Methodology

FANG - Representation Learning

- Let $GraphSage(\cdot)$ be GraphSage's node encoding function
  - Now obtain the structural representation z_u for any user u and source node r as $z_r = GraphSage(r)$
  - For news node, further enrich their structural representation with user engagement temporal representation with user engagement temporality.
  - This can be formulated as learning an aggregation function $F(a, U)$ to get a temporal representation v_a^{temp} that captures a's engagement pattern.
  - Combine the temporal and the structural representations of a news a into a single representation: $z_a = v_a^{temp} + GraphSage(a)$

Methodology

Temporal Engagement Aggregator

- Use Bi-LSTM as aggregator model, with user representation, timestamp, engagement stance as inputs
- On the top of Bi-LSTM, further incorporate an attention mechanism to better encode long series of engagements.
- Attention is not only expect to improve the model quality but also its explainability.