Analysis of dynamic networks via persistent homology

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When studying flocking/swarming behaviors in animals one is interested in quantifying and comparing the dynamics on the clustering structures induced by the coalescence and disbanding of animals in different groups. Motivated by this we study the problem of obtaining persistent homology based summaries of time dependent metric data. In particular, we study the stability of this construction under a suitable variant of the Gromov-Hausdorff distance. Time permitting, we'll also show applications of these techniques to data from neuroscience.