PURDUE UNIVERSITY

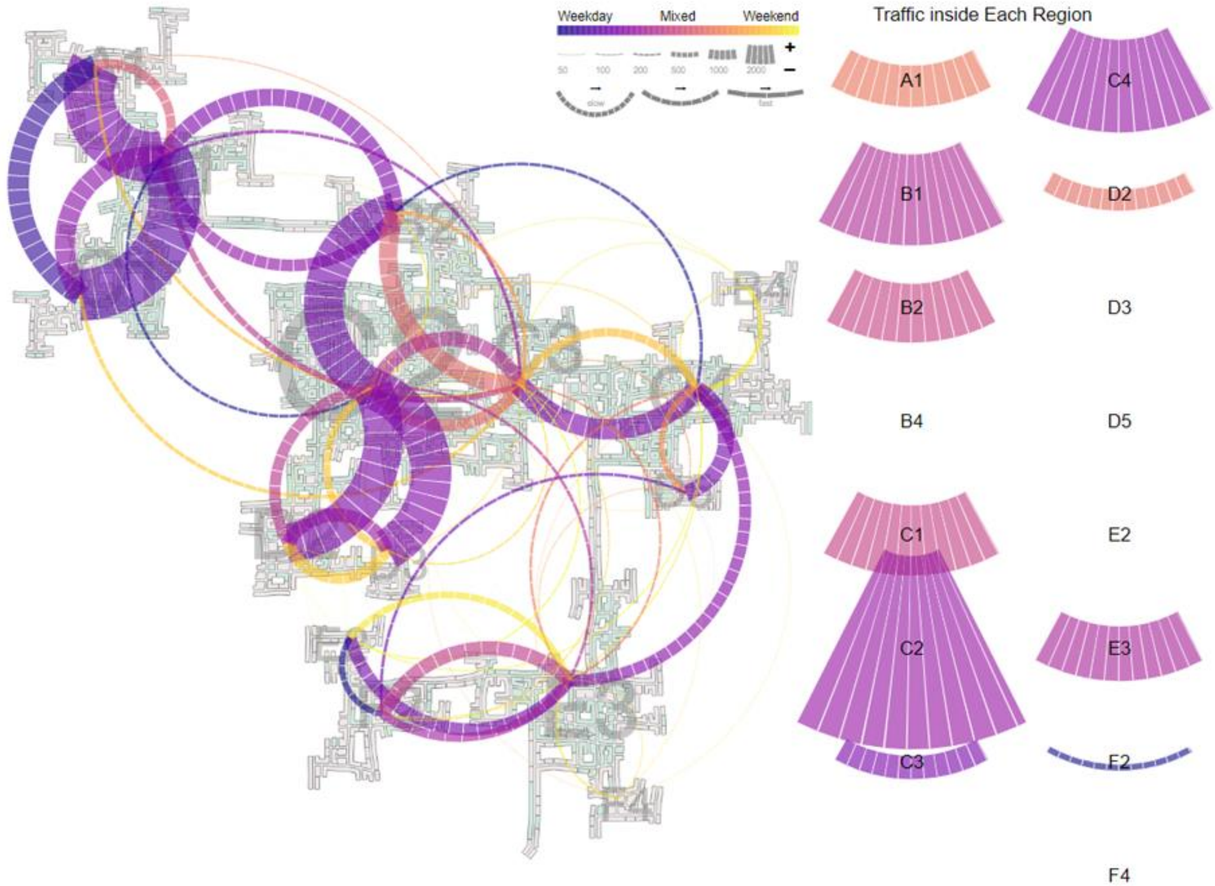
Intelligent Visualization and Interaction Lab

ClusBridges: Multi-level Abstraction on Travel Records

2022 IEEE VAST Challenge MC2: Honorable Mention for Effective Visual Encoding

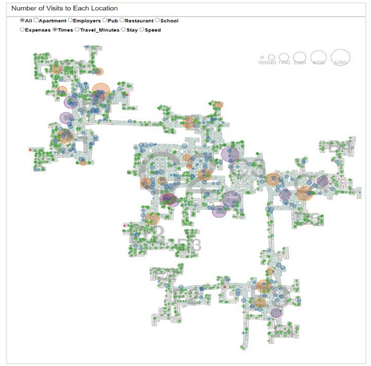
Yawen Lu, Purdue University
Tianyi Zhang, UNISOC Spreadtrum Communications, Inc.
Hao Wang, Purdue University
Xingyu Jiang, Purdue University
William C Fei, West Lafayette High School
Dr. Zhenyu Cheryl Qian, Purdue University
Dr. Yingjie Victor Chen, Purdue University

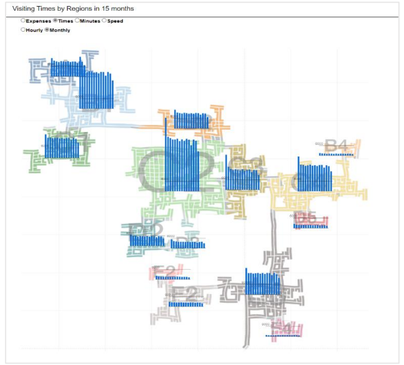
Abstract: ClusBridges abstracts, summarizes and presents a large size of travel records, from general observations to local details. The system is inspired by ancient bridges to use bridge-like arcs to visualize the volume, speed, and direction of traffic from one node to another. Bridge-like arcs reflect two-way traffic patterns, width of the arc indicates the volume of traffic, color distinguish weekday traffic from weekend traffic, and arc's curvature and dashes indicate the speed.



Dividing of Regions & Region Metrics.

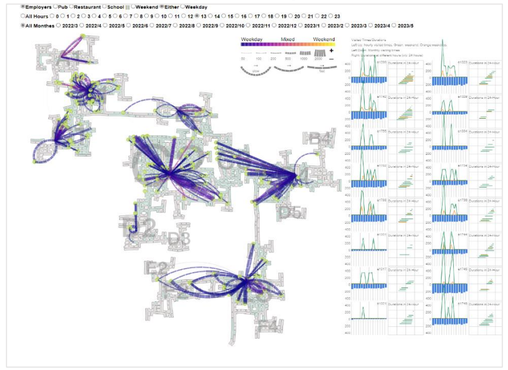
Constructing different types of visualizations to display locations, expenses, number of visits and travel times. The city map is hereby divided into 15 specific zones based on these distributions.

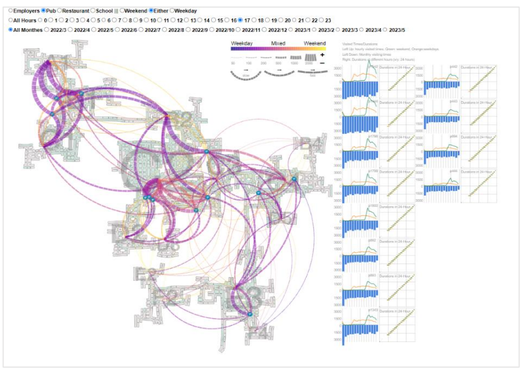




Traffic of Regions & Traffic of Locations.

After sorting travel by time, location, and region, ClusBridges is able to clearly shows the traffic patterns between regions vary with time.





Cluster of Routines & Routine of Individuals

All travel logs are clustered into life routines. We visualized all participants, life routines and their relationships. We also displayed the traffic flow for each specific cluster. In addition to global cluster activity, daily routines are visualized for each participant.