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Health Applications of Social Network Analysis and Computational Social Science
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ABSTRACT: Social network analysis has proliferated across the social and behavioral sciences, shifting our analytical focus from individuals to the patterns of social ties that connect them. This perspective has enriched our understanding of a great variety of health-related phenomena, including the spread of STDs on contact networks, the spread of health care practices on physicians’ professional networks, the dynamics of patient transfers on networks of clinics, and the spread of weight-related behaviors among adolescents at risk for obesity. The advent of the era of computational social science has augmented the contributions of this perspective, by moving beyond expensive and laborious methods of questionnaires and direct observation to incorporate new techniques of data collection and analysis. For example, these include analysis of electronic health records or other time-stamped communication traces among healthcare practitioners; streams of behavioral data from wearable sensors, location-aware devices, or electronic calendars; automated analysis of text in documents; and mapping networks of interaction by citations and collaboration in clinical research literatures. Whereas much of computational social science has offered new ways of monitoring health behavior and healthcare behavior, or for analyzing those data, a further contribution has been to directly analyze these social processes in system dynamics models, microsimulation, and agent-based models. These approaches allow for computational experiments that assist in predicting and interpreting outcomes from health interventions. This poster will highlight some of my recent and pending work in this domain, aiming to identify potential collaborators in UMCCTS for projects that involve social networks or computational social science.

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