Townim Faisal Chowdhury

Website | Github | Google Scholar

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EDUCATION

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

RESEARCH INTERESTS

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

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

RESEARCH & TEACHING EXPERIENCE

- **North South University** — Dhaka, Bangladesh
  Research Assistant, Supervisor: Dr. Shafin Rahman — *Oct. 2020 - Present*
  Research Area: Computer Vision, Deep learning
  - Explored zero shot learning on 3D point cloud data and 2D images following both transductive and inductive setting.
  - Investigated the advantage of semantic embeddings in the knowledge distillation process for 3D point cloud objects during continual learning.

- **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 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.

PROFESSIONAL EXPERIENCE

- **Brain Station 23** — Dhaka, Bangladesh
  Associate Software Engineer (ML Developer) — *Jun. 2019 - Present*
  - Worked on Face Anti Spoofing detection with Face Verification 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 every type of examination 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 and integrated it to their e-commerce system.
  - Worked on their performance appraisal system to enhance it's functionality and features.

Selectd Projects

- **IntelTrack: A real-time tracker for mouse based experiments(Computer Vision, Edge Computing, Visualization)**: (Work in progress) A mouse tracker that works at real-time of around 20 frames per second on an average CPU that tracks the mouse and provides relevant graphical results for pharmaceutical experiments without any special library. *Technology*: Python, C++, Darknet, OpenCV, Matplotlib, Seaborn & Pandas (Jan '19)

- **Embedding Visualizers (Language Models, Word Embeddings, Visualization)**: A Library that takes in tokens from Language models and visualizes the embedding vector of all words on a graph. Provides insights into the nature of knowledge from language models and word relations. *Technology*: Python, JavaScript, Bokeh, TensorFlow & PyTorch. (March '19)

- **Emotion Detection with various popular image classification architectures (Image Classification, Visualization)**: Tested Imagenet winning architectures on the FER13 dataset.Provided insights into the confidence interval of various architectures on random images to see which architecture is better and why. *Technology*: Matplotlib, PyTorch, Python & OpenCV (March '19)

Publications & Preprints

- 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," Submitted to *SIGKDD*, 2021

Certifications

- **Deep Learning Specialization**
  Issued by: deeplearning.ai. Certification URL: (Link)   *Apr. 2020*

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)*