Learning Discriminative Manifolds from Multiple Data Modalities for Multimedia Content Understanding

PI : **Dr. LIU Yang**

OBJECTIVES

To discover the intrinsic structure of multimedia data with multiple modalities for multimedia content understanding [1-6]

1. For multi-label multimedia data, learn the correlation between different labels while preserving the discriminative information.
2. For multi-modal multimedia data, learn the consistency between different modalities while preserving the discriminative information.

HIGHLIGHTS

1. Dimensionality reduction in multiple ordinal regression (DRMOR) [1], whose projected subspace preserves all the ordinal information in multiple aspects or labels.
2. Modality-consistent harmonized discriminant embedding (MCHDE) [2,3], whose common subspace of multiple modalities preserves the manifold structure, the harmonized discriminant information, and the modality consistency simultaneously.

1. Dimensionality reduction in multiple ordinal regression (DRMOR)
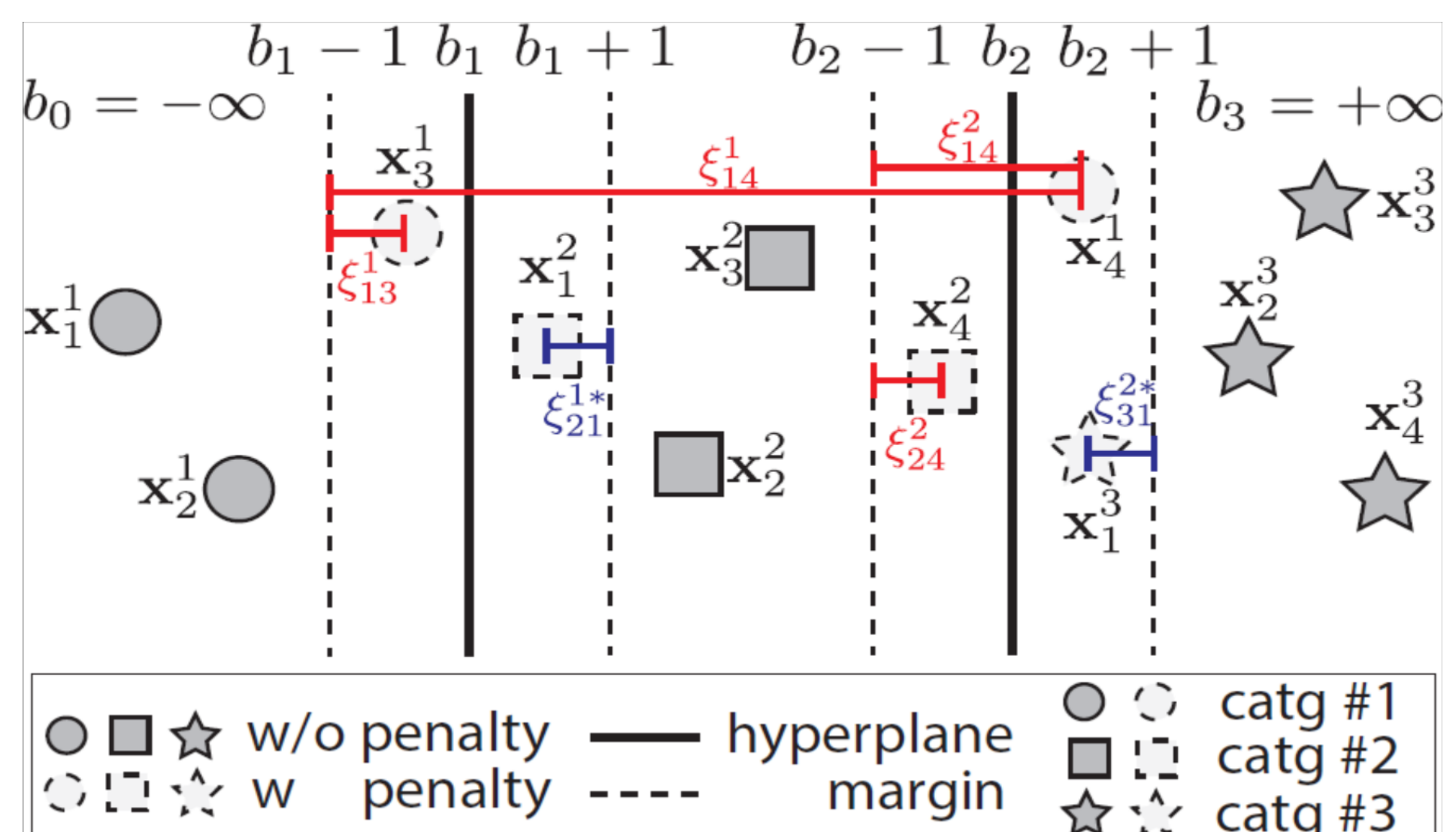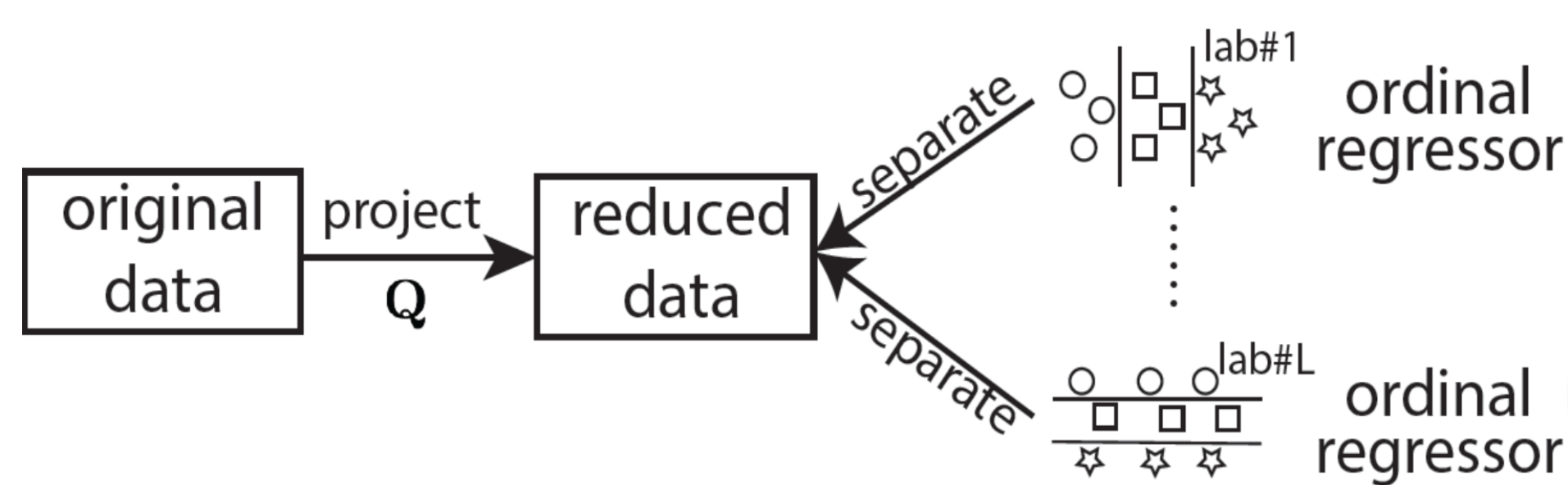
2. Modality-consistent harmonized discriminant embedding (MCHDE)
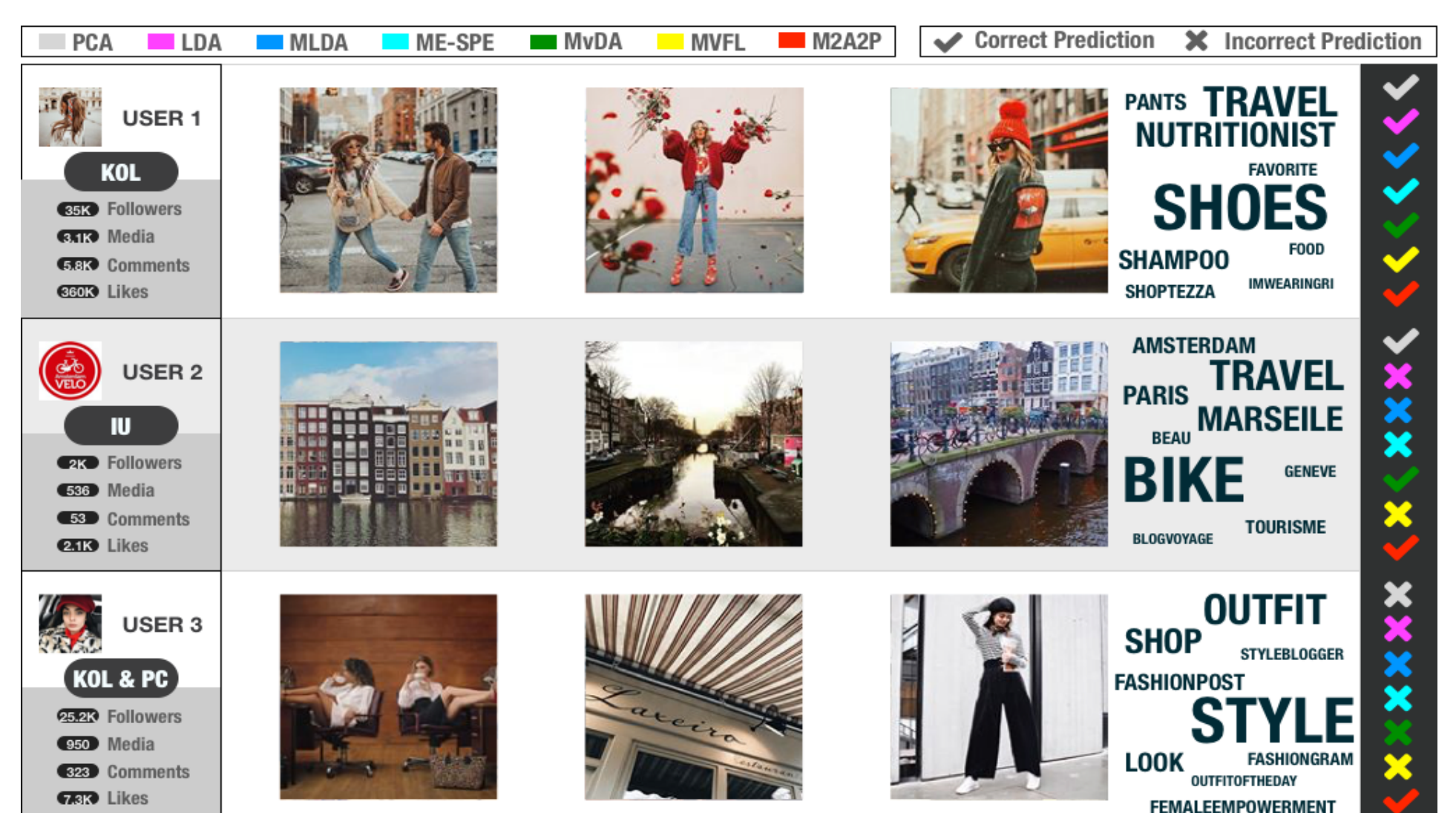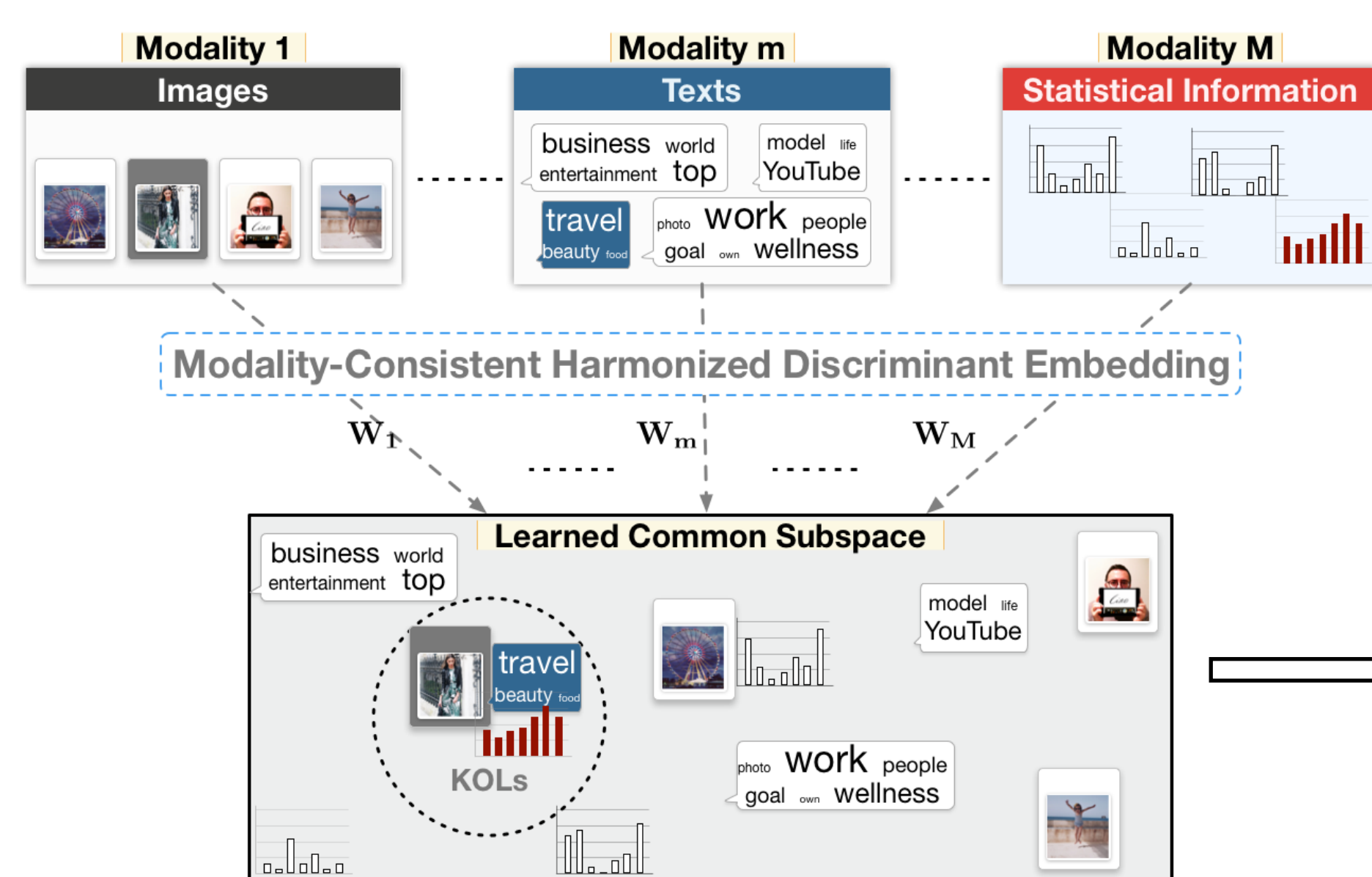
SELECTED PUBLICATIONS

1. Jiabei Zeng, **Yang Liu**, Biao Leng, Zhang Xiong, and Yiu ming Cheung. "Dimensionality Reduction in Multiple Ordinal Regression". *IEEE Transactions on Neural Networks and Learning Systems* 29 (9), pp. 4088–4101. 2018.
2. **Yang Liu**, Tobey H. Ko, and Zhonglei Gu. "Who is the Mr. Right for Your Brand? – Discovering Brand Key Assets via Multi-modal Asset-aware Projection". In: *Proceedings of 41st International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR-18)*, 2018.
3. **Yang Liu**, Zhonglei Gu, Tobey H. Ko, and Jiming Liu. "Identifying Key Opinion Leaders in Social Media via Modality-Consistent Harmonized Discriminant Embedding". *IEEE Transactions on Cybernetics*, 2019 (to appear).
4. **Yang Liu**, Zhonglei Gu, Tobey H. Ko, and Jiming Liu. "Multi-Modal Media Retrieval via Distance Metric Learning for Potential Customer Discovery". In: *Proceedings of IEEE/WIC/ACM International Conference on Web Intelligence (WI-18)*, 2018.
5. **Yang Liu**, Zhonglei Gu, Hing Tobey Ko, and Kien A. Hua. "Learning Perceptual Embeddings with Related Tasks for Joint Predictions on Media Interestingness and Emotion Impacts". In: *Proceedings of 8th ACM International Conference on Multimedia Retrieval (ICMR-18)*, 2018.
6. **Yang Liu**, Zhonglei Gu, Tobey H. Ko, and Jiming Liu. "Brand Key Asset Discovery via Clusterwise Biased Discriminant Projection". In: *Proceedings of IEEE/WIC/ACM International Conference on Web Intelligence (WI-17)*, 2017.