

Kristian Wahlroos

Project in practical machine learning

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DOTA 2 - predicting the match outcome

DOTA 2 or *defence of the ancients 2* is a very popular game for PC. Its genre is multiplayer online battle arena (MOBA) and the basic objective is to form teams of 5 that compete against each others in real-time by trying to destroy other teams structures and the whole team. One very vital part of the game is the pre-game phase, where players form 5 member teams by choosing a heroes from the available pool of 113 playable heroes¹. The synergy between heroes can greatly affect the outcome of the game and that is why this project focuses on trying to predict the outcome of a match given hero selections.

Why?

The topic is interesting because the result could be generalized into other games, where there are following attributes: player controlled agents, agents that are distinguishable of each others (they play differently) and clear outcome of one match (win/lose). DOTA 2 by itself is also a very competitive game where monetary prizes of winning at pro level are big (e.g. the international tournament prize pool was 20 million dollars²), so that creates another interesting aspect for predicting the outcome of the games.

I have chosen this topic mainly because the game is familiar to me and the importance of hero choices are well-known to me. Also getting data is quite easy and I can imagine that there is a good bit of challenge on prediction accuracy because the game itself is a very complex that requires some time to learn. I already found some recent papers about the topic so there is definitely some scientific interest in this topic.

How to get the data?

The maker of the game Valve has public API that I have used to gather over 1000 high level matches. I'm going to filter that data and do some data enrichment by combining the match data with player specific data from OPENDOTA³ that offers API with more verbose data.

¹<http://dota2.gamepedia.com/Heroes>

²<http://www.dota2.com/international/overview/>

³<https://www.opendota.com/>