Townim Faisal Chowdhury

Email: faisal.townim@gmail.com | Mobile: +880-1878967009 Website: https://townim-faisal.github.io

Education

- **North South University** Dhaka, Bangladesh
  Bachelor of Computer Science & Engineering, CGPA: 3.91 *Jun. 2017 - Aug. 2020*
  Specialization Courses: Deep Learning, Machine Learning
  - Awarded summa cum laude
  - Achieved 75% merit-scholarship during admission

Research Interests

Computer Vision, Deep Learning, Medical Image, Artificial Intelligence, Machine Learning

Research & Teaching Experience

- **North South University** Dhaka, Bangladesh
  Research Assistant, Supervisor: Dr. Shafin Rahman *Jan. 2021 - Present*
  Research Area: Computer Vision, Deep learning
  - Investigated the advantage of semantic embeddings in the knowledge distillation process for 3D point cloud objects during continual learning.
  - Explored zero shot learning on 3D point cloud data and 2D images following both transductive and inductive setting.
  - Examined different zero and few shot learning approaches in 2D image captioning and 2D object detection.

- **North South University** Dhaka, Bangladesh
  Research Assistant, Supervisor: Dr. Ahsanur Rahman *Oct. 2020 - Present*
  Research Area: Algorithm, Graph mining, Machine learning
  - Experimented and analyzed an algorithm to compute dense subgraphs in generated synthetic and real graphs.
  - Participated in Allen Institute Cell Lineage Reconstruction DREAM Challenge and solved the first sub-challenge.

- **North South University** Dhaka, Bangladesh
  Teaching Assistant, Department of Electrical & Computer Engineering *Feb. 2020 - Present*
  Courses Assisted: CSE 215: Introduction to Java, CSE 373: Design and Analysis of Algorithms, CSE 445: Machine Learning
  - Conducted tutorial sessions for students needing extra help outside of class hours.
  - Graded assignments, home works and assisted faculty members with their course related works.

Publications & Preprints

- T. Chowdhury, M. Jalisha, A. Cheraghian, and S. Rahman, "Learning without Forgetting for 3D Point Cloud Objects," accepted at *International Work-Conference on Artificial Neural Networks*, 2021
- A. Cheraghian, S. Rahman, T. F. Chowdhury, D. Campbell, and L. Petersson, "Zero-shot learning on 3d point cloud objects and beyond," *arXiv preprint arXiv:2104.04980*, 2021
- K. Roy, T. F. Chowdhury, R. Maliha, and A. Rahman, "Quasi-Clique Enumerator (QCE): A Fast Algorithm to Enumerate Maximal Quasi-cliques in a Graph," weakly rejected at *SIGKDD*, 2021

Industry Experience

- **Brain Station 23** Dhaka, Bangladesh
  Associate Software Engineer (ML Developer) *Jun. 2019 - Present*
  - Worked on Face Anti Spoofing detection following camera invariant approach for online EKYC application.
  - Developed Bangla optical character recognition (OCR) to verify the data on National ID (NID) card with help of object detection algorithm.
  - Established an automated recruitment system where an organization takes examinations for their future employees.

- **SEPS, North South University** Dhaka, Bangladesh
  Web Developer (Part-time) *Mar. 2018 - Feb. 2019*
  - Developed a web application following a micro-service-based architecture to manage four of the departments in SEPS.
  - Maintained current system with updating the system with new software requirements based on the department's need.

- **Rokomari** Dhaka, Bangladesh
  Intern Software Engineer *Sep. 2016 - Nov. 2016*
  - Developed a common platform for publishers to maintain their inventories and integrated it to their e-commerce system.
  - Worked on their performance appraisal system to enhance it's functionality and features.

Achievements

- Ranked **7th position (out of 28 teams and more than 100 participants) in the sub-challenge 1 of Allen Institute Cell Lineage Reconstruction DREAM Challenge**, organized by Allen institute, CalTech, IBM Research, Sage Bionetworks, USA. *(Mar. 2020)*
- Achieved **75% merit-based tution waiver** in the admission of North South University, Bangladesh. *(Apr. 2017)*

Selected Projects

- **Hyperparameter Analysis For Image Captioning Based On Different Languages**: We analyzed different hyperparameter combinations for two state-of-the-art image captioning models based on different languages: Chinese, Bangla and English and tried to find suitable combinations of hyperparameters with this analysis. This experiment was carried out under the supervision of Dr. Md Shahriar Karim, Assistant Professor, North South University. *Technology*: Python, PyTorch, Scikit-learn & Numpy.
- **EKYC – Onboarding Application**: This is an online onboarding system in which users complete a paperless registration by completing automated steps such as face verification and NID information verification. Improving the performance of deep learning models is the major responsibility of mine along with developing REST APIs for the client's application. *Technology*: Flask, React js, Nginx, TensorFlow, Keras & OpenCV.
- **Deep Neural Network based Lipid Profile Prediction**: This study was aimed to develop an artificial neural network (ANN) based model with various input combinations to predict lipid profiles of the US adults using non-invasive and low-cost diagnostic features. This project was supervised under the supervision of Juwel Rana, Lecturer in Department of Public Health, North South University. *Technology*: R, ggplot, h2o & shiny.
- **A Web App for Transportation and Carpooling Mangement in Bangladesh**: In this work, we designed and implemented a web-app to make the major services provided by BRTA easily accessible from anywhere, has the potential to reduce cost, environment pollution, and traffic congestions via carpooling, and ensures transparency among all the stakeholders: BRTA, vehicle owners, drivers, and passengers. *Technology*: PHP, Laravel, MySQL, OpenLayer, pgRouting & postGIS.
- **eBackup23 - cloud storage management system**: eBackup23 focuses on the organizations, the teams, and the management of Amazon cloud storage's data via AWS, Amazon S3. The system contains two types of applications; one is a web app that will be used by a team or organization to manage its members and the other is a desktop application that will be used by that team or organization's members. *Technology*: PHP, Laravel, MySQL, Electron js & AWS S3.

Programming Skills

- **Languages**: Python, C++, JavaScript, Bash, Java, R, PHP
- **ML Libraries**: Pytorch, TensorFlow, Keras, Pandas, Numpy, Matplotlib, OpenCV, Scikit-Learn
- **Web Frameworks**: Flask, Laravel, React, Electron js
- **Tools & Platforms**: Git, Docker, AWS-S3, GCP, DVC
- **Database**: MySQL, MongoDB

Certifications

- **Deep Learning Specialization**
  Issued by: deeplearning.ai. *Apr. 2020*

Extra-curricular activities

- **NSU ACM SIGAPP, Bangladesh**:
  - Taken a workshop "Introduction to Laravel by building CRUD app" as an instructor.
  - Assisted in building the website of NSU ACM SIGAPP, Bangladesh.

References

- **Dr. Shafin Rahman** — Assistant Professor
  Email: *shafin.rahman@northsouth.edu* — *North South University, Bangladesh*
- **Dr. Ahsanur Rahman** — Assistant Professor
  Email: *ahsanur.rahman@northsouth.edu* — *North South University, Bangladesh*