University of California, Irvine
Statistics Seminar

The Role of Social Network Dependence in the Replication Crisis

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Researchers across the health and social sciences generally assume independent observations, even while relying on convenience samples that draw subjects from one or a small number of communities, schools, hospitals, etc. Many of the limitations of such samples are well-known, but the issue of statistical dependence due to social network ties has not previously been discussed.

In this talk, I will show that, along with anticonservative variance estimation, network dependence can result in *spurious associations*. Using a statistical test that I adapted from one developed for spatial autocorrelation, I test for network dependence in several of the thousands of influential papers that have been published using the Framingham Heart Study (FHS) data. Results suggest that some of the many decades of research on health outcomes and peer influence using FHS data may suffer from spurious associations, error-prone point estimates, and anticonservative inference due to acknowledged network dependence. These issues are not unique to the FHS; as researchers grapple with replication failures, this unacknowledged source of invalid statistical inference should be part of the conservation. I will discuss the possible solutions and the future directions for valid statistical and causal inference with social network-dependent samples.

If you are not part of the ICS community and would like to attend, please contact Lisa Stieler,
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