

Media Analytics

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In our lecture Dr Suzanna Little came in to talk to us about media today and specifically media analytics. She talked about the uses and benefits of analysing media and also the challenges faced in regards to this.

What is media?

Media comes in many forms, for example images, audio, and video. These typical modes of media are what we all experience everyday but games and animation are also included in the wider umbrella of media. Media refers to objects or documents that carry information. It is through different mediums such as youtube videos, audio files and blog posts that we perceive media itself. Then we have different modes for understanding this information, such as hearing for audio files and music, and sight for videos and images.



What is media analytics?

Media analytics is using different forms and media and analysing them to gather information, which can be used for a lot of different applications such as medical use, security, and collecting analytics e.g. tv ratings, social media influence, etc.

Analysing media has a lot of benefits, especially in our technologically advancing society today, but also has its own challenges. For example, when analysing visual media, we need to understand the difference between visual and semantic similarity. Different images could look the same but have completely different meanings behind them, and vice versa - different images could look different but actually be describing the same thing.

- For example these three images, look similar yet describe completely different things.

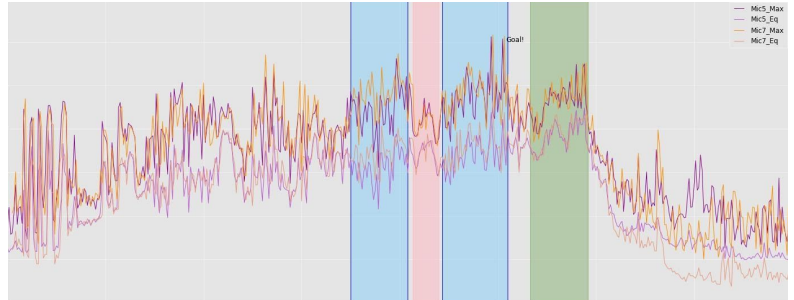


Smart Stadium project

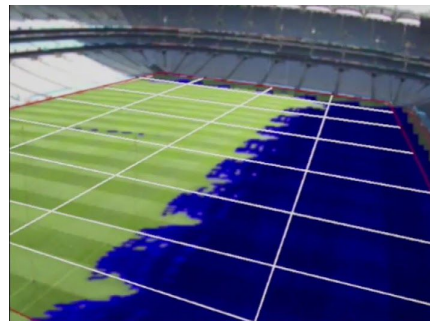
A big use for media analytics is the Smart Stadium project in Croke Park. Essentially, Croke Park is at the moment being used as a “testbed” for sensors and different IoT technologies.

Some of the applications in use currently in Croke Park include:

- Analysing noise levels at matches - multiple mics around the stadium output the noise level in dB, which is then processed to increase the accuracy of the data.



- Monitoring grass growth - collecting images of the pitch and analysing them, monitoring light levels and water on the pitch. Image processing of the pitch to define light and shade regions on the pitch helps understand how the grass is growing and helps with maintenance of the pitch.



Teaching computers to “see”

Teaching computers how to effectively analyse images and understand what they are seeing is an important aspect of the Smart Stadium project and is useful for other applications also such as smart cars, movement of crowds, and identifying objects.

One of the big challenges in regard to this is the fact that a lot of input data is required before computers can even start understanding visual media effectively. This challenge in particular has been mitigated immensely in recent years due to the rise in deep learning mechanics and optimization of “big data” collection, and because of this improvements have been made and now using computers to analyse images is much more commonplace.

Deep Learning and Big Data

Deep Learning is a form of machine learning, and uses neural networks to process a huge amount of data. Through this process it is possible for computer to effectively "learn" to do certain things, by complex algorithmic processes generated by feeding a neural network lots of input data.

Deep Learning has progressed so much in recent years because in increases in powerful hardware and advances in "big data" processing.

"Big Data" is the name for the collection and use of huge amounts of information, which is used in neural networks and analytics. Dealing with this amount of data has been a big issue in the past, but advances in deep learning have helped progress this field, the two fields essentially help to push the other forward.

Big Data is used also in huge technology companies such as Facebook and Google for analytics, advertising and optimizing of their websites and services. For example YouTube uses around 15-20 terabytes of data every single day, so improved technologies for dealing with this data is very important

Final Thoughts

Overall I found Dr Little's presentation very engaging and interesting and her presentation skills were evident throughout. She interacted with the students and didn't just read off the slides like a lot of people presenting fall in to the habit of doing, which helped a lot with keeping the attention of students.

I also found the topics around Deep Learning and the Smart Stadium project in Croke very interesting. It is clear these technologies have a huge impact on our society and will only continue to affect our lives even more as they advance and become more complex and accessible to everyone.