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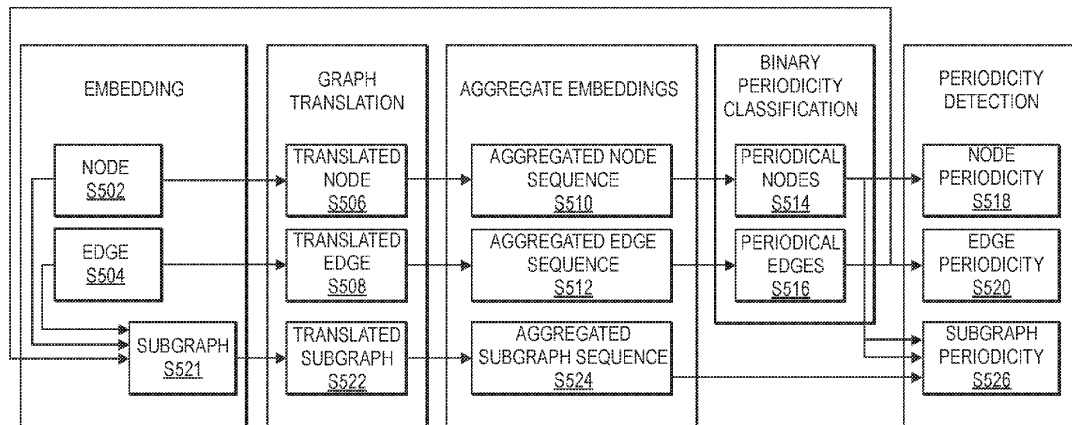
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(54) Title: HIERARCHICAL PERIODICITY DETECTION ON DYNAMIC GRAPHS SYSTEM AND METHOD

**FIG. 5**

(57) **Abstract:** A computer obtains node embeddings, node periodicity classifications, edge embeddings, and edge periodicity classifications for each time of a time period. The computer determines subgraph embeddings based on a subgraph of the graph, times in the time period, the node embeddings for nodes in the subgraph, the edge embeddings for edges in the subgraph, the node periodicity classifications for the nodes in the subgraph, and the edge periodicity classifications for the edges in the subgraph. The computer translates each subgraph embedding of the subgraph embeddings for each time of the time period into projected subgraph embeddings. For the subgraph, the computer aggregates the plurality of projected subgraph embeddings into an aggregated subgraph embedding. The computer determines if the subgraph is periodic based upon at least the aggregated subgraph embedding.

[Continued on next page]

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