Syed Arefinul Haque

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EDUCATION

Northeastern University
Ph.D., Network Science 2021

United International University (UIU)
M.S., 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 2016-2019
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. *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

Chowdhury S. S., Saquib N., Zawad N., Mandal M. K. & Haque S. A. (2018) Statement 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

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
poster 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

PROFESSIONAL EXPERIENCE

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.

ADVANCED TRAINING & CERTIFICATES

Participated in Summer Institute in Statistics and Modeling in Infectious Diseases (9th SISMID), 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

Analystical Skills: Network Analysis, Agent Based Modelling, Natural Language Processing, Clustering Techniques, Embedding Methods, Regression Analysis
Programming: Python, R, Bash, JavaScript
Databse: SQL, BigQuery, MongoDB (NoSQL), neo4j
Visualization: Matplotlib, D3, Gephi, GnuPlot, Adobe Illustrator
Research Computing: Unix, Git, SLURM, Google Cloud Command Line Interface