

On Director Jia Zhangke's Style from the Perspective of Cinematics

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Abstract: Driven by the trend of big data technology and digital humanities, quantitative research methods combining metrology, statistics and theory of film study have emerged in the world. The emergence of cinematics not only breaks the problem of narrow research horizon, but also provides a more accurate, more systematic, and more objective film analysis model, which brings a new paradigm to the traditional film and television research. With the help of "ysjl", a film and television measurement and analysis tool developed by the team of film and television quantitative analysis of the School of Humanities of Tiangong University, the author visualized the data of recent film works directed by Jia Zhangke, and analyzed their style characteristics, rhythm changes and spatial feature. combined with relevant film theories.

Keywords: Digital humanities, Cinematics, Jia Zhangke's movie, Data visualisation

1. Research background of cinematics

The relevant theories and methods of quantitative analysis of film and television originated in Britain and the United States. Driven by big data, the quantitative analysis of film and television focuses on the combination of metrology, statistics and theory of film study, bringing a new perspective to traditional film research. Based on the film itself, cinematics aims to sequence the gene of films in different historical stages, different countries (or regions) and different directors. On this basis, through the method of comparative research, it can find various constants and variables, so as to provide new methods and viewpoints for understanding the changes of form characteristics in movies and different directors' styles. [1] At present, under the new wave of big data and digital humanities, the relevant research of cinematics has emerged in the world. Barry Salt published the article "Statistical Style Analysis of Motion Pictures" in 1974, which marked the birth of cinematics, [1] the he successively published works such as "Film Style and Technology: History and Analysis"(2009)", "Moving into Pictures: More on Film History, Style, and Analysis", which have become models of quantitative analysis on movies. However, most of the films analyzed by cinematics in the world are European and American films, and the number of Chinese films is very small. The research on cinematics in China is still in its infancy. There were, of course, some acute explorers first pointed out that "the film and television quantitative analysis" has great application value, including changing the film and television research paradigm, innovating film and television teaching methods, and boosting the development of film and television industry.

In terms of the construction of big data platform for film and television elements, there are many network platforms represented by "Cinematics" in the world. "Cinematics" is a platform jointly created by Yuri Tsivian and Gunars Civjans of the University of Chicago. (Fig. 1) As an open co-construction and sharing platform, Cinematics so far has collected the file elements of more than 20000 films around the world, most of which are uploaded voluntarily by global Internet users. [2] After searching and studying the existing data, the author found that the films collected by the platform does not involve Chinese films, and the measuring and statistical tools provided by the platform had defects such as low accuracy and single parameters. Therefore, the author joint teacher Yu Nengbao of Media Arts Department of Tiangong University developed China's first film and television measuring analysis tool "ysjl" (Fig. 2) The following data are from the software.

Figure 1: The home page of Cinemetrics

Figure 2: The home page of YSJL

2. Research value of cinemetrics

As a new way of film style research, cinemetrics provides a tool for data visualization, opens a theoretical vision for expanding the research on Film Ontology, and realizes the academic model of data sharing and interdisciplinary integration.^[3]

Firstly, film and television cinemetrics analysis is based on the film itself, and the research on film style and form is the current main research direction. This happens to make up for the lack of Film Ontology Research in academic circles and break the problem of narrow research horizon. Since the 1960s, the discussion of film has gradually tended to the research of film content. For example, psychological and sociological theories such as feminism, psychoanalysis theory and semiotics have been widely used in the field of film research, resulting in the loss of film ontology research. Cinemetrics is the answer to the essential question of "what is film". How to break through the style and form research and combine the digital measuring and statistical tools with the film theory research is the next problem that needs to be solved urgently.

Secondly, film and television cinemetrics analysis improves the accuracy of film style research and breaks the limitations of previous subjective assumptions. In the past, the style of a film can only be determined by personal subjective impression, which has strong non-objective views. Through big data analysis, cinemetrics provides a more accurate, systematic, and objective film analysis model, offering a new paradigm for film creation practitioners, and is conducive to the innovation on the shoulders of

predecessors in academic circles. Therefore, cinematics is of great significance in professional teaching and industrial production.

Finally, cinematics not only realizes the interdisciplinary integration, but also reduces the distance between film scholars and film lovers, and uses the big data platform to create an open, shared and cooperative film research atmosphere. In the past, film scholars were trapped in a closed academic circle due to the excessive protection of intellectual property rights. The emergence of film and television cinematics analysis platform and the opening of co-construction and sharing mode have greatly reduced the distance between scholars and enthusiasts, which can effectively help many scholars broaden their research horizons and communicate with the public, and then form a community of interests together.

3. Visualization model of Jia Zhangke's film structure

A film usually has three levels of data: ① film content; ② form elements (length, shots, etc.); ③ external industry (film review, box office, etc.). The related research of film content and external industry data is very common, but the audio-visual elements constituting the film are rarely mentioned. With the help of data visualization, cinematics provides a path for us to further study movie noumenon. The author takes the recent films of director Jia Zhangke as the research object and manually marks the single scenes in "Mountains May Depart"(2015), "Ash Is Purest White" (2018) and "Swimming out till the Sea Turns Blue" (2021) with the help of "YSJL", the first film and television quantitative analysis tool mentioned above. A series of data, such as, camera angle, scenes arrangement, moving lens, shot length and editing data are calculated by the software, and then the author uses the obtained data to make charts.

3.1 Style characteristics of shot length

Shot length refers to the length of time of a single shot, usually in seconds. Average shot length in seconds (hereinafter referred to as "ASL") refers to the quotient obtained by dividing the total film length (in seconds) by the total number of shots.^[4] Average shot length is most commonly used to describe the shot cut frequency (i.e. clip rate). If the ASL value is low, it means that the clip rate is high, and vice versa. However, in some films, the length of a single shot is too long, and the length of other shots is less than ASL. It can be seen that long shot will affect the accuracy of ASL, so ASL is not the only way to determine the style characteristics of the film. When the above situation occurs, it can be considered to compare the length of ASL with that of the middle shot length for comparative research. The middle shot length in seconds (hereinafter referred to as "MSL") is the intermediate value when arranging the shot length data according to the order of length. When there are outliers in a set of data, it can more accurately describe the shot length distribution of the film.

The author made a numerical table of the "Shot Length of Jia Zhangke's film" based on the statistical analysis data of clips. As the data was calculated systematically and relatively accurate, the author kept the data to two decimal points (see Table 1).

Table 1: *The "Shot Length of Jia Zhangke's film"*

Film title	Mountains May Depart (2015)	Ash Is Purest White (2018)	Swimming out till the Sea Turns Blue (2021)
Total Duration (seconds)	7296.84	7707.72	6380.48
Number of lenses (PCS)	300	206	462
Average shot length ASL (seconds)	24.23	37.42	13.81
Middle shot length MSL (seconds)	14.66	20.2	8.54
Minimum shot length (seconds)	0.24	0.4	0.16
Maximum shot length (seconds)	165.76	586.2	236.76
Clip range (econds)	165.52	585.8	236.6

As can be seen from Table 1, there is a large difference between ASL and MSL in the drama "Mountains May Depart", "Ash Is Purest White" and the documentary "Swimming out till the Sea Turns Blue", indicating that the directors have used a certain long-length shot to express in these three films. This can also be obtained from the relevant data of "clip range" in the table. The clip range is the

difference between the minimum shot length and the maximum shot length in seconds. The larger the clip range, the longer the duration of long-length shot in the film. According to Table 1 and Figure 3 "Time Distribution Diagram of the Lens of 'Ash Is Purest White'", the director made a long-length shot of 9 minutes and 46 seconds in the film, which is the highest point in Figure 3.

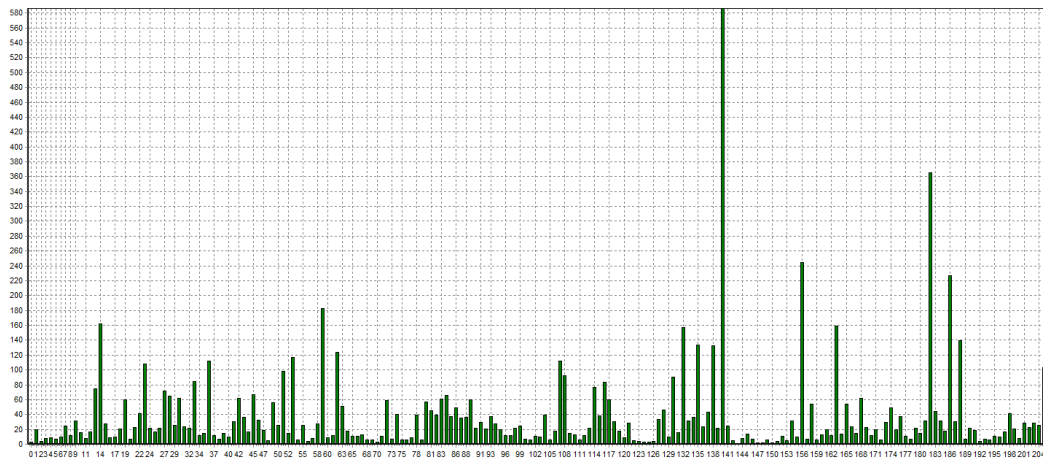


Figure 3: Time Distribution Diagram of the Lens of 'Ash Is Purest White'

The scene shows a conversation between Qiao Qiao and Bin in a hotel room when they come to Fengjie. In this regard, the director took the long shot at one go. The long shot of nearly 10 minutes contained various camera movements such as tracking shot, panning, moving angle, tracking right, tillign up, and snapshot. The scene scheduling and picture composition of the whole paragraph were completed by combining the two actors' walking from the bed to the window and then to the brazer. There are crying and silence in the scene, which fully shows the pain and unwillingness of the characters.^[5] Through such a long shot, director Jia Zhangke makes the audience deeply feel the emotional changes between the characters, so as to achieve the immersive effect. On the other hand, it also proves that director Jia Zhangke makes good use of the realistic style of long shot. In fact, Jia Zhangke began to gradually integrate dramatic elements into the film from "Mountains May Depart" to "Ash Is Purest White". For example, at the beginning of "Mountains May Depart", the character's facial makeup at the Spring Festival Gala was exaggerated. Its audio-visual style has correspondingly changed from rough style to poetic lyricism, and is gradually changing from the realism of "Hometown Trilogy" to a new style combining realism, freehand, documentary and lyricism.^[5]

3.2 Rhythmic changes created by moving lens

Rhythm is generally composed of film shot cut frequency, conversation, background music and motion mode of the space, etc. Shot cut frequency is usually expressed as clip rate, that is, the number of shots per unit time (per minute). As can be seen from Figure 4, the clip rate of "Mountains May Depart" and "Ash Is Purest White" is significantly lower than that of "Swimming out till the Sea Turns Blue". The shot cut frequency is relatively stable, and the rhythm of the film is slow, giving people a sense of eloquence. As a documentary, the huge selection of materials and the monotony of interview shot force the director to switch shots frequently to capture the audience's attention.

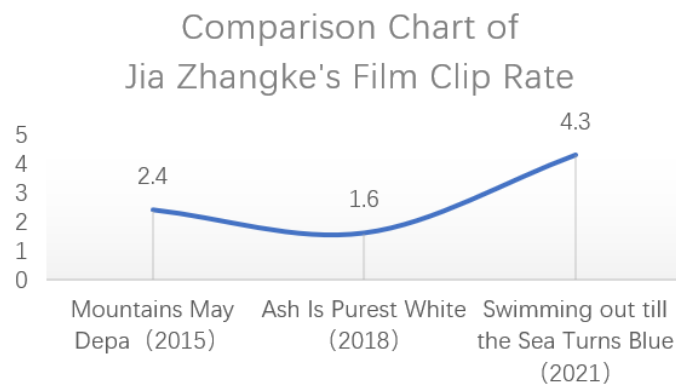


Figure 4: Comparison Chart of Jia Zhangke's Film Clip Rate

In order to match the steady clip rate, Jia Zhangke also used more stable long shots when shooting the film, and expanded the space of scene by zooming in and zooming out. As shown in Figure 5, Jia Zhangke uses a lot of moving lenses such as tracking shot, panning, moving angle, tracking right, tillign up in his “Mountains May Depart” and “Ash Is Purest White” with a total proportion exceeds 50%, which is significantly higher than that of “Swimming out till the Sea Turns Blue”. Among many moving. For example, in the scene of Liang Zi and Jin Sheng meet again in Shen Tao's father's shop after having a violent quarrel in the “Mountains May Depart, the director uses a long lens composed of tracking shot, panning and moving angle to shoot this part, endows the audience with the identity of observer, and vividly expresses the tension in silence between the two people. Another example is the scene of street fighting in “Ash Is Purest White”. As the turning point of the whole film, Jia Zhangke uses a comprehensive long lens composed of moving lenses such as tracking shot, swinging shot and rotating shot to show the chaos, tension, excitement and uneasiness on the scene. When Binbin broke the window and got out of the car to join the fight, the director let the audience deeply experience the action and emotion of his rolling through a long moving angle shot. At the same time, JiaZhangke gave Binbin a sense of mystery through the moving angle shot from behind, which matched with the fighting image of the two punching down each other at the beginning, prompting the audience to have a sense of worship and admiration to the character. When the camera rotates to the front of Binbin, the mystery is broken, and then the plot of being beaten by his opponent is naturally unfolded. In this part, most of the fighting scenes used long-length shot. Until Qiaoqiao shot the gun for the second time, the scene changed into many fixed shots, and the background music also sounded at this time. The combination of the two not only announced the end of the fight, but also rendered the sad emotional atmosphere of the film, setting off the bumpy fate of average people in the big era. As Jia Zhangke said, the average people living conditions in his films are “people who can represent the living conditions of millions of people and express the desires and ideas of ordinary people in this era.”^[6]

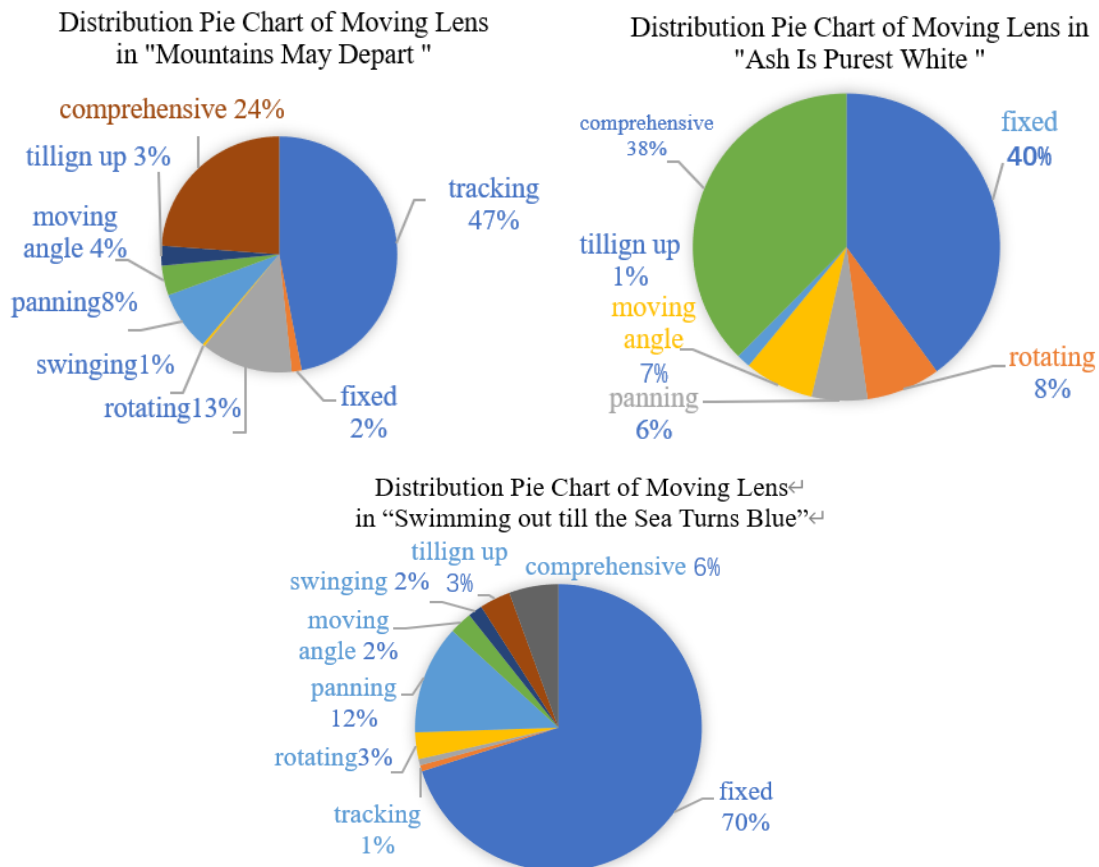


Figure 5: Distribution Pie Chart of Moving Lens in Jia Zhangke's movies

3.3 Image spacing composed of shots from different angles

Shots can be classified according to the distance between the camera and the subject, resulting in the different sizes of the image on the scene. The scene in the film gives the audience the possibility of

imagination, allowing the audience to build the space of the story in their mind according to the two-dimensional space on the screen. Different shots determine what the audience can see and think of, and have a strong guidance of visual direction.

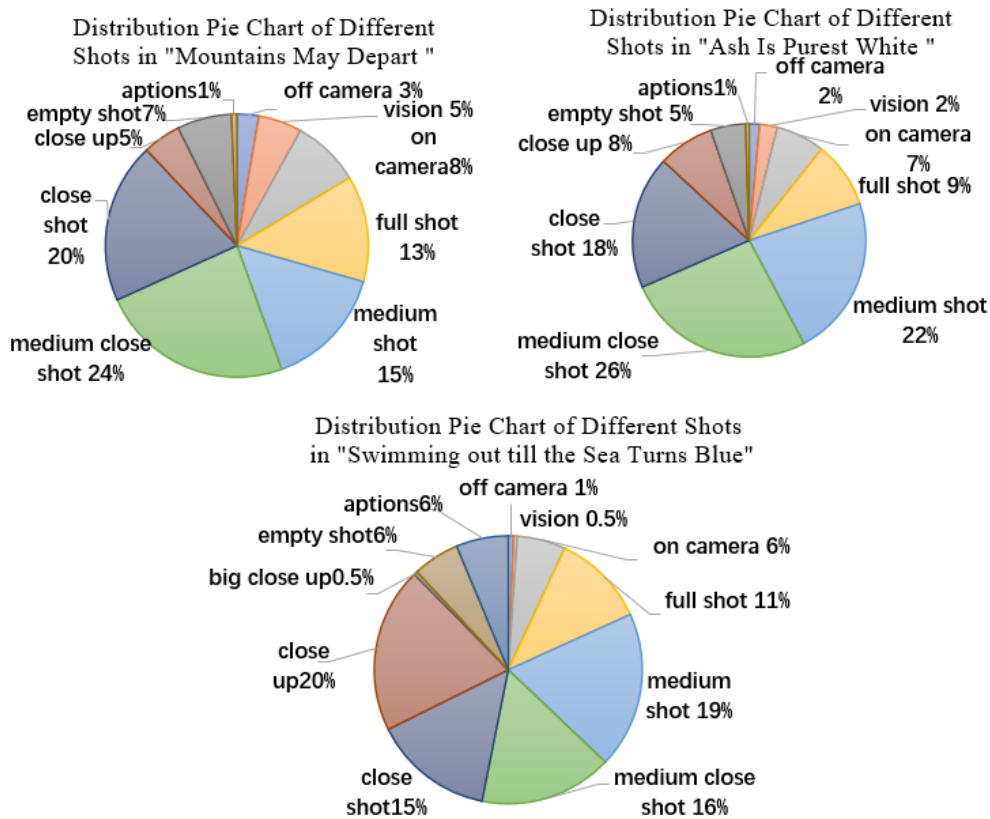


Figure 6: Distribution Pie Chart of Different Shots in Jia Zhangke's movie

From the Figure 6, it is not difficult to find that medium shot, medium close shot and close shot are the most commonly used shots by director Jia Zhangke, accounting for about 60% in "Mountains May Depart" and "Ash Is Purest White". Although it has decreased in "Swimming out till the Sea Turns Blue", the amount still accounts for 40%. Compared with the "Mountains May Depart" and "Ash Is Purest White", we can see that the proportion of different shots is almost the same, and the types are rich, including almost all kind For example, in he part that about Shen Tao's marriage with Zhang Jinsheng in "Mountains May Depart", the director used close-up shot to show Shen Tao's joy after getting his father's consent to his marriage, use full shot to express the father's sadness about his daughter's marriage, the use close-up shot to show Shen Tao holding the hairdressing stick that Liang Zi gave him, and then use the middle view to show the scene of Shen Tao and Zhang Jinsheng taking wedding photos. Through this series of different shots, the director expresses the different emotions of different characters and the complex feelings of the same character at the same time, which not only shape the comprehensive image of the character and promote the rapid development of the story but also better summarize the first half of the film, so as to lay an emotional foundation for opening the second half part of the film story. The sadness of his father echoes the divorce of Shen Tao and Zhang Jinsheng.s of shots. It can be seen that Jia Zhangke is very familiar with the use of different shots. The use of close-up shots has increased significantly in terms of the distribution of different shots of "Swimming out till the Sea Turns Blue". Because the film mostly adopts interview recording, in order to highlight the expression and voice of the interviewee, the frequency of the director using close-up shots has increased significantly, which is matched with the switching use of close-up shots and medium close shots, so as to comprehensively show the interviewee's conversation and avoid the boring picture. In addition, the data label "subtitle" in the chart represents the black field subtitle in the picture. Due to the diversity and complexity of the characters, time, place and other factors that need to be explained in the documentary, we can see that the proportion of subtitles in the whole scene of the former has also increased by comparing the the distribution of different shots of "Swimming out till the Sea Turns Blue"with that of the other two films. The film is divided into 17 chapters. The audience will be prompted in the form of black field subtitles at the beginning of each chapter. Each contemporary writer will also be introduced in the form of black field subtitles, and the classic quotes of writers selected at the end of each chapter will also be displayed

in the form of black field subtitles, which leads to a significant increase in the proportion of subtitles in the film.

Compared with the different shots, the shooting angle of the camera is usually ignored by researchers. Angle refers to the viewpoint of the camera when shooting, that is, the camera viewfinder is used to observe and select the shooting position of the picture during composition. The choice of appropriate angle not only solves the problem of image composition, but also helps the creator express a certain emotional attitude. As shown in Figure 7 "Angle Distribution of "Mountains May Depart", "1" represents depression angle, "0" represents flat angle and "- 1" represents elevation angle. It can be seen from the continuous twists and turns of the red curve in the line chart that the film "Mountains May Depart" has used the downward angle shots for many times. The downward angle shooting has the meaning of derogation and contempt. Combined with the perspective, it can produce a sense of smallness and isolation. The classic usage of this angle in the history of film is the ending lens of "Patton". In the "Mountains May Depart", the director combines the depression angle with the full shot, so as to show the character's heart that there is no place to live in urban and rural areas that are in rapid development of, as well as the weakness of being unable to resist the reality in the torrent of the times.

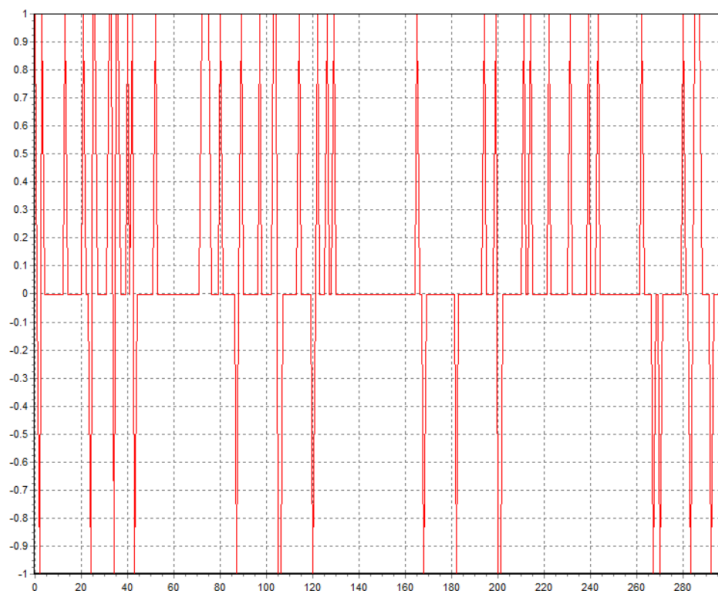


Figure 7: Angle distribution of "Mountains May Depart"

Whether it is "Mountains May Depart" or "Ash Is Purest White", the time span of the film has is about 20 years, and the space span of the film has also traversed many places. "Mountains May Depart" involves cities such as Fenyang, Handan and Australia, while "Ash Is Purest White" involves cities like Datong and Fengjie. The expansion of each region is one part of life. In Jia Zhangke's more than 20 years of directing career, from dealing with the simple relationship between time and space in the past to dealing with the complex time and space nowadays, he has made his own experience into stories and films present in front of the ordinary audience. As he said "After the accumulation of time, time and space will become an unconscious concept in creation".^[6]

4. Conclusion

As a new research method, cinematics helps to expand the research vision of filmmakers, make up for the shortcomings of traditional film and television teaching, promote the visualization of film research and the research based on data evidence, and provide the possibility to understand films and discover the law of creation from a new perspective. It is worth noting that although cinematics analysis is sought after by people at home and abroad, it is only one perspective of film research, not the only one. If we blindly pursue film quantification, it is very likely to lead to the research breaking away from the film itself and film art and becoming data dependent. Huge data support should be integrated with film theory, history and the law of artistic creation in order to give full play to its maximum value. At present, the international cinematics analysis tools are not perfect and can not meet the parameter needs of film research, and there is no systematic statistical tool in China. The YSJM used by the author needs the help of the "Scene editing and detection" function in Adobe Premiere Pro 2021 to export the mark and then

mark it manually. It belongs to semi intelligent software. With the rapid development of science and technology, emerging technologies of artificial intelligence, expression capture and scene detection need to be applied to the field of metrology. At the same time, the establishment of a big data platform for the internal elements of film text is also a basic project for cinematics research. In addition, technological progress continues to transform and reshape people's lives. People need to be vigilant about the addiction of science and technology while using science and technology, and don't forget the simplest way to watch movies.

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