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GASTVORTRAG

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“Traveling Guide Maps Visualization through Constrained Optimization”

Abstract:

This talk presents several optimization approaches to customizing and designing the traveling guide maps. The idea behind our approach is to formulate design criteria commonly employed by illustrators as mathematical constraints first and then optimizing the cost function in order to fully enhance the readability of the map layout. We consider two design strategies for this purpose. The first one is for route handling, and the second one is for label placement. To visually guide users' attention, we try to emphasize the user specified route in the first design, which is accomplished by introducing linear programming(LP) optimization and mixed-integer programming(MIP) technique. As for the second design, we employ genetic algorithm(GA) and again MIP in order to maximally placing thumbnail photographs close to their corresponding stations on the metro maps. Several design examples are also presented to demonstrate the feasibility of our prototype system together with user studies on how users are satisfied with the formulated design criteria.

Biography:

Hsiang-Yun Wu received her Master's degree in Department of Electrical Engineering from National Taiwan University in 2008, and her Ph.D. degree in Department of Complexity Science and Engineering from The University of Tokyo in 2013, respectively. She was a postdoc researcher and a project assistant professor in Visualization Group at The University of Tokyo, from 2013 to 2015. Since this April, she has been a project assistant professor in Computer Graphics and Visualization Group at Keio University, Japan. Her research interests include Information Visualization, Geographic Visualization, Graph Drawing, and Multivariate.

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