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Artificial Intelligence in Soccer

In the world of sports, there are often two massively polarized groups who believe very different things about the way sports should function. One group believes that statistics and data should drive decision making, while the other airs on the ‘human’ aspect of the game. The challenge has become connecting the two and making data more human. To do this, several companies have begun to utilize artificial intelligence in their data collection, opening a whole new door into the way that we view the sport as a whole. These new developments span across a number of categories within the sport, ranging from technical (skill) development to tactical analysis of opposition, to scouting new players. There are a variety of ways that this has been done and published, such as streamlining video collection, simulated gameplay and strategy, biometrics, and real-time analytics.

For a long time, the sport has relied on manual data collection. Employees of data companies would receive film and spend their hours clicking buttons on a keyboard for every action to slice film into various categories for the club’s usage. And while we’re probably far from artificial intelligence solving this specific problem, companies and individuals have found ways to automate a variety of processes after the data has been collected. Abhishek Sharma, for example, write an article on ways to synthesize match footage with event data, and curate specific playlists using code. In his article, he shows us an example of how an .mp4 that displays all of one player’s passes from a single half can be created through code (Sharma). This also demonstrates the development of database management within the sport, where analysts are now able to query a database to find clips from a wide variety of specific instances.

One of the more revolutionary ways that artificial intelligence has evolved in soccer is through the ability to simulate outcomes and gameplay. One relatively famous AI company, Deepmind, has been one of the companies at the forefront of this. They’ve been able to create relatively accurate mockups of humans playing the sport, and can simulate a variety of tactics within their small 2v2 model. As this develops, Deepmind believes they might be able to simulate 11v11 tactics and discover more complex versions of the game that look more like chess (“How Deepmind…”). Another company, Statsbomb, has been one of the leaders in data collection for the better part of this century, and their latest innovation, 360 Data, is no different. This data adds context to data points, helping to understand the positioning of players around them and determining expectations or quality based on those extra variables (“360 Data…”).

The final level of artificial intelligence within soccer can be found through companies like Spiideo and AWS (Amazon Web Services) who have both innovated on the biometric and real-time analysis side of the game. Spiideo is traditionally a recording company, selling cameras which use AI to follow the game, but more recently they’ve incorporated software which allows you to analyze in real time as players move with a variety of tracking capabilities (“Analysis”). AWS has done similar with the German Bundesliga, giving the fans more real-time analysis on their screen, and transforming the viewer experience. They do this through biometric data, such as sprint speed or distance covered, and other statistics such as ‘Expected Goals’ on shots (“Reinventing Game Day…”).

All of these topics are related to the material taught within MIS 2502, but maybe the most applicable is the work done by Abhishek Sharma on streamlining video collection. His work is done in Python, a language that is taught within the class, and it focuses on accessing a variety of databases. To do this, an understanding of relationships between the databases is needed along with the knowledge of how to effectively manipulate code to generate the solutions you’re looking for. That idea also plays into the rest of the topics as well and the way that they related to this course: an ability to manipulate circumstances to create what you’re looking for. Statsbomb data is useless without the ability to apply it to the situation you’re looking for, similar to the real-time data given by AWS and Spiideo.

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