

## EDUCATION

### Northeastern University

Ph.D., Network Science 2022  
Thesis: Diversity and Gender Equity in Networks of Knowledge Production and Dissemination

### United International University (UIU)

M.Sc., Computer Science and Engineering, *summa cum laude* 2015  
Thesis: Virtual P2P Client: Accessing P2P Applications Using Virtual Terminals

### Institute of Business Administration, University of Dhaka

B.B.A, Finance (minor in Marketing) 2013

## HONORS & AWARDS

Graduate research assistantship, Northeastern University 2016-2020  
Travel scholarship for SISMID 2017, University of Washington 2017  
NULab travel grant, Northeastern University 2016  
Graduate fellowship, College of Science, Northeastern University 2015  
Gold medal for academic excellence, United International University 2015  
Graduated *summa cum laude*, United International University 2015

## JOURNAL ARTICLES

Gold, J. R., Gates, A. J., Haque, S. A., Melson, M. C., Nelson, L. K. & Zippel, K. (2022). The NSF ADVANCE network of organizations. *ADVANCE Journal*, 3 (1)

Nelson, L. K., Getman, R. & Haque, S. A. (2021). And the Rest is History: Measuring the Scope and Recall of Wikipedias Coverage of Three Womens Movement Subgroups. *Sociology Methods & Research*, Online First

Mistry, D., Litvinova, M., Pastore y Piontti, A., Mu, K., Xiong, X., Haque, S. A., Quan-Hui, L., Gomes, M. F. C., Fumanelli, L., Longini Jr., I. M., Halloran, M. E., Merler, S., Ajelli, M. & Vespignani, A. (2021). Inferring high-resolution disease-specific human mixing patterns. *Nature Communications*, 12 (1), 1-12

Cevik, M., Haque, S. A., Manne, J., Kuppali, K., Sax, P. E., Majumder, M. S., & Orkin, C. (2021). Gender disparities in international COVID-19 clinical trial leadership. *Clinical Microbiology and Infection*

Hassan, M. K., Islam, L. & Haque, S. A. (2017). Degree distribution, rank-size distribution, and leadership persistence in mediation-driven attachment networks. *Physica A: Statistical Mechanics and its Applications*, 469, 23-30

Haque, S. A., Islam, S., Islam, M. J., & Grégoire, J. C. (2016). An architecture for client virtualization: A case study. *Computer Networks*, 100, 75-89

## CONFERENCE PROCEEDINGS

Saqib, N., Huq, F. & Haque, S. A. (2022). graphiti: Sketch-based Graph Analytics for Images and Videos. *CHI '22: CHI Conference on Human Factors in Computing Systems*

Chowdhury S. S., Saquib N., Zawad N., Mandal M. K. & Haque S. A. (2018). State-ment networks: a power structure narrative as depicted by newspapers. *In NeurIPS 2018 workshop on Machine Learning for developing world*

Haque, S. A., Islam, S., & Grégoire, J. C. (2015, February). Short Paper: Virtual

P2P client: Accessing P2P applications using virtual terminals'. *In 2015 18th International Conference on Intelligence in Next Generation Networks*, (pp. 142-144). IEEE

**PRESENTATIONS** Diversity of COVID-19 Experts Featured in the News Media  
Networked Justice Symposium at Networks 2021, Virtual 06/2021

Reconstructing geographic transmission pathways of ZIKV epidemic in the Americas  
International Conference on Network Science (NetSci), Burlington, VT 05/2019

Classical music clustering based on acoustic features  
*poster* with Xindi Wang  
CompleNet Conference, Boston, MA 03/2018

**MEDIA ARTICLES** Revisiting 2019 Dengue Outbreak: A failure of prediction or policy?  
Published in The Daily Star, the most circulated English daily in Bangladesh 03/2020

**PROFESSIONAL EXPERIENCE** **ORISE Fellow of Drug Safety & Artificial Intelligence** 2021-Present  
CDER, FDA, Silver Spring, MD

This is a data science fellowship at Office of Translational Sciences, Center for Drug Evaluation and Research, FDA. The objective of this fellowship is to enhance a natural language processing and machine learning classifier system to capture information in free text clinical narratives that identifies drug-adverse events related to mental health disorders, opioid addiction, and opioid overdose.

**Visitng Data Scientist, Northeastern LEADERS program** Jan-May, 2021  
Merck & Co., Inc., NJ

The core responsibilities was to effectively describe complex entities within and across clinical study documents that are organized in structured content management systems. Implemented a D3 visualization server to visualize the components used in clinical documents. Deployed the network of connected documents in a Neo4j graph database server to analyze the borrowing and lending of information between clinical documents.

**Business Development Executive** 2013-2015

Mukto Software Limited, Dhaka  
Created liaison between the corporate customer and the software development team by outlining requirements of enterprise resource planning (ERP) software projects.

**RESEARCH EXPERIENCE** **Research Assistant** 2019-2021  
CSSH, Northeastern University

Supervisor: Kathrin Zippel, Professor & Laura Nelson, Assistant Professor

- **Diffusion of ideas of gender equity interventions through networks of U.S. universities:** In this study I am assisting in visualizing the network of university and individual collaboration who participated in the ADVANCE grants provided by NSF.

**Research Assistant** 2016-2019

MOBS Lab, Northeastern University  
Supervisor: Alessandro Vespignani, Professor

- **Flocking behavior in science:** The objective of this project is to identify emerging pattern of flocking between scientists in different disciplines. My responsibility was to find the similarity between scientific fields to see how different fields cross-pollinate with each other over time. I have Extracted keywords from the abstract and of 120 million papers collected from Microsoft

Academic Graph using high performance computing platforms.

- **Reconstructing pathways of Zika epidemic in Americas:** The objective of this project is to compile evidence concerning the Zika outbreak create a comprehensive investigation on how the disease spread throughout the Americas. I have collected Collected genomic inferences and surveillance data on disease and applied statistical techniques to compare them with model generated data.
- **Visualizing Zika importations:** This web based interactive visualization developed with D3, mongodb and ExpressJS illustrates the simulated imported Zika cases in more than 3000 urban areas in the world over the last two years. Such a visualization tool can help the appropriate authority to make a swift response to the outbreak by mobilizing medicine and skilled health workers to the right places.
- **Author name and geo-location disambiguation of Web of Science Dataset:** This work is crucial for author name disambiguation and studying spatial diffusion patterns of knowledge and science. My responsibilities involved geo-localizing bibliographical records from Web of Science database.
- **Creating synthetic population and contact matrix of Australia:** The objective of this study was to understanding finer details of contact patterns between Australian population during epidemic spreading. I have created synthetic population of households, workspace and schools of every state of Australia by using publicly available census data for this purpose.

#### Research Assistant

2013-2015

Department of CSE, United International University

Supervisor: Salekul Islam, Associate Professor

- **Virtual P2P Client: Accessing P2P Applications using Virtual Terminal:** The objective of this study was to develop a virtual P2P BitTorrent client to separate the data plane and control plane. It was deployed in web server to measured how well P2P clients perform in the edge clouds like AWS and Linode.

#### Research Assistant

2014-2015

Department of Physics, University of Dhaka

Supervisor: Md Kamrul Hassan, Professor

- **Leadership persistence in network:** Simulated how long a leader, the node with the maximum degree persists in its leadership using mediation driven attachment (MDA) model and compared it with the Barabasi-Albert (BA) model

#### SERVICE

##### Clinical Microbiology and Infection

2022

Reviewer.

##### Sociology Methods & Research

2021

Reviewer.

##### EMNLP

2021

Reviewer.

##### ACL-IJCNLP

2021

Reviewer.

##### Harvard Misinformation Review

2020

Reviewer.

##### NetSci-X Conference

2020

Reviewer of submitted abstracts.

**Complenet Conference**

2018

Reviewer of submitted abstracts.

**Kolpokoushol: An Antidisciplinary Experimental Lab**

2016-2018

Actively mentored 3 students for three years on designing and implementation of data science projects. The work has been presented in machine learning for development (ML4D) workshop in NeurIPS.

**ADVANCED  
TRAINING &  
CERTIFICATES**

Participated in Summer Institute in Statistics and Modeling in Infectious Diseases (9th SISIMID), University of Washington 2017

Participated in Complex System Summer School (CSSS 2016), Santa Fe Institute, New Mexico. 2016

Project: Simple Agent-Based Model of the Development of Trust in Hierarchical Organizations

**PROFESSIONAL  
AFFILIATIONS**

- Network Science Society
- Society for Young Network Scientists

**TECHNICAL  
STRENGTHS**

**Analytical Skills:** Network Analysis, Agent Based Modelling, Natural Language Processing, Clustering Techniques, Embedding Methods, Regression Analysis

**Programming:** Python, R, Bash, JavaScript

**Database:** SQL, BigQuery, MongoDB (NoSQL), neo4j

**Visualization:** Matplotlib, D3, Gephi, GnuPlot, Adobe Illustrator

**Research Computing:** Unix, Git, SLURM, Google Cloud Command Line Interface