World Academy of Science, Engineering and Technology
International Journal of Cognitive and Language Sciences
Vol:17, No:11, 2023

Research on Knowledge Graph Inference Technology Based on Proximal Policy Optimization

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Abstract : With the increasing scale and complexity of knowledge graph, modern knowledge graph contains more and more types of entity, relationship, and attribute information. Therefore, in recent years, it has been a trend for knowledge graph inference to use reinforcement learning to deal with large-scale, incomplete, and noisy knowledge graphs and improve the inference effect and interpretability. The Proximal Policy Optimization (PPO) algorithm utilizes a near-end strategy optimization approach. This allows for more extensive updates of policy parameters while constraining the update extent to maintain training stability. This characteristic enables PPOs to converge to improved strategies more rapidly, often demonstrating enhanced performance early in the training process. Furthermore, PPO has the advantage of offline learning, effectively utilizing historical experience data for training and enhancing sample utilization. This means that even with limited resources, PPOs can efficiently train for reinforcement learning tasks. Based on these characteristics, this paper aims to obtain a better and more efficient inference effect by introducing PPO into knowledge inference technology.

Keywords : reinforcement learning, PPO, knowledge inference
Conference Title : ICSLP 2023 : International Conference on Speech and Language Processing
Conference Location : San Francisco, United States
Conference Dates : November 06-07, 2023