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An alle Interessierten

Einladung zum Vortrag

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Algorithms for Network Visualization: Schematic Metro Maps

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Graph Drawing is a research field in computer science that deals with all aspects of algorithms for the visualization of graphs or networks. Here a graph is a mathematical structure defined as a set of nodes V and a set of edges E connecting pairs of nodes. Graphs are frequently used to model relational data in many applications from social networks to metabolic pathways and from software engineering to cartography. A wide range of topics are studied in Graph Drawing reaching from theoretical aspects like characterizations of graphs having certain layout types over design and analysis of efficient visualization algorithms to practical work involving algorithm engineering, experimental evaluations and user studies on layout readability.

After a general introduction to the field, I want to focus in this talk on schematic visualization using the example of public transport maps. I will first show how the popular force-based graph drawing method can be applied to this problem, and discuss its advantages and disadvantages. Then I will show how a global optimization approach for the same problem using integer linear programming models the aesthetic layout criteria as a set of linear (in)equalities. Implementing and solving this model with standard optimization software produces high-quality layouts including non-overlapping node labels and providing hard quality guarantees at the expense of higher running times.

Ort: Hörsaal 6E

Zeit: Donnerstag, 31. Januar 2013, 17:00 Uhr c.t.

Gäste sind herzlich willkommen.