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MIP-GAT: A Multi-Task Interactive Graph Attention Network with Position Encodings for Joint Sentiment Classification and Emotion Recognition

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Abstract

Sentiment and emotion embody intrinsic experience of human cognition, both of which profoundly influences cognitive processes in humans. The commonality between sentiment and emotion leads to a fact that sentiment classification and emotion recognition are two correlated tasks in cognitive science and artificial intelligence. One task improves its performance by leveraging similarities and differences across tasks. However, recent works have often treated them as two separately different tasks, where their commonalities are largely neglected. To fill this gap, we propose a multi-task interactive graph attention network with position encodings, termed MIP-GAT. The main proposal is a multi-interactive graph layer where syntactic dependency connection, cross-task connection and position encodings are constructed and incorporated into a unified graphical structure. Empirical evaluation on two benchmarking datasets, i.e., CMU-MOSEI and GoEmotions, shows the effectiveness of the proposed model over state-of-the-art baselines. In addition, we also explore the superiority and limitations of the proposed model.