

ABSTRACT

Described are a system, method, and computer program product for dynamic node classification in temporal-based machine learning classification models. The method includes receiving graph data of a discrete time dynamic graph including graph snapshots, and node classifications associated with all nodes in the discrete time dynamic graph. The method includes converting the discrete time dynamic graph to a time-augmented spatio-temporal graph and generating an adjacency matrix based on a temporal walk of the time-augmented spatio-temporal graph. The method includes generating an adaptive information transition matrix based on the adjacency matrix and determining feature vectors based on the nodes and the node attribute matrix of each graph snapshot. The method includes generating and propagating initial node representations across information propagation layers using the adaptive information transition matrix and classifying a node of the discrete time dynamic graph subsequent to the first time period based on final node representations.

< Figure 4>