

# **A Soft-label Method for Noise-tolerant Distantly Supervised Relation Extraction**

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# Introduction

- sentence level denoise models
- hard label (immutable during training)

## This paper

- multi-instance learning
- entity-pair level denoise model
- soft label

# Soft-label Adjustment

$$r_i = \operatorname{argmax}(\mathbf{o} + \max(\mathbf{o})\mathbf{A} \odot L_i)$$

- $\mathbf{o}, \mathbf{A}, L_i \in \mathbb{R}^{d_r}$ ,  $d_r$  is the number of predefined relations
- $L_i$  one-hot vector
- $\mathbf{A}$  represents the reliability of DS labels, value in  $\mathbf{A}$  is decimal between 0 and 1

- train

$$J(\theta) = \sum_{i=1}^n \log p(r_i | \mathbf{s}_i; \theta)$$

- test

$$G(\theta) = \sum_{i=1}^n \log p(l_i | \mathbf{s}_i; \theta)$$

# Conclusions

- noise-tolerant method to combat wrong label in DS RE with soft labels
- significant improvement over baselines