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Best Paper Award for Work on Evolutionary Clustering and Analysis

Tue, 09/13/2011

A team of University of Illinois computer science researchers won a Best Paper award at the 2011 International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2011).

PhD students Manish Gupta and Yizhou Sun, together with computer science Prof. Jiawei Han and Dr. Charu Aggarwal from IBM T.J. Watson Research Center, authored the winning paper, entitled "Evolutionary Clustering and Analysis of Bibliographic Networks."

The work describes the problem of evolutionary clustering of multi-typed objects in a heterogeneous bibliographic network. Previous work in the area has focused on either homogeneous networks or does not account for evolution of the network over time.

"We take a broader view of clustering and evolution analysis as two tightly integrated problems which can be used in order to derive interesting insights from data," said the team in their paper. "This is especially true in the case of heterogeneous information networks, since one can study how the trends in the different kinds of entities are affected by one another."

The paper provides the first framework for such evolution-sensitive clustering and diagnosis of heterogeneous networks. The team developed a novel algorithm, ENetClus, which generates consistent typed-clusterings across time, which can then be used for further evolution diagnosis and insights.

In contrast to prior approaches, the team's framework is specifically designed in order to facilitate such novel insights about the evolution process across multiple information types.

The team plans to continue their work on ENetClus by incorporating variable numbers of clusters at different time periods. In addition, the team is interested in further studying the effects of different time granularities or new constraints on prior data on the evolution of the network.

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