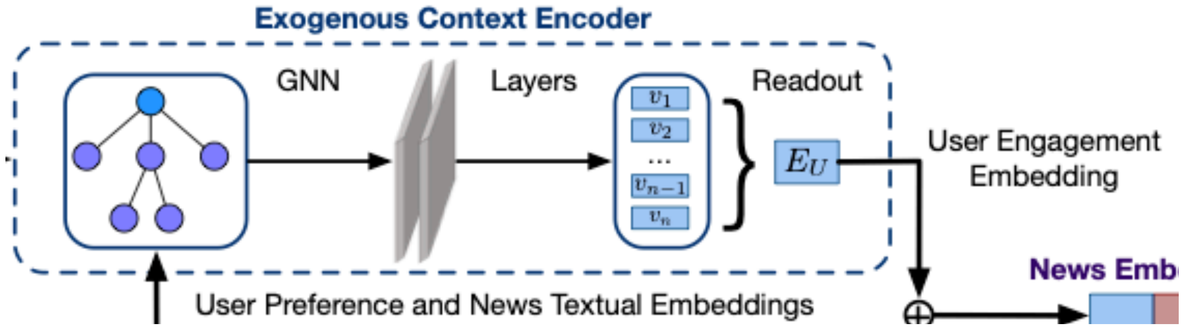
Approach

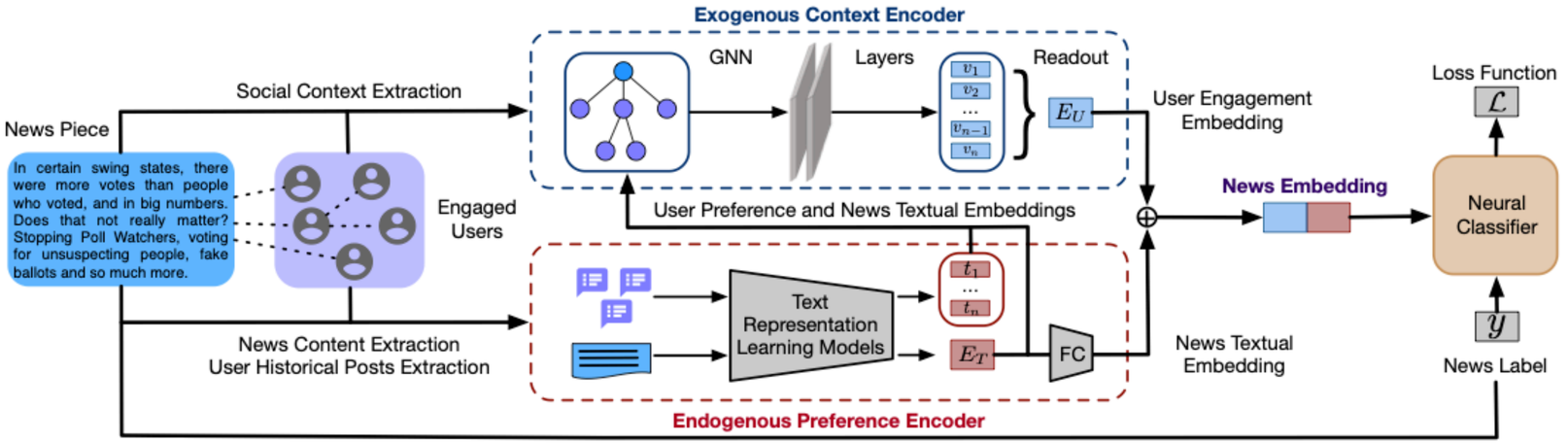
Exogenous Context Extraction



- Define two following rules to determine the news propagation path:
  - For any account v_i , if v_i retweets the same news later than at least one following account in $\{v_1, \ldots, v_n\}$, estimate the news spreads from the account with the latest timestamp to account v_i.
  - If account v_i doesn't follow any accounts in the $\{v_1, \ldots, v_n\}$, conservatively estimate the news spreads from the accounts with the most number of followers.
- Based on the above rules, can build the news propagation graphs on Twitter. Note that this approach can be applied to other social media platforms like Facebook as well.

Approach

Information Fusion



- Previous works have demonstrated that fusing the user features with a news propagation graph could boost the fake news detection performance.
- Propose a hierarchical information fusion approach, first fuse the endogenous and exogenous information using the GNN, the news textual embedding and user preference embedding can be taken as node features.
- Apply a **readout function** over all node embeddings to obtain the embedding of a news propagation graph. The readout function makes the mean pooling operation over all node embeddings to get the graph embedding (i.e., user engagement embedding).