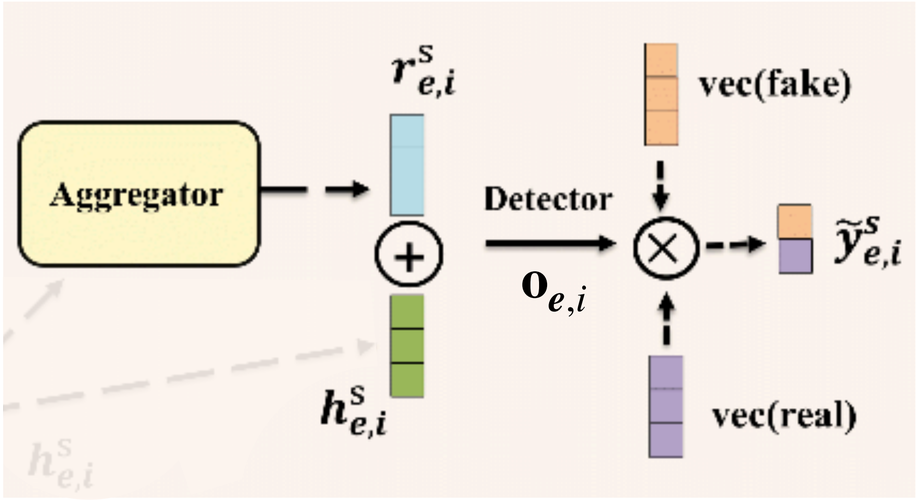
Methodology

Detector based on Label Embedding



- Define two embeddings **vec(fake)** and **vec(real)**.
- To ensure that the label embedding can capture the semantic meanings of corresponding labels, propose to use embeddings **vec(fake)** and **vec(real)** in the detector as metrics and output prediction are determined based on metric matching.
- The detector is fully connected layer output vector $\mathbf{o}_{e,i}$.
- similarity $\left(\mathbf{o}_{e,i}, \text{vec(fake)}\right) = \|\mathbf{o}_{e,i} \circ \text{vec(fake)}\|$,
  similarity $\left(\mathbf{o}_{e,i}, \text{vec(real)}\right) = \|\mathbf{o}_{e,i} \circ \text{vec(real)}\|$
- The two scores then mapped into [0,1] as probabilities via softmax.

Experiments

Datasets

	Twitter	Weibo
# of fake News	6,934	4,050
# of real News	5,683	3,558
# of images	514	7,606

- Twitter, Weibo datasets
- The news events are included in the Twitter dataset, obtain events on Weibo dataset via single-pass clustering method.
- Only keep the events which associated with more than 20 posts and randomly split the posts on same event into support and query data.
- Training and testing set do not contain any common event.