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Walid Sharabati* (sharabati@gmail.com), Lafayette, IN 47905. *Clustering edges and vertices using fuzzy logic, case study: news documents.*

In this paper, we first present the inner product method to compute a similarity measure for edges and vertices using covariate information associated with vertices and edges based on the external structure of the network. The vector of covariates associated with vertices is utilized to predict missing edges. We then discuss the interchangeability and duality between vertices and edges in a graph, and ultimately, to compute a similarity measure for vertices using the line graph transformation. Then we introduce a fuzzy logic algorithm to cluster vertices. Finally, we apply the two methods on news documents and compare results. (Received September 23, 2011)