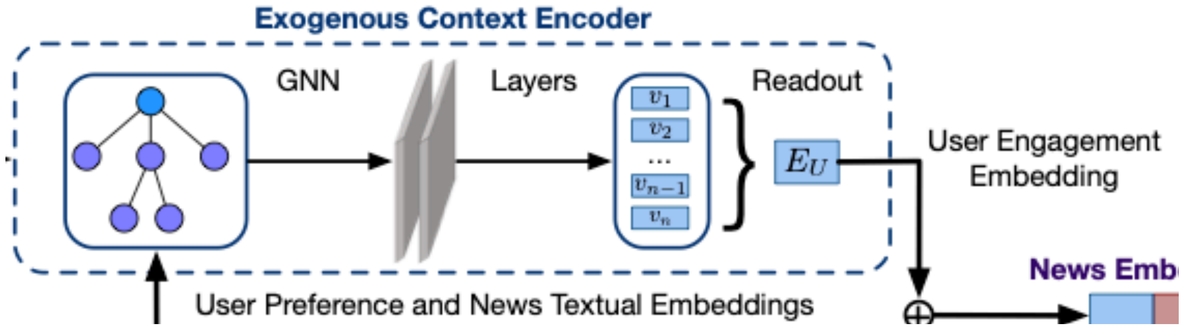
Approach

Exogenous Context Extraction



- Given a news piece on social media, the user exogenous context is composed of all users that engaged with the news.
- Utilize the retweet information of news pieces to build a news propagation graph.
- The root node represents the news pieces, and other nodes represent users who share the root news.
- Define a new piece as v_1, and $\{v_2, \ldots, v_n\}$ as a list of users that retweeted v_1 ordered by time.

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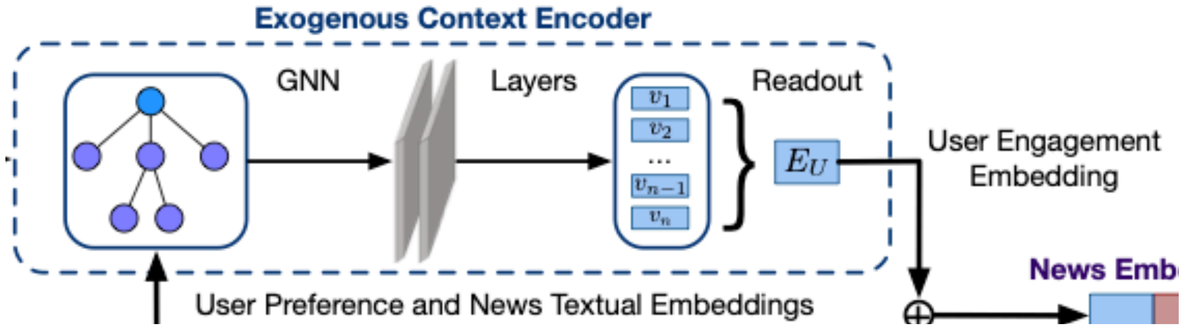

- Define two following rules to determine the news propagation path:
  - For any account v_i , if v_i retweets the same news later than at least one following account in $\{v_1, \ldots, v_n\}$, estimate the news spreads from the account with the latest timestamp to account v_i.
  - If account v_i doesn't 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.