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Google Scholar:

<https://scholar.google.com/citations?user=8ZPeXs0AAA&hl=en&oi=ao>

Nasir Ahmad

R&D Research Associate
at Oak Ridge National
Laboratory

Education

UNIVERSITY OF ILLINOIS AT CHICAGO 2014-2018
Ph.D. In Civil Engineering

UNIVERSITY OF ILLINOIS AT CHICAGO 2012-2014
Master of Science in Civil Engineering

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY (BUET) 2004-2009
B.Sc. in Civil Engineering

Professional Experience

OAK RIDGE NATIONAL LABORATORY January 2022 - Current
R&D Research Associate

ARIZONA STATE UNIVERSITY September 2018 - December 2021
Postdoctoral Scholar

UNIVERSITY OF ILLINOIS AT CHICAGO August 2012 - August 2018
Research Assistant

DEPARTMENT OF PUBLIC HEALTH ENGINEERING January 2012 - July 2012
Assistant Engineer

BANGLADESH HOUSE BUILDING FINANCE CORPORATION October 2010 - December 2011
Assistant Engineer

Languages

- Bangla (native speaker)
- English

Skills & Expertise

- **Python**
- **R**
- **Microsoft Windows, MS Office (Word, Excel, PowerPoint)**
- **ArcGIS**
- **Data Science**
 1. Pandas
 2. Numpy
 3. Scipy
 4. Matplotlib
 5. Bokeh
 6. Plotly
- **Machine Learning**
 - 1) Scikit-Learn
 - 2) Keras
- **Graph Analysis**
 - 1) Igraph
 - 2) Networkx
 - 3) Gephi

Publications

- 1) Ahmad, N., Chester, M., Bondank, E., Arabi, M., Johnson, N., & Ruddell, B. L. (2020). A synthetic water distribution network model for urban resilience. *Sustainable and Resilient Infrastructure*, 1-15.
- 2) Ahmad, Derrible (2018). An information theory based robustness analysis of energy mix in US States. *Energy Policy*, 120, pp. 167–174.
- 3) Ahmad, Derrible, Managi (2018). A network-based frequency analysis of Inclusive Wealth to track sustainable development in world countries. *Journal of Environmental Management*, 218, pp. 348–354.
- 4) Tennant, Ahmad, Derrible (2017). Complexity Analysis in the Sport of Boxing. *Journal of Complex Networks*.
- 5) Ahmad, Derrible, Cabezas (2017). Using Fisher information to assess stability in the performance of public transportation systems. *Royal Society Open Science*, 4(4).

- 6) Wang, Koç, Derrible, Ahmad, Pino, Kooij (2017). Multi-criteria robustness analysis of metro networks. *Physica A: Statistical Mechanics and its Applications*, 474, pp. 19–31.
- 7) Ahmad, Derrible, Eason, Cabezas (2016). Using Fisher information to track stability in multivariate systems. *Royal Society Open Science*, 3, pp. 160582.
- 8) Derrible, Ahmad (2015). Network-Based and Binless Frequency Analyses. *PLoS ONE*, 10(11), pp. e0142108.
- 9) Ahmad, Derrible (2015). Evolution of Public Supply Water Withdrawal in the USA: A Network Approach. *Journal of Industrial Ecology*, 19(2), pp. 321–330.
- 10) Kim, Y., Carvalhaes, T., Helmrich, A., Markolf, S., Hoff, R., Chester, M., Li, R. and Ahmad, N., 2022. Leveraging SETS resilience capabilities for safe-to-fail infrastructure under climate change. *Current Opinion in Environmental Sustainability*, 54, p.101153.
- 11) Helmrich, A., Markolf, S., Li, R., Carvalhaes, T., Kim, Y., Bondank, E., Natarajan, M., Ahmad, N. and Chester, M., 2021. Centralization and decentralization for resilient infrastructure and complexity. *Environmental Research: Infrastructure and Sustainability*, 1(2), p.021001.
- 12) Carvalhaes, T., Markolf, S., Helmrich, A., Kim, Y., Li, R., Natarajan, M., Bondank, E., Ahmad, N. and Chester, M., 2020. COVID-19 as a harbinger of transforming infrastructure resilience. *Frontiers in Built Environment*, p.148.

Conference Proceedings

- 13) Wang, Koc, Derrible, Ahmad, Pino, Kooij (2015). Quantifying the Robustness of Metro Networks. In 6th INSTR - The Value of Reliability, Robustness and Resilience, pp. , Nara, Japan.

Conference Abstracts & Technical Reports

- 14) Ahmad, Derrible (2016). A Network-Based Approach to Track Social, Economic, and Environmental Trends in World Countries. In 2016 International Symposium on Sustainable Systems and Technology (ISSST), Phoenix, AZ.
- 15) Derrible, Ahmad, Theis (2015). Using Fisher Information to Measure the Sustainability of Urban Systems. In 2015 International Symposium on Sustainable Systems and Technology (ISSST), Dearborn, MI.

- 16) Ahmad, Derrible, Kermanshah (2015). Towards Sustainable Development: A Network Approach. In 8th International Conference in Industrial Ecology, Surrey, UK.
- 17) Derrible, Ahmad, Theis (2015). Capturing the Sustainability of Urban Systems using Fisher Information: Application to Public Transport. In 8th International Conference in Industrial Ecology, Surrey, UK.
- 18) Ahmad, Derrible (2015). Analyzing Multivariate Time Series Data using a Network-Based Approach. In 2015 Network Frontier Workshop, Evanston, IL.
- 19) Kermanshah, Ahmad, Berkelhammer, Derrible (2015). Resilience in Complex Systems: A GIS Analysis of Extreme Events Impact on Infrastructure Networks. In International Society for Industrial Ecology, Surrey, UK.
- 20) Peiravian, Ahmad, Kermanshah, Derrible (2014). Questioning Box-Counting Method as a Tool for Fractal Characterization of Physical Networks. In NetSci 2014 International School and Conference on Network Science, Berkeley, CA.
- 21) Ahmad, Kermanshah, Peiravian, Derrible (2014). Network Science: A Potential Tool for Analyzing Water Consumption in the USA. In NetSci 2014 International School and Conference on Network Science, Berkeley, CA.
- 22) Kermanshah, Peiravian, Ahmad, Derrible (2014). Investigating Transportation Network Resilience to Extreme Events. In NetSci 2014 International School and Conference on Network Science, Berkeley, CA.
- 23) Ahmad, Derrible (2014). Evolution of Water Consumption in the USA: A Network Approach. In 2014 Illinois Water, Urbana, IL.

Honors and Awards

- **Dean's Scholar Fellowship**

July, 2016

Dean of the Graduate College, University of Illinois at Chicago

The Dean's Scholar Fellowship is a one-year, non-renewable award presented by the Dean of the Graduate College in recognition of a student's scholarly achievement. The award is intended to provide the most distinguished, advanced-level graduate students with a period of time dedicated solely to the completion of their programs.

- **SIEYP Scholarship**

May, 2015

International Society for Industrial Ecology

For the 2015 ISIE Conference and Symposium on Industrial Ecology for Young Professionals in Surrey, UK.

- **IESP Predoctoral Fellowship**

July, 2014

The Institute for Environmental Science and Policy, University of Illinois at Chicago

- **NTU Winter School Fellowship**

February, 2014

Nanyang Technological University, Singapore

For the Workshop on Introduction to Complexity and Complexity Science at Nanyang Technological University, Singapore

Membership

Member, American Society of Civil Engineers (ASCE)

Member, Complex and Sustainable Urban Networks (CSUN)