

Game of Thrones Series Visualization

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Problem Addressed

After watching a TV series, the curious viewer often wants to go back and examine details of the series that were especially interesting or unusual. Unfortunately, high-level summaries of a TV series which can guide the user's exploration do not exist. We currently lack standardized methods to expose the inner structure of an animated feature, apart from whatever screen-captured images are generated manually by fans after the screening. Visualization that sheds light on the textual and visual qualities of a TV episode can lend insight into the film's narrative qualities, such as the arc of a storyline or the development of a character. Even better is a system that allows the viewer to compare multiple TV episodes at once, which reveals key similarities and differences across episodes in a series. Fundamentally, our project would treat TV series visualization as a multi-layered time series analysis problem to expose the viewer to high-level attributes of the series. We choose to analyze the HBO series Game of Thrones for its wide cultural appeal, acclaim, and interesting use of both both and dialogue.

Data

Description

- **Images:** We use the visual content of the show by representing the video for each episode as a sampling of still frames at a uniform sampling rate (for example, every one second). A typical episode is around 60 minutes, and there are 60 episodes in total, giving us 216K frames in total.
- **Text:** For every episode, we also have the subtitles, providing us with text of the conversations between the characters, but also with useful meta data, like the time of the conversation and the expressions of the characters on the show (e.g *John gets angry*).
- **Network:** From the text data, we also plan to induce the social network between the characters on the show, by using different heuristics like a pair of characters are connected if they co-occur within a certain time period.

Analysis

For our analysis, we plan to extract color attributes from images. By extracting the top colors used each of the frame, we plan to analyze how the color change over the length of an episode, whole season and all seasons. We would also extract sentiment from the text data and visualize it in the same dimensions as the color. By correlating the sentiment with colors, we can get an insight into how scenes with different emotions are created. By using the network connections between the characters we can compare how they are visually and emotionally represented.

Target Audience

The visualization would serve any fan or critic of a series who wants to uncover how a particular part of the show fit into the overarching plot. This is especially applicable since we will make the system interactive, such that fans can zoom in and out of regions



Figure 1: Four scenes from Game of Thrones and their associated color palettes. Color palettes are generated from Python code we wrote and can be modified to produce different palettes with different number of colors.

of interest (e.g. within a season or across multiple seasons) to make “deep dives” in addition to the “big picture” view. The visualization will provide evidence to a fan who wants to make a particular argument about the TV series, such as how a certain season is disliked by fans because of its consistently dull colors. In addition to current fans, the visualization could help future fans decide whether or not to watch the series based on the representative colors or text sentiment.

Conversely, the visualization could also help the TV show’s directors and artists to better understand the big picture behind their day-to-day plans. A new set designer on Season 2 of Game of Thrones, for instance, could use the visualization to get a better understanding of the color scheme of the previous season.

The Big Idea

The main thrust of this project is to find the connection between sentiment and the color palette, without explicitly showing footage or text. For instance, do we tend to see a specific color with negative sentiment? We also aim to do this analysis at different levels of temporal granularity, namely the within each episode, each season and the series. For example, are the last 10 minutes of each episode, which are often cliffhangers or previewing the next episode, characterized by a certain sentiment or color? We frame this as an exploratory time series analysis where a fan can pick out high level trends.