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RESEARCH ARTICLE

Rethinking Audience Clustering in Sports Market using Gossip Protocol

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Abstract – Analytics and inferences have found their place in all the business domains varying from large-scale businesses with criticality to small scale business with less criticality. Sports are considered to be big business in its aspects like amount of money spent on it but in its other version like number of people associated with it, it is comparatively a small industry. Sports analytics have changed their dimension both in the manner they are thought about and number of participation from scientific society that grew over the years. Contribution from analytics is being looked from by sports management to enhance various industries associated to it. The authors realize that sports industry is a close, strongly connected group that is very similar in its behavior to a social network. The authors propose a graph theoretic model in context of sports analytics that presents preliminary study of using gossip protocol for sharing information among members of sports oriented social network.

Index Terms – Clustering, Gossip Protocol, Sports, Social Network.

1. INTRODUCTION

This Analytics and inferences have found their place in all the business domains varying from large scale businesses with critical impact like health and finances to small scale business with less criticality like online stores and content writing. Sports are considered to be big business in its aspects like amount of money spent on it but in its other version like number of people associated with it is comparatively a small industry [1,2]. In both the versions of game; analytics find an important place to improve the notion of sports. The sports data analysis has been very exotic field for statistics community and has attracted lot of sports professionals across the globe including both the management and players which dates back to 1870s when first boxscore in baseball was recorded [3]. Inclusion of latest technological trends like data mining and machine learning to process data has facilitated draft selection, game-day decision making, and player evaluation in sports analytics to a new level [3,4,6]. The rules of the game are rapidly adapting to new strategies that have direct references to data and ability to analyse that data.

Sports analytics have changed their dimension both in the manner they are thought about and number of participation from scientific society that grew over the years. MIT sponsored leading conference "MIT Solan Sports analytics conference" has seen emergence in participation from mere 175 participants in 2007 inaugural session to 4,000 attendees in year 2016 [7]. Lucey et al, in 2016 attests the increasing popularity of intelligent sports analytics and specialized workshop series in their work published in KDD titled Large Scale Sports Analytics [8]. The amount of data generated in various kinds of sports results in need to address the issues of sports data analysis where machine learning finds its way right deep in the applications. Data from sensors, videos, sports labs, social media, economics, training datasets, historical data etc. all contribute to complexity of analysis [9].

Existence of analytics in all the domains of science has evolved into a whole different group of data science engineers and scientists who find their role in most of modern day industries. They find their place as front office professionals looking to improve and appreciate data trying to enhance performance of sports and team. Various methodologies have been employed from areas of analytics, probabilistic modelling, optimization and choice modelling in application domains of various sports like golf, hockey, football, soccer, motorcycle racing, baseball etc. in context of sports depending on type of sports, data and goal of analysis [5, 6, 10, 64]. Though sports analysis is in its initial stages there already exist diverse set of research application, questions, approaches and data sources. Challenges of standard computation models have been addressed by various scientific communities using methods like deep learning, bayesain networks, neural networks or archetypical analysis methods [64]. However, a vaccum yet needs to be addressed in fields of data preparation, transformation, analysis, visualization and finally gathering inferences from the information.