

ClusBridges: Multi-level Abstraction on Travel Records

Authors: Yawen Lu, Hao Wang, Xingyu Jiang, Tianyi Zhang, William Fei,
Zhenyu Qian, Yingjie Chen

Summary:

Monitoring and understanding people's patterns of daily life are crucial to urban planning and development. At the same time, cluster analysis and cluster-based visualization turned out to be highly effective in a system design. Based on the data collected from representative residents, including the location and time they travelled, duration of travel, and expenses at places, we designed ClusBridges, as depicted in Fig. 1, to draw inferences about city regions, traffic bottlenecks, life patterns, and individual life routines to help analyst understand different levels of patterns across the city. The system analyses and visualizes the life patterns of varies aggregation levels in a city in a concise, efficient, and user-friendly manner. The system primarily uses arcs (which can also be called bridges) to present information through arc length, curvature, width, dash, and color. ClusBridges can display information about traffic of various points at different times, view individual routines and cluster similar life routines, and view region trends and metrics.

ACM Author Affiliations: Yawen Lu: Purdue Univ; Hao Wang: Purdue University; Xingyu Jiang: Purdue University; Tianyi Zhang: UNISOC Spreadtrum Communications, Inc.; William C Fei: Purdue University; Zhenyu Cheryl Qian: Purdue University; Yingjie Victor Chen: Purdue University