

Proposed Method

Prototype Learning

- To alleviate such conflicts, further extend the metric learning framework with prototypes, which are trainable points in the representation space.
- In this work, design each prototype to be responsible for optimizing one objective. The intuition is to disentangle two objectives by using two types of anchors (prototypes) instead of a single type of anchors (users).

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Prototype Learning

- First define two prototypes in the representation space: $C, S \in \mathbb{R}^K$
 - C is a prototype for optimizing the consumption objective L_C
 - S is a prototype for optimizing the interest sustainability objective L_S
- Then project a user-item pair into a single point such that: $T_{u,i} = \mathbf{u} + \mathbf{i}$
 - T is a transformation function and use sum operation.