

Learning Cognitive Agent-driven for Graph-aware Communication and Double Reward Path Finding Models

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Abstract

Cognitive agent-driven path planning is an interesting task. Inspired by deep learning and stochastic strategies, we propose a Stochastic Policy and Locally Observable model for cognitive-agent path finding (SPLO). First, we propose a method to use feature dimension to resolve the over-smoothing problem by reducing the correlation between feature dimensions. Then, we introduce a novel sparse reward function to encourage agents to explore promising paths. This function provides intensive rewards without requiring the agent to strictly adhere to the global plan at every step. Finally, we design a flexible stochastic strategy to update and train the model. The stochastic strategy uses alternating training between the value function and the policy function to speed up learning and prevent the strategy from prematurely converging to the local optimal value.