

Md Rabiul Awal

MAIR LAB at Mila, Montreal

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EDUCATION

Mila, University of Montreal

PhD. Computer Science

Montreal, Quebec

Incoming PhD in Fall 2024

University of Saskatchewan

MSc. Computer Science (Overall grade 88%)

Saskatoon, Canada

01/2021 – 12/2022

Advisor: Michael Horsch

External affiliation: [Social AI Studio](#) at SUTD ◊ Advisor: Roy Ka-Wei Lee

Thesis: Tackling Social Value Tasks with Multilingual NLP [pdf](#)

Noakhali Science and Technology University

BSc. Computer Science

Noakhali, Bangladesh

03/2014 – 12/2018

PUBLICATION

- [1] “Contrasting Intra-modal and Ranking Cross-modal Hard Negatives to Enhance Visio-linguistic Compositional Understanding.” Le Zhang, **Rabiul Awal**, Aishwarya Agrawal
IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR), 2024 [pdf](#) [codes](#)
- [2] “Investigating Prompting Techniques for Zero- and Few-Shot Visual Question Answering.” **Rabiul Awal**, Le Zhang, Aishwarya Agrawal
Prompting in Vision Workshop, CVPR, 2024 (Oral) [pdf](#) [codes](#)
- [3] “Evaluating GPT-3 Generated Explanations for Hateful Content Moderation.” Han Wang, Ming Shan Hee, **Rabiul Awal**, Roy Ka-Wei Lee, and Kenny Tsu Wei Choo
International Joint Conference on Artificial Intelligence (IJCAI), 2023 [pdf](#) [codes](#)
- [4] “Model-Agnostic Meta-Learning for Multilingual Hate Speech Detection.” **Rabiul Awal**, Roy Ka-Wei Lee, Eshaan Tanwar, Tanmay Garg, Tanmoy Chakraborty
IEEE Transactions on Computational Social Systems (TCSS), 2023, ISSN: 2329-924X [pdf](#) [codes](#)
- [5] “AngryBERT: Joint Learning Target and Emotion for Hate Speech Detection.” **Rabiul Awal**, Rui Cao, Roy Ka-Wei Lee, Sandra Mitrović
Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD), 2021 [pdf](#) [codes](#)

RESEARCH & WORK EXPERIENCE

Mila, Quebec AI Institute

Research Intern ◊ Advisor: Aishwarya Agrawal

Montreal, Canada

01/2023 –

- Studied VLMs to effectively learn from multi-image visual difference, hard-negative samples for improving fine-grained understanding/compositionality.
- Released the first VQA benchmark for diverse and multi-cultural understanding (30 countries) to enable further research.
- Contributed to two CVPR (accepted) and two NeurIPS submissions (under review), first author in two.
- **Recent focus: multimodal representation learning.**

MITACS - LST Accelerate Program

Machine Learning Intern

Saskatoon, Canada

03/2022 – 09/2022

- Developed a data-engine pipeline to enhance scientific document summarization models.
- Engineered custom Transformers for optimized long-document processing and implemented domain adaptive training strategies.

Social AI Studio, SUTD

Student Researcher ◊ Advisor: Roy Ka-Wei Lee

Remote

06/2020 – 11/2022

- Created datasets for Southeast Asian languages for tackling hate speech and misinformation.
- Researched transfer learning and meta-learning techniques specifically tailored for low-resource NLP.
- Contributed to five papers, first author in four, successfully collaborating remotely during COVID-19.

Goava Sales Intelligence AB

Dhaka, Bangladesh

Software Engineer

01/2019 – 12/2020

- Worked on 10+ scalable microservices and REST APIs using Flask, Lambda, API Gateway.
- Contributed to the Discover and Find Companies APIs, which generate leads from 3M+ profiles.
- Worked on refactoring data structures for indexing and searching big data using Elastic Search.
- Contributed to a distributed crawler (Nutch, AWS EMR, Hadoop), thousands of websites crawl/day.

IN-PROGRESS RESEARCH

[1] **VisMin: Visual Minimal-Change Understanding**

- Generated a large-scale minimal change benchmark dataset, using LLM-guided Diffused-based image editing tools. (SUBMITTED TO NEURIPS24)
- Proposed methods for improved multi-image visual difference understanding for generative/contrastive VLMs.

[2] **Benchmarking Vision Language Models for Cultural Knowledge**

- Assessing multi-cultural understanding for vision-language with new VQA benchmarks covering world cultures. (IN-PROGRESS)

[3] **Language-Mediated, Real-World Object-Centric Representation Learning**

- Complement Transformers with object representations for improved compositionality in VLMs. (IN-PROGRESS)

AWARDS

Selected for Upper Bound Talent Bursary	2024
Selected for Alberta University AI Week Talent Bursary	2022
Graduate Teaching Fellowship @UofS, Canada	2021
1st place at NSTU Intra University Programming Contest, Dhaka, Bangladesh	2016
3rd place at CoU Regional Programming Contest (CoURPC), Comilla, Bangladesh	2015

SERVICE & LEADERSHIP

Reviewers: CVPR24, ACL23, SIGIR22, AACL22, ICDM21

Organizer - Language Grounding Reading Group at Mila 2023

MSc Representative - Computer Science Graduate Council @UofS 2021–2022

Organizer – [NLPDhaka](#), a grass-root community for fostering ML in Bangladesh 01/2021 – 12/2022

President – Computing Club @NSTU, Noakhali, Bangladesh 01/2017 – 06/2018

SKILLS & INTERESTS

Research: Deep Learning, Representation Learning, Spatial Intelligence

Skills: Python (PyTorch, Tensorflow), Java, C/C++, NoSQL (Elasticsearch), AWS (SageMaker, EC2, Lambda)