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*Discovery of Nodal Attributes through a Rank-Based Model*

Understanding the relationship between evolving network structures and the attributes of individual network nodes is an important frontier in the study and modeling of self-organizing networks. We propose a rank model of how externally-determined nodal attributes (operationalized as attribute rank relative to other individuals) may change amongst agents over time within a stochastic system. We then propose a model of network self-organization based on this rank model. Finally, we demonstrate how one may make inferences about the attributes of individual nodes when attributes are unobserved, but network structures are readily measured. This approach holds promise to enhance our study of social interactions within the Web graph and in complex social networks in general.