Md. Monzurul Amin Ifath

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Objective Statement

PhD student with expertise in stream processing, energy profiling, and machine learning. Passionate about sustainable AI development and driving innovation in large language model integrated stream processing applications.

Education

PhD Student in Computer Science   *Winter 2021 - present*

Dalhousie University   *Nova Scotia, Canada*

- Advisor: Dr. Israat Haque
- Mentor: Dr. Miguel Neves
- Expected Graduation: December, 2025

Bachelor of Science in Computer Science and Engineering   *2011 - 2016*

Bangladesh University of Engineering and Technology (BUET)   *Dhaka, Bangladesh*

- Advisor: Dr. Anindya Iqbal
- CGPA: 3.54/4.00

Publications

JOURNAL PAPERS

streamline: Accelerating Deployment and Assessment of Real-time Big Data Systems
   Md. Monzurul Amin Ifath, Tommaso Melodia, Israat Haque
   under review in the IEEE Transactions on Parallel and Distributed Systems (TPDS) special section on New Tools and Techniques for the Distributed Computing Continuum (DCC), 2025

On the Deployment Feasibility of Message Oriented Middlewares in Mission-critical Applications
   Md. Monzurul Amin Ifath, Miguel Neves, Brandon Bremner, Jeff White, Tomas Szeredi, Tommaso Melodia, Israat Haque
   under review in the IEEE Wireless Communications Magazine, 2025

CONFERENCE PAPERS & OTHERS

Automated Configuration Parameter Tuning in Distributed Messaging Systems
   Emmanuel Etti, **Md. Monzurul Amin Ifath**, Israat Haque
   in the International Conference on Collaborative Advances in Software and COmputiNg (CASCON), 2024

GreenStream: Enabling Sustainable LLM Inference in Stream Processing
   Md. Monzurul Amin Ifath, Israat Haque
   in the International Conference on Collaborative Advances in Software and COmputiNg (CASCON), 2024

Fast Prototyping of Distributed Stream Processing Applications with *stream2gym*
   Md. Monzurul Amin Ifath, Miguel Neves, Israat Haque
   in IEEE International Conference on Distributed Computing Systems (ICDCS), 2023

Raptor: rapid prototyping of distributed stream processing applications at scale
   Md. Monzurul Amin Ifath, Miguel Neves, Israat Haque
   in proceedings of the International Conference on emerging Networking EXperiments and Technologies (CoNEXT), 2021

Work Experience

Dalhousie University   *Nova Scotia, Canada*

Research Assistant   *Jan 2021-Current*

- Searching for and reviewing published literature on the relevant research topic.
- Developing project methodology.
- Entering and analyzing data using software tools.
- Conducting experiments both in simulated and testbed environment.

Dalhousie University   *Nova Scotia, Canada*

Teaching Assistant   *Sep 2021-Current*

- Demonstrated labs for CSCI 2201: Introduction to Information Security in Fall and Winter semesters of 2021-2023.
- Demonstrated labs for CSCI 3171: Network Computing in Summer 2022.
- **Technical Skills:** Brightspace, MS Teams, Panopto, Crowdmark

Dalhousie University   *Nova Scotia, Canada*

Marker   *Sep 2021-Current*

- Marker for CSCI 2201: Introduction to Information Security in Fall and Winter semesters of 2021-present.
- Marker for CSCI 6709: Software Defined Networking in Winter 2022.
- Marker for CSCI 3171: Network Computing in Summer 2022 and Winter 2024.

Dhaka University of Engineering and Technology (DUET)   *Dhaka, Bangladesh*

Lecturer   *Dec 2018-Present(on study leave)*

- Studied course-related materials to prepare slides and tutorials for students.
- Prepared questions for different examinations.
- Marked class test scripts, assignments, and final term answer scripts.
- Scrutinized the answer scripts.
- **Courses taught:** Database Management, Introduction to Programming, HCI.

Sonargaon University   *Dhaka, Bangladesh*

Lecturer and Under-graduate Course Coordinator   *Sep 2016-Nov 2018*

- **Courses taught:** Discrete Mathematics, Algorithm, Computer Networks, Object Oriented Programming.

Projects

Music Genre Classification using Neural Network and Data Augmentation   *Nova Scotia, Canada*

Dalhousie University   *Sep 2022 - Dec 2022*

- Analysed audio data from GTZAN benchmark dataset.
- Extracted Chroma STFT and MFCC features from raw audio data.
- Proposed two neural network models for music genre classification based on feed forward network and LSTM respectively.
- Enhanced accuracy of the models with data augmentation support.
- **Technical Skills:** Tensorflow, Google Colab, LaTeX.
- **Soft Skills:** Time Management, Teamwork, Milestone check-pointing, Paper writing.

Epoch Based Unsupervised Anomaly Detection of IoT TCP Attacks using Deep Auto-encoders   *Nova Scotia, Canada*

Dalhousie University   *Jan 2021 - April 2021*

- Real-time DDoS attack prediction for IoT scenario using unsupervised approach.
- Explored Bogazci IoT attack dataset.
- Proposed deep auto-encoder based attack prediction.
- Compared supervised and unsupervised anomaly detection for IoT scenario.
- **Technical Skills:** TCPdump, PyTorch, LaTeX.
- **Soft Skills:** Teamwork, Presentation skills, Report writing.

Skills

Programming	Python (Pandas, PyTorch, NumPy, Scikit-learn. etc.), C/C++, Java, PHP, C#, HTML/CSS, SQL, Assembly.
Platforms and Tools	Apache Kafka, Apache Spark, Apache Flink, RabbitMQ, Mininet, NS3, Wireshark.
Miscellaneous	Linux, Shell (Bash), LaTeX(Overleaf), Microsoft Office, Git.
Soft Skills	Time Management, Teamwork, Problem-solving, Documentation, Engaging Presentation.

Honors and Awards

2024	**Talent Bursary**, Upper Bound ML Conference	*AMII, Canada*
2022	**Faculty Funding**, Dalhousie University	*Canada*
2021-2023	**NSERC Alliance Research Grant**, Dalhousie University	*Canada*

Interests

Video Games	I always had the gaming gene. I mostly play FIFA on my play station.
Trekking	Explored 16,450 ft Roopkund glacial lake in India, one of the breath taking experience of my life.

References available upon request.