

Temporal Merge Tree Maps: A Topology-Based Static Visualization for Temporal Scalar Data

Wiebke Köpp and Tino Weinkauff

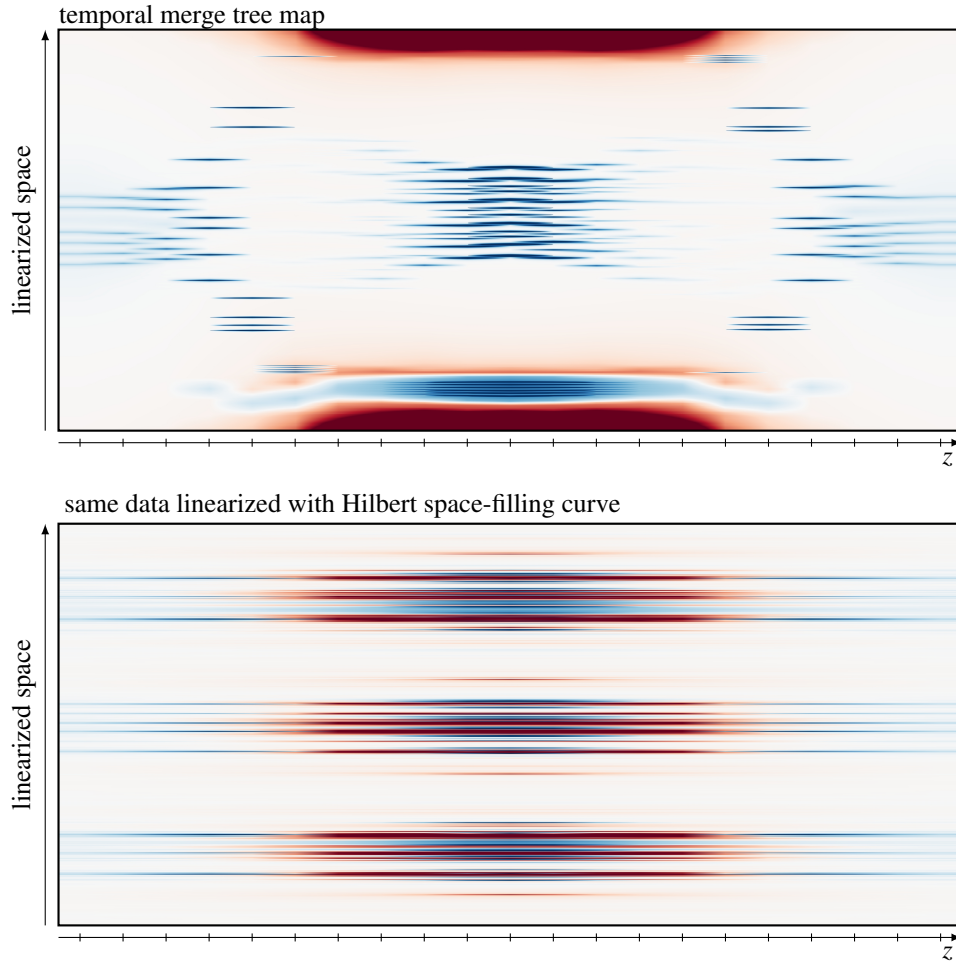


Figure 1: Temporal merge tree map (top) for the electric potential of a Benzene molecule and same data linearized with a Hilbert space-filling curve (bottom) using the implementation by Franke et al. [1]. While the symmetry over time (here z -dimension of the data set) is retained, features are broken up with the Hilbert linearization and thus not countable. At $z = 0$ for example, there are only 6 features, but we can see more distinct darker blue lines in the bottom image.

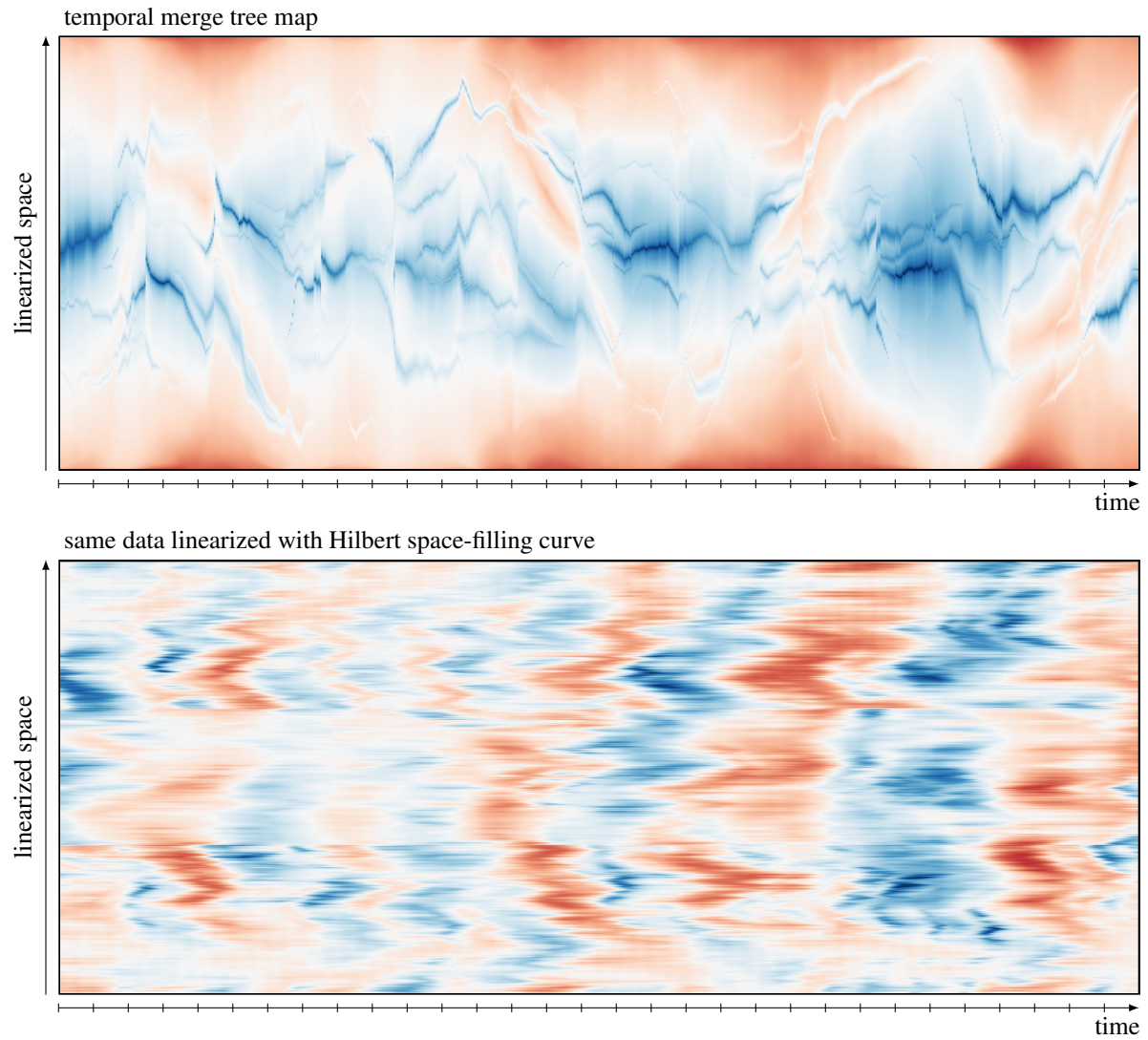


Figure 2: Temporal merge tree map (top) for 1-hourly sea level pressure anomaly data over Europe in December 1999 (top) and the same data linearized with a Hilbert space-filling curve (bottom) using the implementation by Franke et al. [1]. While the Hilbert linearization still allows for identification of large-scale trends, e.g., the strong low pressure anomaly around December 26, individual features are not visible.

References

- [1] M. Franke, H. Martin, S. Koch, and K. Kurzhals. Visual Analysis of Spatio-temporal Phenomena with 1D Projections. *Computer Graphics Forum (Proc. EuroVis)*, 40(3):335–347, 2021.