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Upcoming Seminar Announcement

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Integrating Centrality Measurements and Hierarchical Cluster Analyses into Network Visualizations

The visual analysis of large and complex network data is one of the most challenging disciplines of information visualization with various application fields. A prominent example is the generation of huge data sets in the life sciences by high-throughput experimental techniques. The information in many experimental data sets can be either represented as networks or interpreted in the context of networks that are used, for example, to guide further experiments. Since the manual analysis of this data is costly and time-consuming, biologists are turning towards computational methods that support data analysis. One challenge is to interpret the results of such computations in conjunction with the underlying networks.

Aim of this presentation is to discuss two interactive tools for the visual analysis of computational results in context of networks that were developed by the ISOVIS research group at Linnaeus University, Sweden, in collaboration with IPK Gatersleben. The first tool (ViNCent) is more general and focuses on the integration of so-called network centralities. Centralities are quantitative measurements and play an important role when the relative importance of nodes within the network topology should be rated. With the help of our tool, analysts can focus on the exploration of centrality values including the network structure without dealing with visual clutter or occlusions of nodes. Simultaneously, filtering based on statistical data concerning the network elements and centrality values supports this. Our second tool (CluMa-GO) is able to combine the results of hierarchical clusterings, i.e., tree-like structures, with the Gene Ontology which is essentially a directed acyclic graph. Although there are many approaches that can represent large hierarchies or compare two trees, to the best of our knowledge, no solution exists for the combined interactive visualization of an ontology (directed acyclic graph) and an hierarchical clustering (tree). Our method visualizes all the data without scrolling, thereby presenting an complete overview. It also allows for interactive selection and navigation to explore the data.

Tuesday, February 07th, 2012
02:00 pm
Seminar Room Konrad Zuse Building

Prof. Dr. Falk Schreiber
Host

Prof. Dr. Falk Schreiber
Series Organizer