

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

Homi Bhabha Road, Mumbai-400 005

December 20, 2018

ASET Colloquium

- Speaker** : Prof. Munther Dahleh (*Director, Institute for Data, Systems, and Society, MIT*)
- Title** : Networks and Data for Society
- Date & Time** : Friday 04 January 2019 at 13:30 hrs.
- Venue** : Lecture Theater (AG-66)

Abstract :

The emergence of large networked systems has brought about new challenges to researchers and practitioners alike. While such systems perform well under normal operations, they can exhibit fragility in response to certain disruptions that may lead to catastrophic cascades of failures. This phenomenon, sometimes referred to as systemic risk, emphasizes the role of the system interconnection in causing such, possibly rare, events. The flash crash of 2010, the financial crisis of 2008, the New England power outage of 2003, or simply extensive delays in air travel, are just a few of many examples of fragility and systemic risk present in complex interconnected systems.

In this talk I will discuss this emerging area for critical infrastructures. Such applications involve the interaction between physical systems and social networks. I will highlight some of the interesting research questions involving fragility and cascaded failure. I will discuss new problems in learning unstructured dynamical systems. And finally, I will highlight the important of understanding the economic value of data in the context of such underlying structures.

About the Speaker:

Munther A. Dahleh the William A. Coolidge Professor of EECS. He is currently the director of the newly formed MIT Institute for Data, Systems, and Society. Dr. Dahleh is interested in Networked Systems with applications to Social and Economic Networks, Transportation Networks, Neural Networks, and the Power Grid. His recent work focuses on market design for digital goods and services. His work draws from various fields including game theory, optimal control, distributed optimization, information theory, and distributed learning. Dr. Dahleh is the co-author (with Ignacio Diaz-Bobillo) of the book "Control of Uncertain Systems: A Linear Programming Approach", published by Prentice-Hall, and the co-author (with Nicola Elia) of the book "Computational Methods for Controller Design" published by Springer. He is a fellow of IEEE and IFAC professional societies. He earned his PhD in ECE from Rice University.



Dr. Satyanarayana Bheesette
(Coordinator, ASET Forum)