Related Work
Comparison between representation learning frameworks

Approach	Social Entities & Interactions	Temporal	Graphical	Deep	Inductive	Representative
Feature engineering [6, 26, 32, 44]	1, 2				✓	
Popat [33]	2, 3, 6	✓				
CSI [35]	1, 2, 4, 5	✓		✓	✓	
TriFN [39]	1, 2, 3, 4, 5, 6		✓			✓
MVDAM [21]	2, 3, 6, 7		✓	✓		
Monti [29]	1, 2, 4, 5	✓	✓			
GLAN [45]	1, 2, 5		✓	✓		
FANG (Our proposed approach)	1, 2, 3, 4, 5, 6, 7	✓	✓	✓	✓	✓

Comparison between representation learning frameworks for social entities (1. users, 2. news, 3. sources) and interactions (4. user-user friendship, 5. user–news engagement, 6. source–news publication, 7. source–source citation) on whether they consider engagement time, graph modeling of social context, deep learning, inductiveness, and representation learning.

Methodology
Definition

- $A = \{a_1, a_2, \cdots\}$: list of questionable **news articles**

- $S = \{s_1, s_2, \cdots\}$: list of **news sources**

- $U = \{u_1, u_2, \cdots\}$: list of **social users**

- $E = \{e_1, e_2, \cdots\}$: list of **interactions**

  - $e = \{v_1, v_2, t, x_e\}$

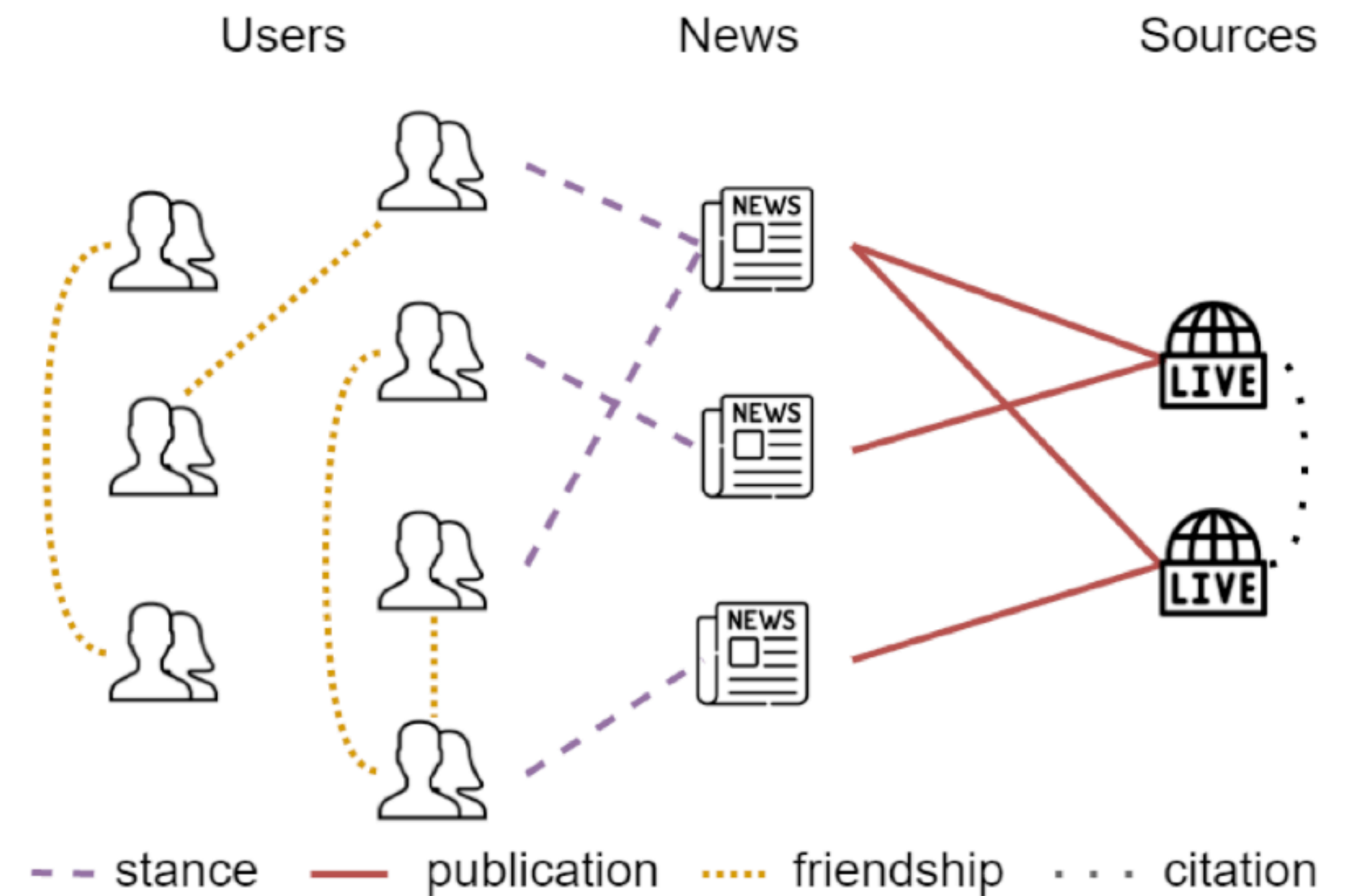 - $v_1, v_2 \in A \cap S \cap U$: entities

  - t: timestamp

  - x_e: interaction type label

Figure 1: Graph representation of social context.