

## ABSTRACT

As the number of published papers continues to grow exponentially, researchers face challenges in effectively discovering and accessing papers that are directly relevant to their research interests. This issue becomes even more complex when researchers seek papers that bridge multiple disciplines, as traditional keyword-based search approaches may struggle to capture the multidimensional nature of such cross-domain research topics.

Despite the availability of the CSO and other ontologies, there remains a need for an advanced and robust approach to ontology-based keyword detection that can effectively identify research topics that transcend disciplinary boundaries. Existing methods, in CSO Classifier, may not fully capture the nuanced relationships between concepts in cross-domain research.

This study addresses this issue by developing the Cross-Domain Ontology approach. While the existing CSO Classifier in generating keywords for Computer Science topics, its extension to other domains remains a gap. This research investigates methods to broaden keyword detection capabilities, aiming to establish connections between diverse domains using ontology relations from resources like WordNet.

The study's findings reveal that the relevance of recommendations is achieving 33.4% precision@10, the approach notably broadens the scope of generated terms by incorporating keywords related to biology. The Cross-Domain Ontology method increased the average number of recommended papers by 30.7% across both Bioinformatics and Computer Science domains compared to the CSO Classifier method. These findings indicate that, despite the limited relevance of cross-domain relationships, they can enhance the number of paper recommendations. The study suggests that the algorithm could be further developed and applied to additional domains within WordNet to support more extensive research applications.

**Keywords:** Ontology, Cross-Domain, Recommendation, CSO, WordNet, Biology