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## Game Recommendation Base On Deep Clustering

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Information overload widely exists after the Internet age came. As the entertainment industry booming, when users are facing massive game resources, the information overload problem was brought to the forefront under the circumstance. So far, the research concerning game recommendation most relies on the users-Profile based recommendation, like games tags from users, or users chronological behavior or history, or user collaboration recommendation, etc. However, the similarity calculation base on the game itself is absent. Therefore, in this research, we will dig more on the attribution of games itself, and evaluate the performance of the recommendation system, which calculate by the new representations from data.

In this study, we acquired 4000 game fragments, attempt to build one Recommendation System to improve the accuracy of game recommendation. The experiment tried to explore a potential method to measure the distance between various articles under content-based recommendation.

The whole Recommendation System in this research base on the content-based recommendation. Typically, the content-based recommendation has a positive consequence. Moreover, it would not face the "content-cold start" problem. There are two sections in this recommendation structure. The first data management section would use frames from games to trained one deep learning neural network for visual representations extraction and build recommendation database. Then aim to speed up the recommendation part, the research would use a clustering method to manage data into a recommendation database. In the second recommendation section, the well-trained model would use to extract the input of users which is the games playing by user in real time. Then the recommendation system would calculate top-N candidates for recommendation list according to the input of users.

The experimentation result indicated a stable consequence of the Recommendation System. Most recommendation lists demonstrate that the Recommendation System would capture the visual representations of frames precisely from users' input frames with quick response. The research described a solution for solving the information overload issue in-game areas. It took the frames and scenes from games as a unit, instead of the conventional way of whole games as a unit for various games' similarity calculation. The research proved the practicability of the Recommendation System from the visual impact. Furthermore, it uses a deep learning method for exploring the new data representations from games to measure the similarity between various games. The research could effectively enhance user stickiness and create more value for the game platform.