

Influence in complex networks: Predicting churn in mobile gaming

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Abstract

Social networks have been shown to enhance the player experience in online games and to be greatly important for the players who often build complex communities. In online and mobile games, the behavior of players is bursty, meaning they may play very intensively for a short time and then quit playing all together. Such players are known as churners.

In the literature, several attempts have been made at predicting player churn in various types of online and mobile games. The methodology typically depends on engineering representative and useful behavioural features from the games' player logs, and using them as input in supervised machine learning models. The most commonly used features for churn prediction describe players' behaviour and performance, but in addition, social interaction features, cognitive psychological features and influence features have shown to improve the performance of the models.

Based on our previous research on customer churn in the telecommunication industry, information from social networks provides alternative and significant information when predicting churn. However, the importance of networks has not been fully researched in the mobile gaming industry.

In this research, we study player churn in a mobile game with one-versus-one matches. We build two types of networks based on how two players are matched and train churn prediction models with features extracted from the networks. Our goal is to evaluate whether information from the two social networks enhances the predictive performance of player churn prediction models. According to our results, there is considerable added value of including network variables. The results give an indication of which aspects of game playing are associated with churn and allow us to study influence and social factors in mobile games.