

Department of Data Science & Institute for Data Science

Faculty Candidate Seminar Talk

**Connectivity in Complex Networks: Measures,
Optimization and Applications**

by

Chen Chen

Assistant Professor, Biocomplexity Institute, University of Virginia

Hosted by Mengjia Xu

DATE: Monday, February 19th, 2024

Coffee: 2:15pm-2:30pm

TIME: 2:30pm-3:30pm

LOCATION: GITC 4402 (4th floor lecture hall)

Zoom: <https://njit-edu.zoom.us/j/99794511500?pwd=OUxLNIFhK0VISTBaRXcydXFGNTVFdz09>

Passcode: 030289

Abstract:

Networks naturally appear in many high-impact applications, ranging from epidemic studies, social network mining to infrastructure analysis. In our work, we have expanded the study from simple single-layered networks to multi-layered networks, where the nodes from different layers may be interdependent with each other. Among the various aspects of network studies, network connectivity is the one that plays a fundamental role in many applications such as information dissemination, robustness analysis, and community detection. In this talk, I will present my research on connectivity measures, optimization, and applications in complex networks. Specifically, I will introduce (1) a unified framework to measure the connectivity in complex network systems; (2) theoretical analysis and approximation algorithms for the generalized connectivity optimization problems; and (3) the application of connectivity in multi-layered contagion systems.

Bio:

Chen is currently a research assistant professor in Biocomplexity Institute at University of Virginia. Prior to that, she was a software engineer at Google. Chen got her Ph.D. degree from Arizona State University in 2019. Her research has been focusing on the connectivity of complex networks, which has been applied to address pressing challenges in various high-impact domains, including social media, bioinformatics, recommendation, and critical infrastructure systems. Her research has appeared in top-tier conferences (including KDD, NeurIPS, AAAI, IJCAI, SIGIR, WSDM, ICDM, SDM, etc.), and prestigious journals (including PNAS, IEEE TKDE, ACM TKDD, KAIS, and SIAM SAM). Chen has received several awards, including “Bests of KDD”, “Bests of SDM” and Rising Star in EECS.

