**League of Legends Match Outcome Prediction using Deep Learning Techniques**

James Ting

May 22, 2020

**Introduction**

League of Legends is a popular and competitive Multiplayer Online Battle Arena, where 2 teams of 5 players compete to destroy the enemy Nexus (Figure 1a & Figure 1b). Each player controls a champion (a character), and to win, the team must destroy a series of enemy turrets, invade the enemy base, and destroy the opponent’s Nexus.

As the players play each match, their champion will level up and earn gold, which the player can then exchange at the shop for items that can strengthen each character. Players also earn gold from: kills, killing sprees, enemy minions, and neutral monsters.

Throughout the map, there are buffs that each team can earn by killing neutral monsters. These neutral monsters also provide gold to the player who earns the kill, which allows the players to obtain more items.

League of Legends has, at the time of writing, approximately 120 million monthly players. Furthermore, Riot Games (the company behind the game) has an API that anyone can use in order to pull data about any player, and their match history. As such, there is a massive wealth of data that is available and makes it perfect for a machine learning project. **In this project, I will use a binary classification neural network to predict match outcomes on two types of data: pre-match data and post-match data**. Pre-match data will be data that is available prior to the start of the match, and post-match data will also include each player’s performance data for this specific match.

**Data Collection**

**Data Preparation**

**The Network**

**Results**

**Conclusion**



Figure 1a. Summoner’s Rift Map. The 2 Nexus’ can be seen in the top-right and bottom left corners of the map



Figure 1b.: The blue team Nexus(Nexus, 2020)

**References:**

League of Legends Wiki. 2020. *Nexus*. [online] Available at: < < <<https://leagueoflegends.fandom.com/wiki/Nexus> > [Accessed 22 May 2020].

League of Legends Wiki. 2020. *Summoner’s Rift*. [online] Available at: < <<https://leagueoflegends.fandom.com/wiki/Summoner's_Rift>> [Accessed 22 May 2020].