



Detecting Structural Changes in Dynamic Community Network  
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## **Abstract**

We describe existing distances between graphs, and study their ability to reveal organizational changes. We propose a novel distance that can detect changes occurring on a graph at multiple scales. We develop a fast randomized algorithm to compute an approximation to this novel graph distance.

We apply this novel distance to the analysis of a dynamic community graph. We detect the time at which the graph dynamics switches from a normal evolution -- where balanced communities grow at the same rate -- to an abnormal behavior -- where communities start merging.

This is work in collaboration with Dr. Nathan Monnig, and Peter Wills.