

CIKM 22 Industry review

review1 weak reject -1

主要拒绝原因：One major limitation is that there is **no online experiment results**. I can understand the difficulties to evaluate such kinds of work throughly with online experiments. But it has to be more convinced if some improvements could be shown by online testing.

没有上线后的实验对比结果

review2 weak reject -1

主要拒绝原因：Overall recommending weak reject due to **lack of original technical contributions** and **no description of how the deployment/release lead to real-world benefits or impacts**.

1. 技术创新较少 2. 没有显示部署线上以后的收益或影响

其他原因：

2. Not yet deployed. **Not clear if multi-domain taxonomies is really a challenge** -- as simply a different view, those trees for each domain can also have a shared parent, making this a single taxonomy. More discussions would be helpful to elaborate/highlight if each domain does require some dedicated handling/modeling, or it is more likely that one model can simply fit all domains.

没有部署线上，所以这个多领域动态商品分类这个challenge没有说服力

2. Technical innovations such as cosent are mainly **from existing works**.

技术创新主要源自已有的工作

3. Not able to access the true technical novelty due to **lack of competitive baselines**: baselines were either classic methods like TD-IDF/fasttext, or a simple BERT classifier. Related works for example [5] and [26] are mentioned, but they are totally ignored for quantitative comparison in experiments.

baseline不够强（提到了[5] HiMatch方法用于大规模多标签文本分类，但是HiMatch的方法针对多标签建模各标签之间的联系（label dependency），而我们只有一个标签效果大概率不好；[26]的问题和我们不一样（Open World Learning），主要解决从未出现的新标签）

review3 weak accept 1

（这个reviewer没有仔细读论文，总结的pipeline和论文中陈述的不一致）

The paper seems to focus on some new and interesting dimensions of a well known problem that might be of interest to e-commerce platform implementors. No major limitations

----- REVIEW 1 -----

SUBMISSION: 3140

TITLE: Product Categorization for Multiple Evolving Businesses

AUTHORS: Shansan Gong, Zelin Zhou, Shuo Wang, Fengjiao Chen, Xuezhi Cao, Wei Wu and Kenny Zhu

----- Overall evaluation -----

SCORE: -1 (weak reject)

----- TEXT:

This paper introduced a two-stage taxonomy-agnostic label retrieval framework for dynamic multi-domain product categorization through the text semantic matching. The two-stage pipeline of retrieval and reranking were wisely borrowed from the recommender system, ensuring both accuracy and efficiency. By a heuristic fusion of different retrieval candidates and the contrastive information from both inter-class and intra-class features, this framework demonstrated strong generalization on evolved taxonomies with contrastive pretraining on zero-shot scenarios. As a significant component, contrastive learning for the taxonomy divide case has been carefully studied and analyzed. And the capability of handling new taxonomies has also been carefully evaluated with other models. The a new loss function, Cosent, achieved better performance over other candidates with the positive-versus-negative pairwise optimization. Though it would be even better if there are some online experiment results, I think this is already a strong study in this area with good innovation and strong results.

----- Strengths and reasons to accept -----

1. Good introduction of the product categorization problem under the challenges of multi-domain and dynamically evolved taxonomies. The motivation is clearly illustrated.
2. Novel architecture borrowed to tackle different problems. The contribution of each module is clearly indicated and deeply explained with practical and effective solutions.
3. Good experiment settings highlight the features of the framework over other models, which also aligns with the motivation and key contributions.
4. Case studies are carefully selected to prove the advantage of this work. And the practical case with performance degradation was not intentionally avoided with kind guidance for practical applications.

----- Weaknesses and limitations -----

One major limitation is that there is no online experiment results. I can understand the difficulties to evaluate such kinds of work thoroughly with online experiments. But it has to be more convinced if some improvements could be shown by online testing.

----- REVIEW 2 -----

SUBMISSION: 3140

TITLE: Product Categorization for Multiple Evolving Businesses

AUTHORS: Shansan Gong, Zelin Zhou, Shuo Wang, Fengjiao Chen, Xuezhi Cao, Wei Wu and Kenny Zhu

----- Overall evaluation -----

SCORE: -1 (weak reject)

----- TEXT:

In this paper, the authors studied a multi-domain product categorization problem. The authors explored a sentence matching based framework that does candidate retrieval and re-ranking separately. A bi-encoder BERT and a rule-based unit were used to ensure retrieval quality on coarse-grained categories. Contrastive learning was adopted in a cross-encoder BERT for re-ranking. The authors experimented with both single-domain and multi-domain data and conducted zero-shot experiments to validate the generalizability of the solution. Overall recommending weak reject due to lack of original technical contributions and no description of how the deployment/release lead to real-world benefits or impacts.

----- Strengths and reasons to accept -----

1. Well-organized manuscript. The task is well-formulated.
2. Extensive offline experiments that validated major claims on model's features.
3. Exploration of different fusion strategies as well as different vector-based retrieval methods.

----- Weaknesses and limitations -----

1. Not yet deployed. Not clear if multi-domain taxonomies is really a challenge -- as simply a different view, those trees for each domain can also have a shared parent, making this a single taxonomy. More discussions would be helpful to elaborate/highlight if each domain does require some dedicated handling/modeling, or it is more likely that one model can simply fit all domains.
2. Technical innovations such as cosent are mainly from existing works.
3. Not able to access the true technical novelty due to lack of competitive baselines: baselines were either classic methods like TD-IDF/fasttext, or a simple BERT classifier. Related works for example [5] and [26] are mentioned, but they are totally ignored for quantitative comparison in experiments.

----- REVIEW 3 -----

SUBMISSION: 3140

TITLE: Product Categorization for Multiple Evolving Businesses

AUTHORS: Shansan Gong, Zelin Zhou, Shuo Wang, Fengjiao Chen, Xuezhi Cao, Wei Wu and Kenny Zhu

----- Overall evaluation -----

SCORE: 1 (weak accept)

----- TEXT:

The paper identifies and addresses a more complex version of the traditional problem of product categorization in ecommerce platforms. Specifically, it is concerned with supporting scenarios in which three requirements coexist concurrently: the need to classify products based on multiple domain taxonomies, with a large number of leaf node categories and where taxonomies are allowed to evolve. The authors argue that existing techniques would approach the multidomain taxonomy classification separately for each taxonomy and would need to undergo retraining as taxonomies evolve.

The authors reformulate the problem as a semantic text matching task and propose a 2-stage framework that involves first a Retrieval stage to retrieve label candidates based on similarity between product titles and target category label vectors, followed by a rule-based reranking stage that maps product titles to the label space via an intermediate mapping to a predefined meta label set, using statistical distributions from the training set.

Approach evaluation is conducted some taxonomies from an real-world ecommerce platform as as well as some manually created taxonomies. Assessment was for both accuracy and latency performance and the contributions of each component technique in the architecture. Results appear to be promising.

----- Strengths and reasons to accept -----

The paper seems to focus on some new and interesting dimensions of a well known problem that might be of interest to e-commerce platform implementors.

----- Weaknesses and limitations -----

No major limitations