Introduction

Contributions of MetaFEND

- Recognize the challenges of fake news detection on emergent events and formulate the problem into a few-shot learning setting.
- Proposed MetaFEND to detect fake news on emergent events with a handful of data instances by fusing the meta-learning method and neural process models together via a simulated learning task design.
- Also propose label embedding and hard attention to handle categorical information and select the informative instance respectively.

Problem Formulation

Notation

- Core idea of few-shot learning is to use episodic classification paradigm to simulate few-shot settings during model training.
- $\mathscr{E}$: set of news event, $e \in \mathscr{E}$: news event (which has a few labeled posts)
- In each episode during training stage, the labeled posts are partitioned into two independent sets:
  - Support set: $\left\{\mathbf{X}_e^s, \mathbf{Y}_e^s\right\} = \left\{x_{e,i}^s, y_{e,i}^s\right\}_{i=1}^{K}$, Query set: $\left\{\mathbf{X}_e^q, \mathbf{Y}_e^q\right\} = \left\{x_{e,i}^q, y_{e,i}^q\right\}_{i=K+1}^{N}$
- For each event e, the model leverages its corresponding K labeled posts as support set to conduct fake news detection on given event e.