

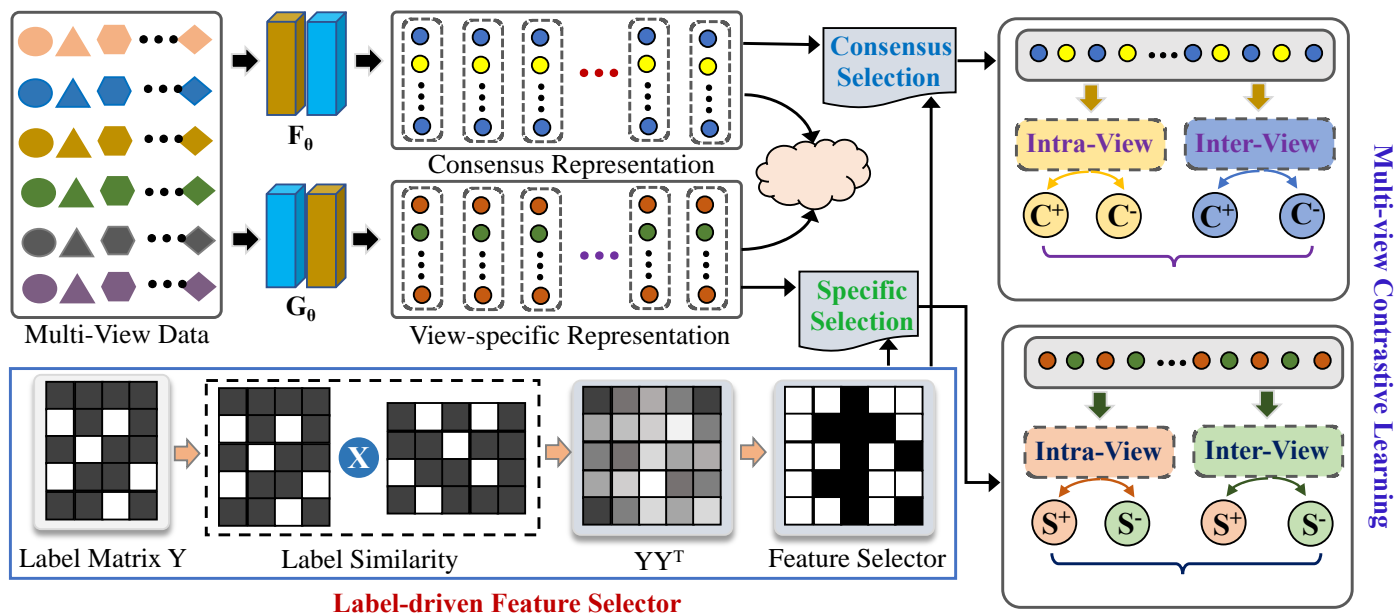
Label Driven Contrastive Fusion for Multi-View Multi-Label Learning

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Problems & Ideas

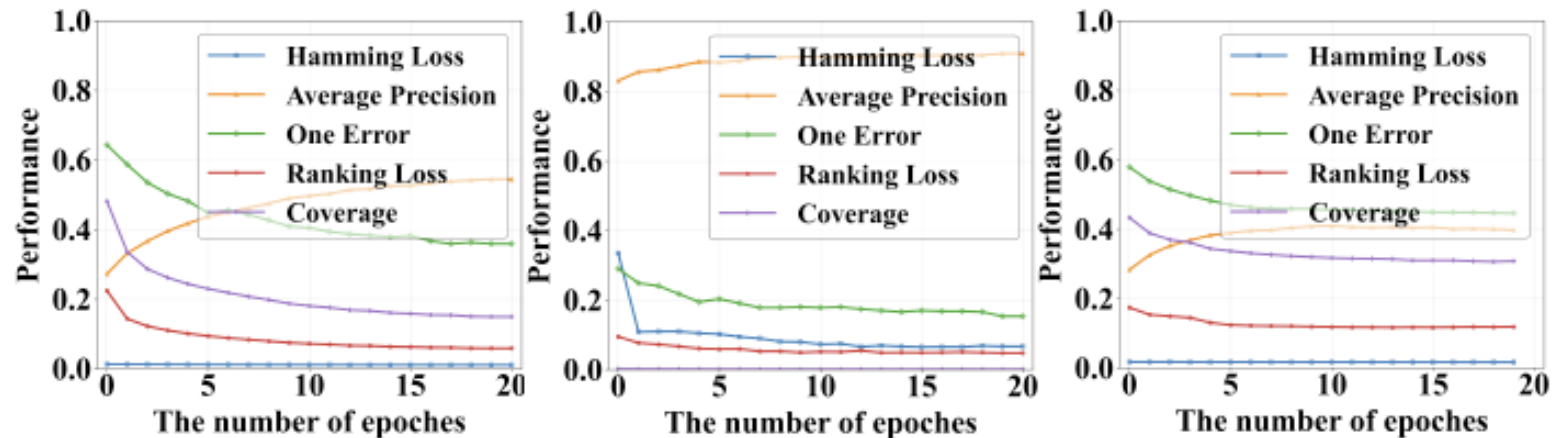
- Problems of previous MVML approaches:
 - Existing methods explore heterogeneous views at the data level and overlook the rich semantics of inherent view-label correspondences.
- Ideas: Leveraging label semantic similarities to integrate the individual and shared properties inherited in different views through a multi-view contrastive fusion schema.



Overall framework of the proposed method. It comprises the following procedures: (1) View-specific and consensus feature representation are extracted with the orthogonality loss. (2) A label-driven feature selector that selects positive and negative sample pairs are created. (3) A multi-view contrastive learning module calculates the contrastive loss for selection consensus and view-specific embeddings. The final prediction scores for each view are derived by jointly optimizing the orthogonal constraint, the multi-view contrastive learning objective, and the multi-label BCE loss function through a multi-head collaborative classification.

Main Contributions

- Contributions:
 - A novel Label Driven Contrastive Fusion method that systematically leverages label semantics to integrate the individual and shared properties inherited in different views through multi-view contrastive fusion.
 - A label-driven feature selector that constructs contrastive sample pairs and embeds discriminability view-specific as well as consensus representations with multi-view contrastive learning.
 - Experimental results on seven datasets over five evaluation metrics illustrate the superior effectiveness and robustness of the proposed method.



Convergence analysis of the proposed method over Corel5K (left), Scene (mid) and Espgame (right) data sets. The proposed method exhibits consistent reliable convergence on the three data sets.