

Sekh Mainul Islam

🌐 mainuliitkgp.github.io • 🎓 [Google Scholar](#) • 🐙 [GitHub](#)

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EDUCATION

- **University of Copenhagen** Copenhagen, Denmark
PhD Fellow, Department of Computer Science *September 2024 – August 2027 (expected)*
 - Supervisors: Prof. Isabelle Augenstein & Asst. Prof. Pepa Atanasova
 - Research Areas: Interpretability, Natural Language Processing
- **Indian Institute of Technology Kharagpur (IIT KGP)** Kharagpur, India
M.S. by Research, Computer Science & Engineering; CGPA: 9.49/10 *January 2019 – September 2022*
 - Supervisor: Prof. Sourangshu Bhattacharya • Research Areas: Interpretability, NLP
 - Thesis: “A Knowledge-Driven Approach to Aspect-Level Sentiment Classification”
- **Maulana Abul Kalam Azad University of Technology** Kolkata, India
B.Tech., Computer Science & Engineering; CGPA: 9.13/10 *July 2014 – May 2018*

PUBLICATIONS

- **Multi-Step Knowledge Interaction Analysis via Rank-2 Subspace Disentanglement:** Sekh Mainul Islam, Pepa Atanasova, Isabelle Augenstein. *EMNLP 2026 Findings*. [\[Link\]](#)
- **BiasGym: Fantastic LLM Biases and How to Find (and Remove) Them:** Sekh Mainul Islam, Nadav Borenstein, Siddhesh Milind Pawar, Haeun Yu, Arnav Arora, Isabelle Augenstein. *EMNLP 2026 Findings*. [\[Link\]](#)
- **Evaluation Framework for Highlight Explanations of Context Utilisation in Language Models:** Jingyi Sun, Pepa Atanasova, Sagnik Ray Choudhury, Sekh Mainul Islam, Isabelle Augenstein. *Computational Linguistics*, 2026. [\[Link\]](#)
- **AR-BERT: Aspect-Relation Enhanced Aspect-Level Sentiment Classification with Multi-Modal Explanations:** Sk Mainul Islam and Sourangshu Bhattacharya. *WWW 2022*. [\[Link\]](#)
- **Fair Data Generation using Language Models with Hard Constraints:** Sk Mainul Islam, Abhinav Nagpal, Balaji Ganesan, Pranay Kumar Lohia. *CtrlGen Workshop at NeurIPS 2021*. [\[Link\]](#)
- **Learnings from Relation Extraction Approaches for E-Commerce:** Sk Mainul Islam and Lucky Dhakad. *Convergence 2022* [Flipkart Internal Conference]. [\[Link\]](#)

RESEARCH & PROFESSIONAL EXPERIENCE

- **New York University Abu Dhabi** Abu Dhabi, UAE
Research Engineer — Supervisor: Prof. Nasir Memon *November 2022 – August 2024*
 - Investigated the effect of concept drift on misinformation detection classifiers over time. [\[Link\]](#)
 - Identified two key distributional shift factors: rapidly evolving social media topics and shifting linguistic characteristics (vocabulary, writing style), which degrade classifier performance.
 - Proposed a novel adaptation framework combining efficient human-in-the-loop labelling with continual learning to re-calibrate classifiers on new distributional data.
- **Siemens Technology and Services Pvt. Ltd.** Bangalore, India
Research Engineer — Manager: Rohit Kota Karanth *July 2022 – October 2022*
 - Developed a proof-of-concept pipeline for automated structured data extraction and knowledge representation from OCR-processed industrial device manuals.
 - Addressed challenges in cross-device generalisation and structural information extraction from engineering drawings.
- **Flipkart** Bangalore, India
Research Intern — Mentor: Lucky Dhakad *July 2021 – September 2021*
 - Designed a clustering-based pipeline for relation surface-form extraction between e-commerce concepts from product review text.

- Fine-tuned a BERT-based self-supervised model on internal lifestyle-domain data and mapped extracted surface forms to Wikidata relations.

IBM Research India

Bangalore, India

Research Intern — Mentor: Balaji Ganesan

November 2020 – June 2021

- Built a fairness-constrained language model for generating personal data entities in unstructured text.
- Validated model effectiveness through behavioural, fairness, and adversarial testing; work accepted at *CtrlGen Workshop, NeurIPS 2021*.

SRIC, IIT Kharagpur

Kharagpur, India

Research Assistant — PI: Prof. Niloy Ganguly

October 2018 – October 2020

- Contributed to the Intel-sponsored project “Learning Representations from Network Data”.

FOSSEE, IIT Bombay

Mumbai, India

Software Developer Intern

Summer 2017

- Developed a browser-based port of Xcos (a graphical simulator), eliminating the need for local software installation.

RESEARCH PROJECTS

Dynamic High-Level E-Commerce Concept Mining

IIT KGP & Flipkart

Academic Collaboration

February 2021 – June 2022

- Identified limitations of existing concept extraction methods in capturing long-tail and composite e-commerce concepts.
- Introduced a constrained soft-clustering model to learn composite and non-trivial concepts from product data.

Debiasing Language Models via Prompt Design

Stanford University

Fatima Fellowship — Mentors: Abubakar Abid & Firas Abuzaid

April 2021 – December 2021

- Estimated attribute-specific bias subspaces using controlled attribute-word swapping and contrastive PCA.
- Proposed a post-hoc debiasing method that subtracts the estimated bias subspace from sentence representations while preserving desirable semantic content.

PROFESSIONAL ACTIVITIES

- **Reviewer:** NeurIPS 2022; EMNLP 2021, 2020; NAACL 2021; EACL 2021; *SEM 2021; CODS-COMAD 2024.

TEACHING EXPERIENCE

- **Teaching Assistant, IIT Kharagpur:** Foundations of Algorithm Design & Machine Learning (Spring 2022, 2021); Computing Lab (Autumn 2021); Scalable Data Mining (Autumn 2020).
- **Teaching Assistant, Centre for AI, IIT Kharagpur:** Professional Course in Machine Learning (2019).

TALKS, SCHOOLS & HONOURS

- Attended [LxMLS 2025 Lisbon Machine Learning School](#) (Lisbon, Portugal).
- Attended [ALPS 2025 Winter School on Speech and NLP](#) (Grenoble, France).
- Attended [HPLT & NLPL 2025 Winter School on Pretraining Data Quality and Multilingual LLM Evaluation](#) (Oslo, Norway).
- Selected (with full funding) for the [Cornell–Maryland–Max Planck Pre-doctoral Research School 2022](#).
- Invited attendee, Amazon Research Day 2023 and 2019 (Amazon India, Bangalore).

TECHNICAL SKILLS

Languages: Python, C/C++, Java, Spark/Scala, MATLAB
Frameworks: PyTorch, Hugging Face Transformers, TensorFlow, scikit-learn, Pandas, NumPy, NLTK

SELECTED COURSEWORK

Deep Learning • Machine Learning • Scalable Data Mining • Information Retrieval • Algorithm Design