Levels from Fingertip Video Using DNN Based Models"*, IEEE Access, IEEE, vol. 9, pp. 19025–19042, Jan. 2021. **[Impact Factor: 3.367, Q1]**
- Md. Asaf-uddowla Golap, S. M. Taslim Uddin Raju, **Md. Rezwanul Haque**, M.M.A Hashem, *"Hemoglobin and Glucose Level Estimation from PPG Characteristics Features of Fingertip Video Using MGGP-Based Model"*, Biomedical Signal Processing and Control, Elsevier. vol. 67, pp. 102478, Mar. 2021. **[Impact Factor: 5.076, Q1]**
- Md. Milon Islam, **Md Rezwanul Haque**, Hasib Iqbal, Md. Munirul Hasan, Mahmudul Hasan, Muhammad Nomani Kabir, *"Breast Cancer Prediction: A Comparative Study Using Machine Learning Techniques"*, SN Computer Science, Springer Nature, vol. 1, no. 5, pp. 290, Sep. 2020.
- Amanullah Asraf, Md. Zabirul Islam, **Md. Rezwanul Haque**, Md. Milon Islam, *"Deep Learning Applications to Combat Novel Coronavirus (COVID-19) Pandemic"*, SN Computer Science, Springer Nature, vol. 1, no. 6, pp. 363, Nov. 2020.
- Shah Muhammad Amzat Ullah, Md. Milon Islam, Saifuddin Mahmud, Sheikh Nooruddin, S.M. Taslim Uddin Raju, **Md. Rezwanul Haque**, *"Scalable Telehealth Services to Combat Novel Coronavirus (COVID-19) Pandemic"*, SN Computer Science, Springer Nature, vol. 2, no. 1, pp. 18, Jan. 2021.
- Laboni Akter, Ferdib-Al-Islam , Md. Milon Islam, Mabrook S. Al-Rakhami, **Md. Rezwanul Haque**, *"Prediction of Cervical Cancer from Behavior Risk Using Machine Learning Techniques"*, SN Computer Science, Springer Nature, vol. 2, no. 3, pp. 1–10, 2021.
- **Md. Rezwanul Haque**, Md. Milon Islam, Kazi Saeed Alam, Hasib Iqbal, Md. Ebrahim Shaik, *"A Computer Vision based Lane Detection Approach"*, International Journal of Image, Graphics and Signal Processing(IJIGSP), vol. 11, no. 3, pp. 27-34, 2019.

Conference Papers

- **Md. Rezwanul Haque**, Md. Milon Islam, Hasib Iqbal, Md. Sumon Reza, Md. Kamrul Hasan, *"Performance Evaluation of Random Forests and Artificial Neural Networks for the Classification of Liver Disorder",* Proc. International Conference on Computer, Communication, Chemical, Material and Electronic Engineering (IC4ME2), IEEE, Rajshahi, Bangladesh, pp. 1-5, 8-9 Feb. 2018.
- Md. Milon Islam, Hasib Iqbal, **Md. Rezwanul Haque**, Md. Kamrul Hasan, *"Prediction of Breast Cancer Using Support Vector Machine and K-Nearest Neighbors",* Proc. IEEE Region 10 Humanitarian Technology Conference (R10-HTC), IEEE, Dhaka, Bangladesh, pp. 226-229, 21-23 Dec. 2017.

Under Review

- S. M. Taslim Uddin Raju, **Md. Rezwanul Haque**, Safial Islam Ayon, Manan Chakma, Shah Muhammad Azmat Ullah, Mabrook S. Al-Rakhami, and Fahad R. Albogamy *"CovResBlocksNet: A Multi-Step CNN Architecture with Multiple Residual Blocks for COVID-19 Detection from CT Images",* Computational and Mathematical Methods in Medicine, Hindawi. **[Impact Factor: 2.238, Q2]**
- Mahmuda Rumi, Barkat Ullah, **Md. Rezwanul Haque**, Abdullah Al Noman, Emranul Haque, and Dr. Feroz Ahmed *"Smartphone Based BP Level Monitoring System Using DNN Model",* 25^{th} International Conference on Computer and Information Technology (ICCIT), 2022.
- *"BDLAD: Bengali Document Layout Analysis Dataset",* ICDAR 2023 (17^{th} International Conference on Document Analysis and Recognition)

Undergraduate Thesis

- **Title:** "A Study on Non-Invasive Hemoglobin Measurement Techniques and Predictions."
  Supervisor: Prof. Dr. M.M.A Hashem, Dept. of Computer Science and Engineering (CSE), KUET
  Details: This research is based on a non-invasive way to measure the hemoglobin level. We took about 10 seconds of video for each subject from body organs like an index finger by different Led-Board. We applied image processing techniques for features extraction. For best features selection, we used genetic algorithm. Finally, we applied different machine learning techniques on selected features to predict the hemoglobin level.

Ongoing Research

- **Title:** "A Machine Learning based Approach to Construct Readable Slides (PDF/PPT Hand Note) from Video Lecture."
  Collaborator: Md. Asaf-uddowla Golap, Assistant Professor, Institute of Information and Communication Technology (IICT), Khulna University of Engineering & Technology (KUET), Khulna, Bangladesh.

Job Experience

March 2021 – Present **Machine Learning Engineer at Apsis Solutions Ltd., Dhaka, Bangladesh.** .

- *Bangla Handwritten and Printed OCR*
- *Deploying requirement-based OCR API's*
- *Voice Data*
- *Virtual Personal Assistant (VPA): QA*
- *Bangla Text Normalization*
- *National Identity (NID) card detection and recognition*

2021 – Present **Computer Vision and NLP Researcher at Bengali.AI, Bangladesh**.

- *Bengali OCR (Handwritten Text & Printed Text)*
- *Bengali Synthetic Words*
- *Document Layout Analysis (DLA)*
- *Bengali Scence Text*
- *Grapheme Parsing and Unicode Normalization*
- *Bengali Common Voice Speech*

January 2022 – Present **Part-Time Research Engineer at Independent University, Bangladesh (IUB)**.

- **Research Title:** *Design of a Highly Efficient & Non-Invasive Measurement Device of Human Blood Component Levels using Genetic Algorithm & DNN Based Models.*

Relevant Online Courses

* **Quantum Machine Learning**, *edx.*
* **Deep Learning with Python and PyTorch**, *edx.*
* **Deep Learning Specialization**, *Coursera.*
* **Machine Learning**, *Stanford University.*

Technical Skills

Languages: Python, C, C++, Java, Swift, Matlab, R
Library: PyTorch, Tensorflow, Keras
WebD: HTML, CSS, SQL, PHP
Utilities: Git, LaTex, Anaconda, CISCO Packet Tracer
OS: Ubuntu, Windows, Kali-Linux, iMac

Academic Projects

April 2018 **Deep Neural Network for Image Classification Cat vs Non-Cat**, *Supervisor: Md. Milon Islam, Asst. Prof., CSE, KUET.*
- **Technology:** Deep Learning; Language: Python; IDE: Jupyter-notebook.
- **Details:** This project is on Cat Classification Project with Deep Neural Network.

April 2018 **Image Captioning Project**, *Supervisor: Md. Milon Islam, Asst. Prof., CSE, KUET.*
- **Technology:** CNN encoder with InceptionV3 model, RNN decoder with LSTM; Language: Python; Toolkits: Keras, TensorFlow; IDE: Jupyter-notebook.
- **Details:** In this project, I define and train an image-to-caption model that can produce descriptions for real-world images.

June 2018 **Road Surface and Lane Detection**, *Supervisor: Md. Milon Islam, Asst. Prof., CSE, KUET.*
- **Technology:** Image Processing, OpenCV; Language: Python; IDE: Jupyter-notebook.
- **Details:** This project is based on detection of road surface and lane lines of a road in images using Python and OpenCV. OpenCV, which is a package that has many useful tools for analyzing images.

September 2017 **Finding Lane Lines on the Road**, *Supervisor: Md. Milon Islam, Asst. Prof., CSE, KUET.*
- **Technology:** Image Processing, OpenCV; Language: Python; IDE: Jupyter-notebook.
- **Details:** This project is based on detection of lane lines of a road in images using Python and OpenCV.

October 2017 **Traffic Sign Classification**, *Supervisor: Md. Milon Islam, Asst. Prof., CSE, KUET.*
- **Technology:** Deep Learning, CNN; Toolkits: Keras, OpenCV; Language: Python; IDE: Jupyter-notebook.
- **Details:** Detecting and Classifying Traffic signs with CNN for German Traffic Dataset.

Scholarships

2015 – 2018 **Technical Scholarship** from Khulna University of Engineering & Technology

Online Contest Programming and Activities, Google Scholar Citations

Codeforces.
- **Handle:** harry_potter_28 (Max Rate: 1389)
- Problems Solved: 350+

Stack Overflow.
- **Reputation:** 2850+

Google Scholar.
- **Citations:** 670+

Data Science Competition

Kaggle, Username: rezwan249.
- LANL Earthquake Pred. (Pos: 710, Top – 16%)
- Toxic Comment Classification (Pos: 1420, Top – 32%)
- Bengali.AI Handwritten Grapheme Class (Pos: 1941)
- 2019 Data Science Bowl (Pos: 2317)
- Predict future sales (Pos: 260, Top – 23%)
- RSNA-STR Pulmonary Embolism Detection (Pos: 610)

Experiences and Voluntary Work

2023 **Reviewer**, *PLOS One: A peer-reviewed open access scientific journal.*

2020 **Reviewer**, *Journal of Pharmaceutical Research International.*

2018 **Participant**, *2018 International Conference on Computer, Communication, Chemical, Material and Electronic Engineering (IC4ME2), Rajshahi University, Rajshahi, Bangladesh.*

2017 **Volunteer**, *University-Industry Collaboration: Challenges and Opportunities, KUET, Khulna, Bangladesh.*

2017 **Volunteer**, *3rd International Conference on Electrical Information and Communication Technology (EICT), KUET, Khulna, Bangladesh.*

References

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