

Introduction to Network Science and Models of Social Dynamics



Speaker:

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Yerali got her PhD in Physics from the Venezuelan Institute for Research (IVIC). With more than six years of experience in research among four Postdoctoral positions in Europe, she also has a second background on Sociology. She has broad experience working in computational social science, Big Data and network science among several interdisciplinary groups. Yerali's main interest in research lies in the application of statistical and Critical Phenomena approaches to emergent social phenomena. More recently, she is working with high dimensionality reduction, and clustering methods, both of which are methodologies of unsupervised learning.

7 - 8 MAR 2019 (Thu - Fri)

9:00AM - 5:30PM

Venue:

Lecture Theatre (LHN-LT)

The Arc - Learning Hub North

63 Nanyang Drive

Singapore 636922

[Map](#)



[Register](#)

Day 1: Network Science

9:00 am Introductory Session

- Explanation of the main topologies as a result of different kinds of interactions: human communication, biological systems, financial systems, among others. Basic definitions and properties in Network Science: Degree distribution, average Path-length, Clustering coefficient.

- Small Hands-On Session 1:
Gathering networks and measure their properties.

12:00 pm Lunch

2:00 pm Further regular Network-based measures

- Explanation and calculating some centrality measures: Betweenness, Katz centrality, among others.
- Community detection: Differences between the main approaches.

4:00 pm Temporal Networks

Second-order metrics.
- m-reach centrality.
- Temporal networks.
Temporal centrality measures.
- Exercises over real social networks, after gathering data from repositories

5.30 pm Ends

Day 2: Models for Social Dynamic

9:00 am Motivation for each model, studies & Pseudo-Algorithms :

- Confidence Models.
- Axelrod model.
- Schelling model

12:00 pm Lunch

2:00 pm Hands-on Session 2

- Every student will to create at least one of the algorithm.

4:00 pm Hands-on Session 3

- Playing with the algorithms over different topologies.
- Download more data from repositories and produce models.
- New metrics can give further information.
- Other ways of visualisation.

5.30 pm Ends