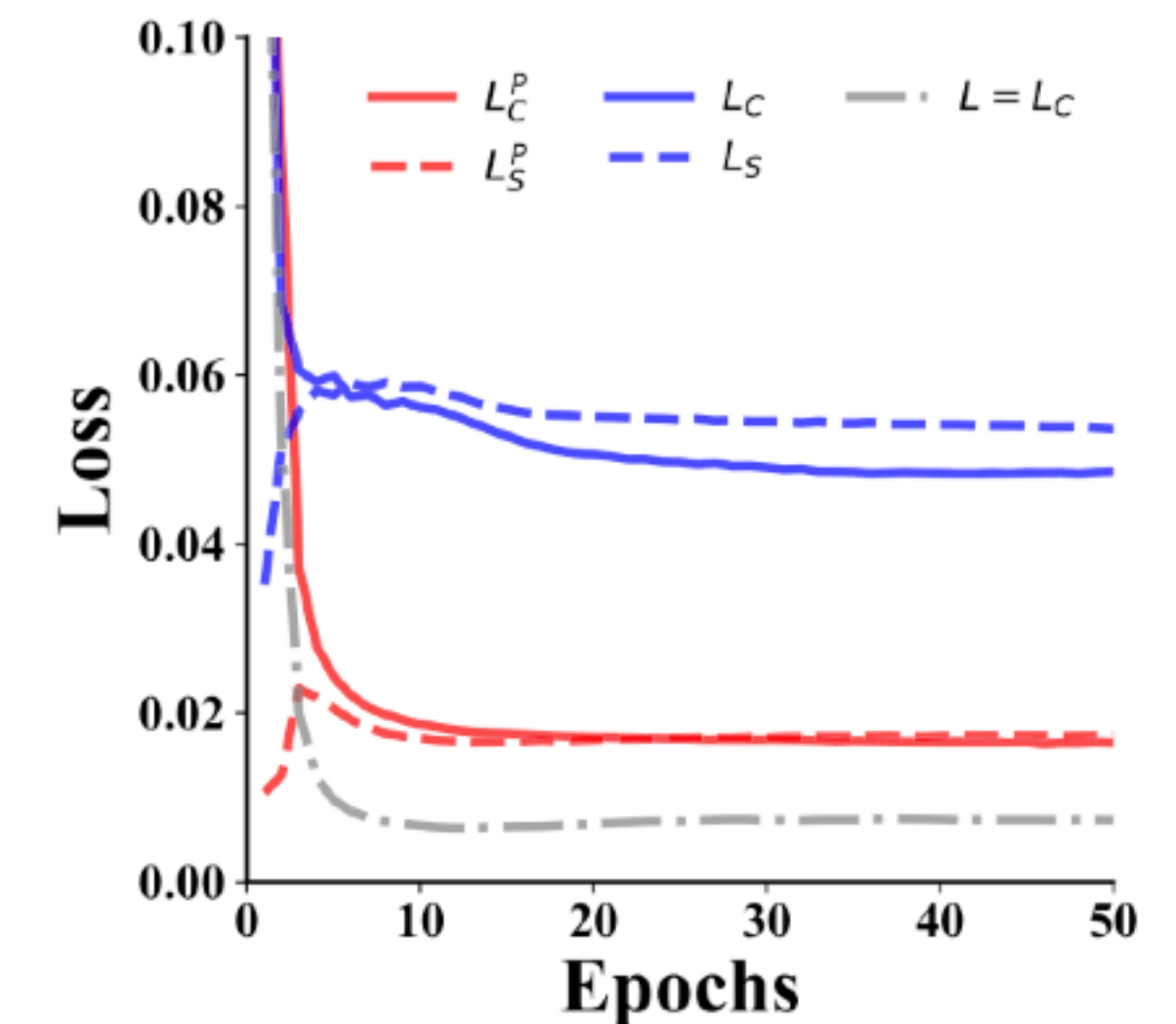


Experiments

Recommendation Performance Analysis–Comparison with Variants of CRIS

- Training convergence for each loss in CRIS and CRIS^{reg} along with consumption-based loss ($L = L_C$) that is optimized without the ISS-based loss (CML).
- We can observe that losses of CRIS converge at a lower point than those of CRIS^{reg}, which means the prototypes are indeed helpful to reduce the conflict between L_C and L_S .

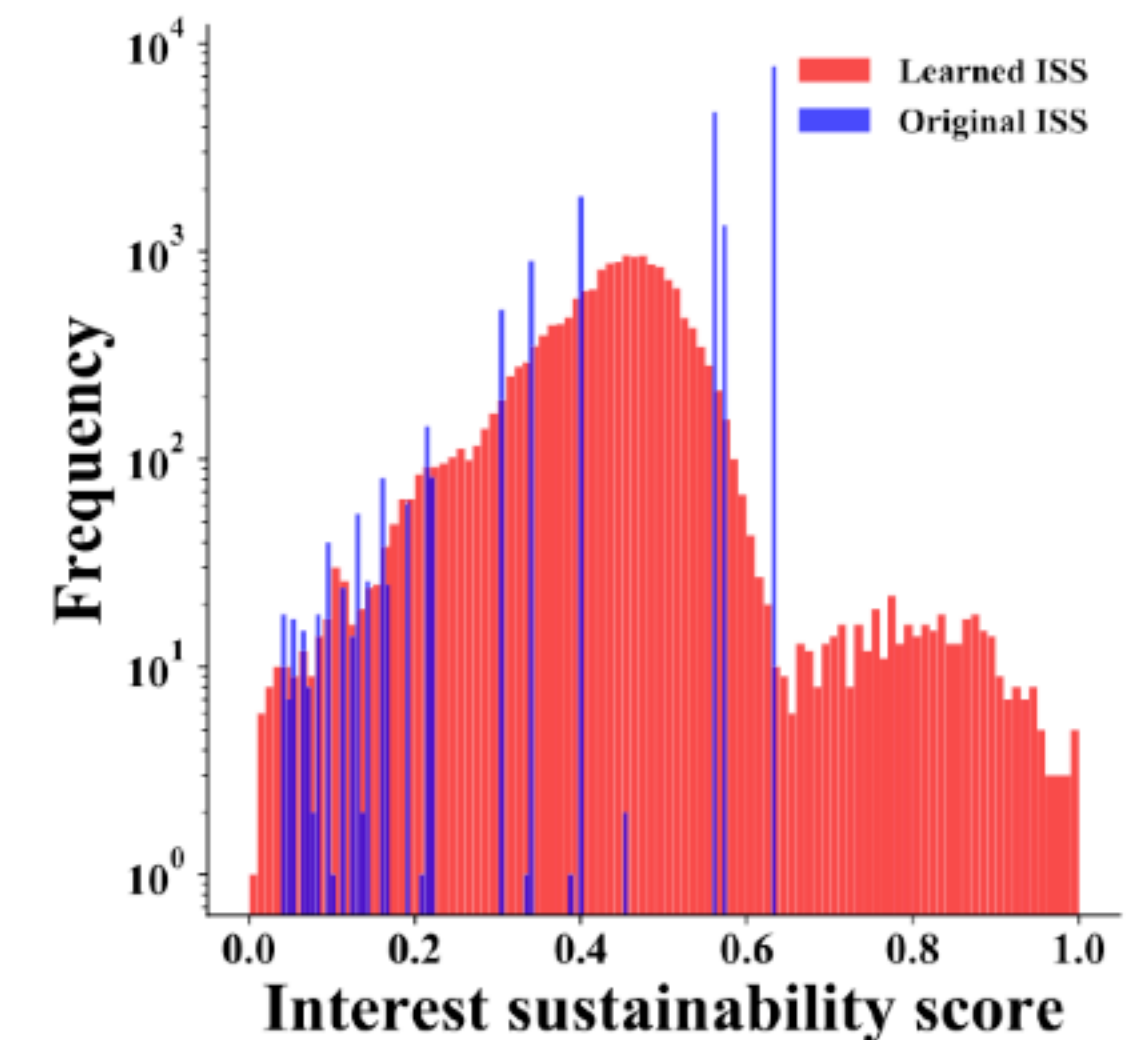


(a) Convergence comparison of CRIS, CRIS^{reg}, and CML.

Experiments

Recommendation Performance Analysis–Comparison with Variants of CRIS

- In Fig(b), compare the original ISSs (p_i) and the ISSs learned by CRIS (\hat{p}_i).
- To obtain \hat{p}_i , first compute the distance $d(S, T_{u,i})$ between the S (interest-sustainability prototype) and $T_{u,i}$ (all pairs of users and items).
- Then average the distances for each item and take min-max normalization on the averaged distances for items to ensure within $x_i \in [0,1]$.
- Lastly, take the complement of the values ($\hat{p}_i \leftarrow 1 - x_i$) to obtain the ISSs learned by CRIS tend to follow the original ISSs, but smoother than the original.
- Conjecture the original ISSs can be inaccurate, thus consequently CRIS learns to reduce the noise. Therefore, CRIS is more robust to the the noise of the ISSs than the CRIS^{wt}.



(b) Histogram of original and learned ISSs.