Relationship Strength in Online Social Networks

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Goal: Move beyond binary relationships

- Alice connects with Bob?
- Alice recommended Bob?
- Alice wrote on Bob’s page?
- Alice viewed Bob’s profile?

Approach: Integrate profiles and interaction data into model
Estimating Relationship Strength

The probabilistic model

\[ z \sim \text{Normal} (w_1 s_1 + w_2 s_2 + \ldots + w_n s_n, \delta) \]

\[ y_m \sim \text{Logistic} (\theta_m z + b) \]

The estimated relationship strength graph yields:

- higher autocorrelation of attributes on related nodes
- higher performance in collective classification