

## Syed Arefinul Haque

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haque.s@northeastern.edu  
linkedin.com/in/syedarehaq

EDUCATION	<b>Northeastern University</b> Ph.D., Network Science	2021
	<b>United International University (UIU)</b> M.S., Computer Science and Engineering Thesis: Virtual P2P Client: Accessing P2P Applications Using Virtual Terminals	2015
	<b>Institute of Business Administration, University of Dhaka</b> B.B.A, Finance (minor in Marketing)	2013
HONORS & AWARDS	Graduate research assistantship, Northeastern University	2016-2019
	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
JOURNAL ARTICLES	Hassan, M. K., Islam, L. & Haque, S. A. (2017), Degree distribution, rank-size distribution, and leadership persistence in mediation-driven attachment networks. <i>Physica A: Statistical Mechanics and its Applications</i> , 469, 23-30	
	Haque, S. A., Islam, S., Islam, M. J., & Grégoire, J. C. (2016). An architecture for client virtualization: A case study. <i>Computer Networks</i> , 100, 75-89.	
CONFERENCE PROCEEDINGS	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. <i>In NeurIPS 2018 workshop on Machine Learning for developing world</i>	
	Haque, S. A., Islam, S., & Grégoire, J. C. (2015, February). Short Paper: 'Virtual P2P client: Accessing P2P applications using virtual terminals'. <i>In 2015 18th International Conference on Intelligence in Next Generation Networks</i> , (pp. 142-144). IEEE	
ARTICLES IN PREPARATION	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. Inferring high-resolution disease-specific human mixing patterns. (In preparation)	
PRESENTATIONS	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 <i>poster</i> with Xindi Wang CompleNet Conference, Boston, MA	03/2018

## RESEARCH EXPERIENCE

### Research Assistant

2019-Current

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

<b>PROFESSIONAL EXPERIENCE</b>	<div> <b>Business Development Executive</b> 2013-2015 </div> <p>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.</p>
<b>ADVANCED TRAINING &amp; CERTIFICATES</b>	<div> Participated in Summer Institute in Statistics and Modeling in Infectious Diseases (9th SISIMID), University of Washington 2017 </div> <div> Participated in Complex System Summer School (CSSS 2016), Santa Fe Institute, New Mexico. 2016 </div> <p>Project: Simple Agent-Based Model of the Development of Trust in Hierarchical Organizations</p>
<b>PROFESSIONAL AFFILIATIONS</b>	<ul style="list-style-type: none"> <li>• Network Science Society</li> <li>• Society for Young Network Scientists</li> </ul>
<b>TECHNICAL STRENGTHS</b>	<p><b>Analytical Skills:</b> Network Analysis, Agent Based Modelling, Natural Language Processing, Clustering Techniques, Embedding Methods, Regression Analysis</p> <p><b>Programming:</b> Python, R, Bash, JavaScript</p> <p><b>Database:</b> SQL, BigQuery, MongoDB (NoSQL), neo4j</p> <p><b>Visualization:</b> Matplotlib, D3, Gephi, GnuPlot, Adobe Illustrator</p> <p><b>Research Computing:</b> Unix, Git, SLURM, Google Cloud Command Line Interface</p>