

Simulating a Sports Game

Supervisor: Igor Kulev
igor.kulev@epfl.ch

November 29, 2017

1 Overview and Goal

Sports games attempt to model the characteristics required by that sport, such as speed, accuracy etc [1], and attempt to reproduce the true dynamic of the sport. Besides providing hours of fun for the sport fans, sport games could provide a better insight into the behavior of the players and could be used to predict the outcome.

The aim of this project is to create a sports game simulator based on historical sports data. The simulator should produce simulations consistent with the real data. For this purpose, you will build deep learning models based on Recurrent Neural Networks (RNNs) [2]. More concretely, we are interested to model the sequence of events that happen during the game [3, 4]. As a part of the project, you should define some parameters for the players, such as their strength, and the simulator should produce meaningful results when these parameters are changed before or during a simulation. One of the challenges in this project is that the time distance between the events is not uniform.

2 Required Skills

- Familiar with Machine Learning and Probability
- Experienced with Python

References

- [1] “Sports game,” accessed: 29 November 2017. [Online]. Available: https://en.wikipedia.org/wiki/Sports_game
- [2] “Understanding lstm networks,” accessed: 3 October 2016. [Online]. Available: <http://colah.github.io/posts/2015-08-Understanding-LSTMs/>

- [3] "Football report," accessed: 29 November 2017. [Online]. Available: <http://www.uefa.com/uefachampionsleague/season=2017/matches/round=2000787/match=2019641/postmatch/commentary/index.html>
- [4] "Handball report," accessed: 29 November 2017. [Online]. Available: <http://statistics.eurohandball.com/reports/report.ashx?typ=scout&m=201711020107004>