

Deep Reinforcement Learning with Leonard-Ornstein Processes Based Recommender System

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Abstract : Improved user experience is a goal of contemporary recommender systems. Recommender systems are starting to incorporate reinforcement learning since it easily satisfies this goal of increasing a user's reward every session. In this paper, we examine the most effective Reinforcement Learning agent tactics on the Movielens (1M) dataset, balancing precision and a variety of recommendations. The absence of variability in final predictions makes simplistic techniques, although able to optimize ranking quality criteria, worthless for consumers of the recommendation system. Utilizing the stochasticity of Leonard-Ornstein processes, our suggested strategy encourages the agent to investigate its surroundings. Research demonstrates that raising the NDCG (Discounted Cumulative Gain) and HR (HitRate) criterion without lowering the Ornstein-Uhlenbeck process drift coefficient enhances the diversity of suggestions.

Keywords : recommender systems, reinforcement learning, deep learning, DDPG, Leonard-Ornstein process

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