

外国語要約

学位論文題目 Visualization of Networks Including Categorized Nodes for Summarization and Comparative Analysis

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Various kinds of data in this world can be represented by networks or graphs. Such data structures consist of elements of data represented as nodes and relationships between the elements represented as edges. Networks in recent years include attributes of their nodes, and the nodes can be grouped by the attributes as categories. So we need to connect these two types of information, relationships between data elements and categories of the elements when we analyze network-structured data.

Network visualization is one of the ways to help network analysis including categorized nodes. Summarization of network topology is especially important to understand the whole structure of the data. Comparative view and interaction are also helpful to select a part of the data. This dissertation proposes visualization techniques of networks including categorized nodes for summarization and comparative analysis. Summary visualization bundles the edges to avoid visual clutters placing the nodes based on both similarities of their categories and relationships. Comparative visualization with interaction aims to correspond to the categories and the relationships between networks. The dissertation introduced applications to a gene network and a citation relationship as examples of summarization, and an application to citation and co-author relationships as an example of comparative analysis.