

Paper Critic

Information Visualization

(CSCI 628)

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Paper

Time Curves: Folding Time to Visualize Patterns of Temporal Evolution in Data

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The proposed representation of temporal data in the “Time Curve” paper by Bach et al. helps summarize the data and understand important events. A cluster of points represents similarity in the events. Although the proximity represents similarity, the actual distance in time is lost. The authors proposed using lightness to encode revision time, but it can be challenging to understand with lots of points. Also, switching between similar events (e.g., edit-wars on Wikipedia or showing toggling signs on a video) will show dark dots with a blue halo. The visualization will not show the total duration of all the events or the temporal distance between the events.

In video comparison tasks, the authors compared the video frames in grayscale, which is prone to error. For example, changing traffic lights will not be reported in this method. The authors suggested using this method to analyze events from security cameras. However, this method will not help analyze traffic cams to isolate events as the authors proposed.

While the authors have proposed rank distance, curvilinear distance, and spatial distance to represent the number of revisions, edits, and similarity, none of the distances gives any idea of temporal distance, which is a crucial feature of temporal data.

Can we use the line width or saturation for the connecting lines to represent the temporal distance?

References

- [1] B. Bach, C. Shi, N. Heulot, T. Madhyastha, T. Grabowski, and P. Dragicevic, “Time curves: Folding time to visualize patterns of temporal evolution in data,” *IEEE Trans. Vis. Comput. Graph.*, vol. 22, no. 1, pp. 559–568, Jan. 2016.