A Comprehensive Survey on User Cold Start Solutions in Video Recommendation Systems with Future Research Directions

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Abstract:
With the exponential increase in video content across digital platforms, intelligent video recommendation systems have become essential for enhancing user experience and platform engagement. A challenge that limits the efficacy of such systems is the user cold start problem, which occurs when new users join the platform without sufficient historical data for accurate preference modeling. To address the issue, researchers have proposed a variety of strategies that span deep learning architectures, clustering-based methods, collaborative filtering techniques, graph neural network models, and hybrid frameworks. The survey categorizes and critically analyzes existing user cold start video recommendation models within these five major domains. Each method is analyzed based on its core techniques, implementation tools, performance assessment metrics and effectiveness in cold start scenarios. Besides, the research gaps along with the future scope for all the categories of the user cold start video recommendation system.

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