UNIVERSITY OF SOUTH FLORIDA

Defense of a Doctoral Dissertation

An Empirical Investigation of Network Topology on Majority Illusion, Behavior
Adoption, and Polarization
by

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For the Ph.D. degree in Computer Science and Engineering

Social influence plays a significant role in shaping opinions and behaviors both online and in the physical world. The ways in which we interact with others and the information we receive can significantly influence our beliefs and attitudes towards different issues. While online social media provide platforms for such interactions, the underlying network structure can impact various social influence phenomena, including majority illusion, behavior adoption, and polarization. This dissertation examines the role of network topology in three social influence processes: majority illusion, behavior adoption, and polarization. Additionally, the dissertation proposes a polarization measure which considers the presence of multiple ideological, antagonistic communities in a polarized network.

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Publications

1) **Sreeja Nair** and Adriana Iamnitchi. A heterophily-based polarization measure for multi-community networks. In Social Informatics: 13th International Conference, SocInfo 2022, Glasgow, UK, October 19–21, 2022, Proceedings, page 459–471.Springer-Verlag, 2022.
2) **Sreeja Nair** and Adriana Iamnitchi. The polarized web of the voter fraud claims in the 2020 US presidential election. In Workshop Proceedings of the 15th International AAAI Conference on Web and Social Media. International Workshop on Social Sensing, 2021.
3) **Sreeja Nair**, Kin Ng, Adriana Iamnitchi, and John Skvoretz. Diffusion of social conventions across polarized communities: an empirical study. Social Network Analysis and Mining, 11, 12 2021.
4) **Sreeja Nair**, Adriana Iamnitchi, and John Skvoretz. Promoting social conventions across polarized networks: An empirical study. In 2019 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), pages 349–352. IEEE, 2019.

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