HiSeR: Hybrid Item Encoding for Transformer-based Sequential Recommendation

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***Abstract*— Sequential recommendation systems play a crucial role in predicting the next item a user is likely to interact with. Although recent models have achieved remarkable progress in modeling interaction sequences, their ability to exploit and integrate semantic information from user reviews remains limited. Moreover, effectively incorporating these heterogeneous features into a unified representation for sequential modeling remains an open challenge. In this study, we propose HiSeR: Hybrid Item Encoding for Transformer-based Sequential Recommendation that introduces a novel approach to multimodal information fusion. Unlike prior methods, HiSeR employs a Hybrid Item Encoder capable of deeply synthesizing features from both item IDs and textual reviews, resulting in rich and unified semantic representations for each item. These hybrid representations are then fed into a Transformer-based sequential encoder to model the temporal dynamics of user preferences. Extensive experiments on Amazon Product Reviews dataset demonstrate that HiSeR significantly outperforms several state-of-the-art baselines, confirming the effectiveness of the proposed multimodal fusion strategy in enhancing sequential recommendation quality.**

***Keyword*— sequential recommendation, hybrid representation learning, transformer-based modeling, review-aware embedding.**

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