



Research on Farming Culture IP Creation and Rural Revitalization Branding Based on Big Data Mining Algorithm in Integrated Media Environment

Baijing Li^{1,*}

¹ Party School of the CPC Jincheng Municipal Committee, Jincheng 048000, Shanxi, China

SUMMARY: *This paper utilizes text mining methods in the field of big data mining to perform operations such as mining and natural language processing on network texts related to farming culture IP and rural branding. Based on the results of the network text data mining, the image design of farming culture IP and rural branding are explored in the integrated media environment. Audience perception of rural IP image and advertising strategy of rural brand are explored through data mining methods. The order of audience attention to the rural IP image of traditional farming villages in Zhejiang Province from highest to lowest is: rural resources (38.24%), rural atmosphere (29.12%), rural environment (27.82%), and rural activities (4.82%). Rural brand advertising in Zhejiang Province mainly focuses on 3 categories: farming landscape, agricultural products and rural tourism. In terms of media type, it favors mobile placement, with Non OTV and outdoor advertising as the main ones. The advertising forms with the highest placement frequency are full-screen ads (5.47%) and infomercials (5.51%).*

KEYWORDS: *data mining; natural language processing; integrated media environment; farming culture; rural brand IP*

1 Introduction

Farming culture refers to a kind of customs and culture formed by farmers in the long-term agricultural production, centering on the service of agriculture and farmers' own entertainment [1]. Farming culture combines Confucian culture and various religious cultures into one, forming its own unique cultural content and characteristics, the main body includes language, drama, folk songs, customs and various rituals, etc., which is the most widely existed type of culture in China [2-4]. With the development of integrated media and the implementation of rural revitalization strategy, creating farming culture IP and shaping the brand of rural revitalization have gradually become an important way to realize the comprehensive revitalization of the countryside [5, 6].

Farming culture IP creation refers to the excavation, integration and innovation of rural culture, history, geography and other resources to create a rural brand image with unique value and attraction [7, 8]. There exists a close connection between farming culture IP creation and rural revitalization, and the two promote each other, run in both directions, and jointly promote the comprehensive revitalization of the countryside [9, 10]. Farming culture IP creation provides a strong support for rural industrial revitalization, through the creation of farming

*qhjlbj@163.com

<https://doi.org/10.65102/is20261032>

culture IP, it can enhance the brand image of the countryside, visibility, and shape the brand of rural revitalization, thus attracting more tourists and investors to pay attention to the countryside, and indirectly driving the development of rural tourism, agriculture, handicrafts and other industries [11-14]. Farming culture IP can also stimulate the development potential of rural cultural and creative industries and promote the prosperity of rural cultural industries [15]. Branding of rural revitalization provides a broad space for the creation of farming culture IP [16]. In the process of rural industrial revitalization, it is necessary to continuously excavate, integrate and innovate rural culture, history, geography and other resources, which provides rich materials and inspiration for the creation of farming culture [17, 18].

In order to create farming culture IP and shape the rural brand in the integrated media environment, this paper tries to carry out text data mining on the rural brand and farming culture IP related content through the method of big data mining. Based on the mining results, the image design of farming culture IP and the IP-based shaping and marketing of rural brand are carried out. Audience perception of farming countryside IP image is mined through online text data, and rural resources and rural atmosphere with the highest audience attention are analyzed in depth. Taking brand advertising in marketing strategy as an example, we analyze the advertising strategy of farming villages in shaping brand IP by dismantling the advertising category, media type selection and advertising form presentation of rural brands through data mining methods.

2 Web-based text data mining in an integrated media environment

2.1 Natural language processing techniques

The main body of the study of the network UGC data is text data, and the main body of the text data is human language, which is a kind of unstructured data that can't be recognized and understood and calculated by the computer directly, so it is necessary to convert the text data into numerical data in the first place. This requires the use of natural language processing technology. Natural Language Processing (NLP) is an important research in the field of Computer Science and Artificial Intelligence, which is the medium between machine language and human language. Natural language processing tasks can be divided into two parts: natural language understanding (NLU) and natural language generation (NLG) [19]. NLU tasks are mainly text categorization, information retrieval, and information extraction. And NLG tasks include machine translation, summary generation, dialog generation, creative writing, etc.

This study mainly focuses on natural language understanding of collected UGC text data to complete the corresponding text classification and clustering tasks, which belongs to the scope of NLU. The development history of NLU is similar to that of artificial intelligence technology, which has experienced three different historical development periods: rule-based approach, statistical-based approach, and deep learning-based approach. Specifically, natural language understanding technology has gone through the process of rule-based approaches from the 1950s to the 1970s, mathematical statistics-based approaches from the 1970s to the beginning of the 21st century, deep learning-based approaches from 2008 to 2019, and Transformer-based BERT that has emerged in recent years.

2.2 Text representation

In order to realize the conversion of text data to machine language for text representation, word characterization is needed at first. This leads to the concept of word embedding, if the word is

regarded as the smallest unit of the text, Word Embedding can be understood as a kind of mapping, the process is: a certain word in the text space, through a certain method, mapping, or embedding to another (usually lower latitude) numerical vector space. Word embedding can usually be categorized into traditional frequency-based word embedding and prediction-based word embedding.

2.2.1 One-hot coding

Frequency-based word embeddings can be subdivided into the following: count vector Count Vector, TF-IDF Vector, Co-Occurrence Vector co-occurrence vector. All of them are essentially based on the word characterization method of solo thermal encoding [20], supplemented and improved by the weighting method with frequency as the main theme. Unique heat encoding word characterization means constructing vectors of the same length as the word dictionary and arranging all the words in a certain order, where a dimension of the vector that is not 0 indicates the word in that position. That is to say that any word in the vector representation is zero except one of the bits is not zero. Specifically there can be two representations: the Sequential representation, where the corresponding word vectors are spliced together, and the Bag of Words (BOW) method, which calculates the frequency of occurrence of each word in a sentence. The Sequential method has information about word order, but the length increases with the length of the sentence. While the BOW method has no information about word order, but the length is fixed.

2.2.2 Prediction-based word embedding

Word2vec utilizes a neural network to train word vectors [21], and during the learning process, the parameters of the neural network are constantly modified, and finally the learned parameters are obtained as word vectors. The learned word vectors can express the relationship between words and can be used as linguistic features in many applications of natural language processing and machine learning models. Word2vec is divided into two major frameworks in terms of implementation methods: the Hierarchical Softmax model framework and the Negative Sampling model framework. Hierarchical Softmax model framework uses Huffman trees in the learning process, while Negative Sampling employs the strategy of random negative sampling. Word2vec proposes two models: the CBOW model and the Skip-gram model, to learn high-quality representations of word vectors from a large amount of unstructured textual data. The CBOW, Skip-gram model is shown in Figure 1.

GloVe is a model for efficiently learning word vectors proposed by Pennington et al. It is an extension of the Word2vec method, which implements word characterization based on global word frequency statistics, combines the advantages of global co-occurrence of matrix decomposition with the semantic advantages of local window context (Word2vec), and learns embeddings by dimensionality reduction of co-occurrence count matrices, which is useful in tasks such as analogies, word similarity and NER, which performs well on tasks such as analogies, similarity and NER, and significantly improves NLP downstream tasks.

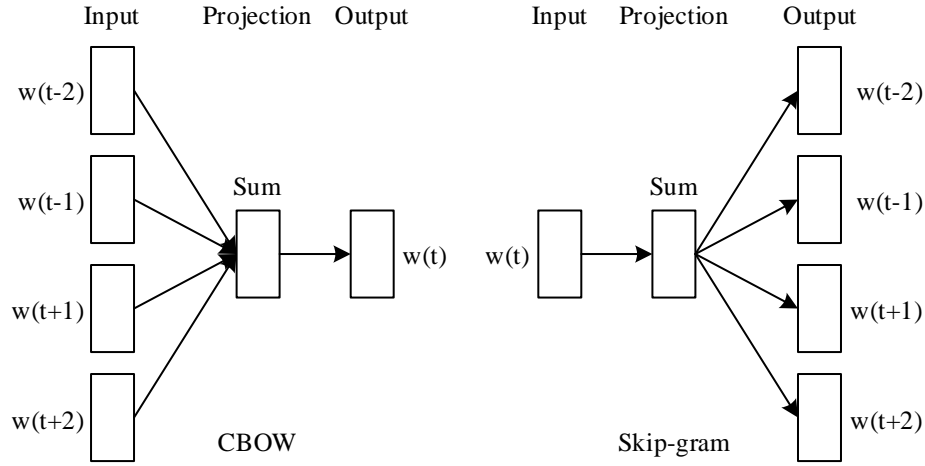


Figure 1: CBOW and Skip-gram model

2.3 Text Classification Model

BERT is a pre-trained language model based on the Transformer network architecture [22]. Transformer is an encoder-decoder architecture [23] that applies a self-attention mechanism to model in parallel the correlation between all the words of an input sequence. The training process of BERT is divided into two parts: pre-training and fine-tuning. Pre-training is the fundamental part of the BERT model, which consists of training the language model using a large number of texts. In the basic stage of pre-training, the BERT model is trained unsupervised with a large number of unlabeled texts to learn a large amount of linguistic knowledge such as vocabulary, grammar, and sentence structure. The fine-tuning process is based on the pre-trained model and uses small-scale labeled data to adjust the model parameters for a specific downstream task. BERT uses two methods, Masked LM and Next Sentence Prediction, to capture word- and sentence-level representations, respectively. The inputs to BERT are the representations of each token corresponds to a representation, which is actually composed of three parts, namely, the corresponding token, segmentation and location embeddings, and the composition of token representations is shown in Fig. 2. BERT can grasp knowledge and information from massive data from shallow features, syntactic features to semantic features, which will be beneficial for various downstream tasks, especially for complex tasks such as sentiment analysis and text generation. Complex tasks such as sentiment analysis and text generation can be achieved at the state-of-the-art level on different natural language understanding tasks. When BERT was first launched, it set 11 records for the Natural Language Understanding Benchmarking and Analysis Platform (GLUE) task, which opened up a new era of natural language understanding.

Input	[CLS]	my	dog	is	cute	[SEP]	he	likes	play	##ing	[SEP]
Token	$E_{[CLS]}$	E_{my}	E_{dog}	E_{is}	E_{cute}	$E_{[SEP]}$	E_{he}	E_{likes}	E_{play}	$E_{##ing}$	$E_{[SEP]}$
Embeddings	+	+	+	+	+	+	+	+	+	+	+
Segment	E_A	E_A	E_A	E_A	E_A	E_A	E_B	E_B	E_B	E_B	E_B
Embeddings	+	+	+	+	+	+	+	+	+	+	+
Position	E_0	E_1	E_2	E_3	E_4	E_5	E_6	E_7	E_8	E_9	E_{10}
Embeddings											

Figure 2: Composition of token representation

3 Farming culture IP image design and branding based on data mining

3.1 Visual representation of IP image

The term IP actually originates from the acronym Intellectual Property, which translates to “Intellectual Property Rights” in Chinese. However, in the context of the market, it has been given a special meaning related to brand symbols and image recognition, but in fact, the term IP is actually a borrowed word in the Chinese context. In the context of the rapid development of the Internet, people for the complex text information to produce a rejection of the psychological, and more acceptable graphics to bring the visual expression, and the emergence of the IP image of the rapid explosion, it is precisely because of its own simple visual effect, has become a popular and well-known in China and abroad a kind of visual communication symbols.

Brand IP image, brand is the product of the industrial age, the brand is to think about the initial product experience, to solve the pain points to meet the interests of the demand, IP is the product of the Internet era, IP is more reflective of the emotional resonance, to generate the spirit of support, to realize the values of brand identity. Brand IP is the use of IP thinking to redefine the brand, to achieve the concept of rebranding.

3.2 Farming Culture IP Image Design Methods

Based on the design of IP image, firstly, we extract the characteristic symbols of farming culture and regional characteristics to establish the main shape of IP image, secondly, we extend the IP image according to the connotation of regional farming culture, give the IP image storytelling and uniqueness, and finally, we attach the IP image to the farming products to attract customers and satisfy the customer experience with vivid emotional narrative, so as to achieve the purpose of publicizing the characteristics of the regional farming culture and driving the regional economic development. The purpose is to publicize the characteristics of regional farming culture and promote regional economic development. The IP image design method under the background of farming culture is shown in Figure 3.

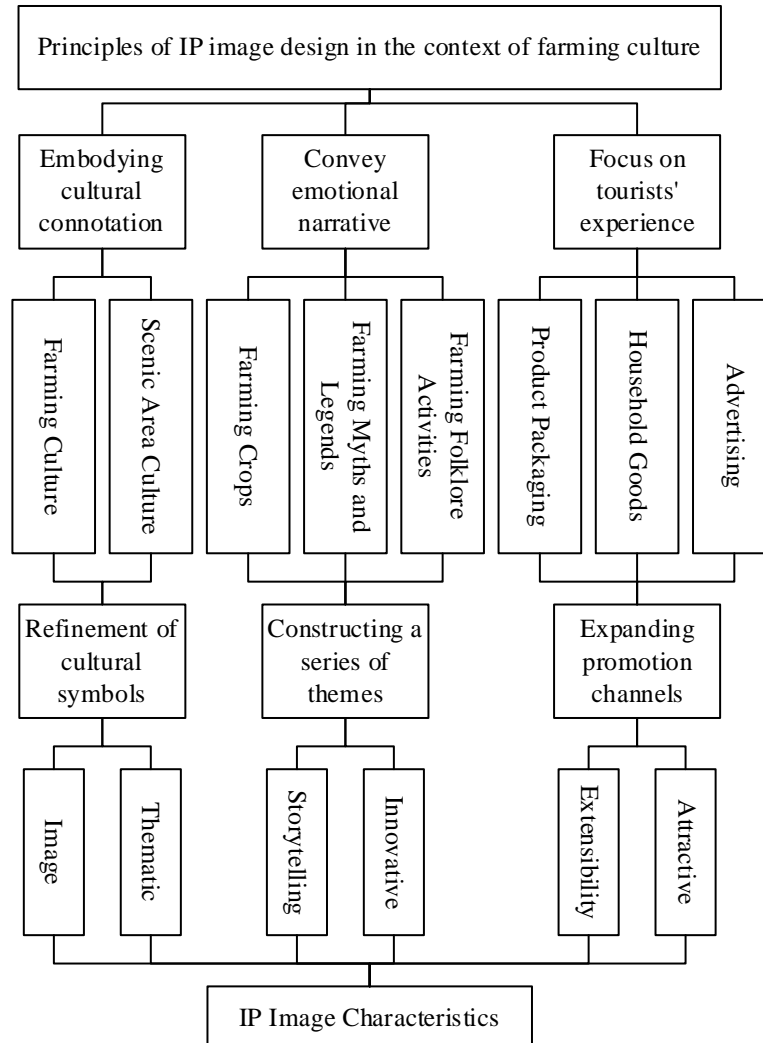


Figure 3: IP image design method in agricultural culture background

3.2.1 Refining Cultural Symbols and Shaping IP Characters

In the design of regional farming culture IP images, attention is paid to reflecting the concept of regional farming culture and regional characteristics. As stated above, farming culture includes farming crops, agricultural technology and tools, as well as farming folklore, etc., and the IP image should not only be supported and presented with cultural connotations, but also be endowed with regional characteristics and core values.

3.2.2 Construct a series of themes and extend the IP image

IP image with storytelling is more resonant. In the process of constructing the IP image of farming culture, constructing a cultural series of themes can not only enrich the connotation of the IP image and improve the popularity and influence of the IP, but also further broaden the industrial chain and maximize the value of the IP.

Therefore, before carrying out this IP image design and image extension, it is necessary to clarify the potential theme direction of the IP and lay the foundation for IP extension. By enhancing the image personality and the sense of storytelling, we can give the IP image a vivid vitality, and enhance the interactivity and memorability with a lovely, thoughtful and personalized image that resonates with the public. Therefore, in the theme setting, according to the existing farming culture resources in the region, the representative crop elements and

farming folklore related contents of the region are mainly adopted as the theme of the series and extended, which gives the IP image cultural value and further enriches the emotional expression.

3.2.3 Expand promotion channels and derive IP products

In order to stabilize passenger flow, improve services and promote economic development, villages have introduced a variety of new fashionable businesses, such as shopping, catering, leisure and entertainment, etc. IP image design and its extended application are easier to get close to the masses and bring them closer together in a popular, vivid and lively form. As a kind of virtual image, the IP image accompanies the audience in an anthropomorphic way, and it can realize cultural interaction by means of peripheral products, such as posters, animations, emoticons and so on. Cultural interaction. Apply the cultural IP image to scenic area cultural creation, related product packaging, etc. to meet the aesthetic needs of customers.

3.3 IP-based branding of farming culture driven by big data

3.3.1 Branding IP

Data collection and mining around the farming culture brand IP, through the data label to establish a data model, to provide data decision-making for the development of rural brand IP, to achieve the value co-creation of IP and audience, and to build a rural brand IP development model as shown in Figure 4.

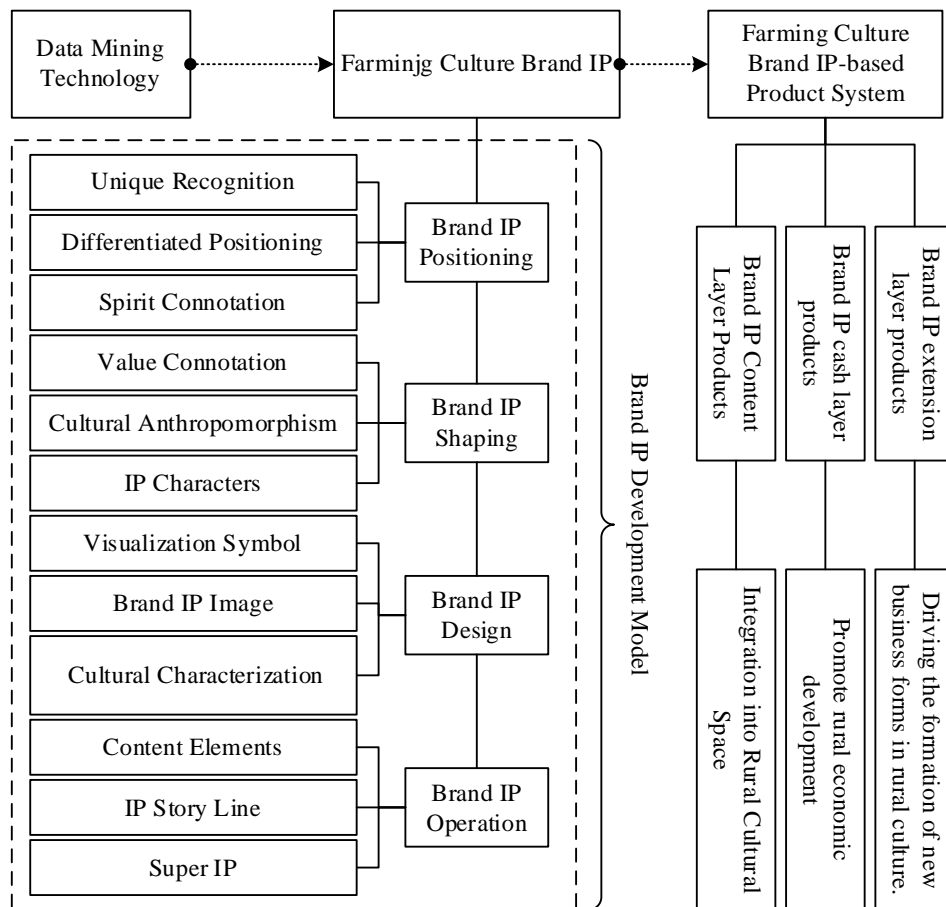


Figure 4: Village brand IP development model

3.3.2 Brand Marketing Strategy

(1) Data Mining and Application

In the current digital era, data mining and application has become one of the important means to optimize the brand's digital marketing strategy. Through data mining and application, rural enterprises can more accurately understand consumer behavior, market trends and competition, providing strong support for digital marketing strategies. Data mining can help rural enterprises to deeply analyze massive data and discover hidden business opportunities from it. Through the analysis of user behavior data, social media data and even user-generated content, rural enterprises can better understand consumer demand and behavior, thus enhancing the accuracy and relevance of digital marketing.

(2) Precise Positioning

Through big data technology, rural enterprises can more accurately locate target consumers to achieve more effective digital marketing strategies. Rural enterprises can understand consumer behavior, preferences and habits through big data analysis. By analyzing consumers' online and offline behaviors, rural enterprises can gain a more comprehensive understanding of consumers' interests, shopping behaviors, and consumption habits, and thus conduct more accurate positioning.

Based on big data analysis, rural enterprises can achieve personalized positioning of target consumers. Through big data technology, rural enterprises can identify the interests and demand characteristics of different consumer groups and provide personalized product recommendations and services for different consumers.

(3) Channel Integration

Channel integration is a crucial part of digital marketing for rural brands. Through big data technology, enterprises can realize channel integration to improve the effectiveness and efficiency of brand digital marketing. Enterprises can use big data to analyze the data of different channels in order to optimize and manage the channels. By analyzing the data of different channels, enterprises can understand the advantages and disadvantages of each channel, so that they can make more reasonable channel selection and allocation to improve the effectiveness and efficiency of digital marketing.

Based on big data analysis, enterprises can realize cross-channel collaboration and integration. By integrating and analyzing data from different channels, enterprises can realize the synergy and management of the entire digital marketing channel, thus improving the effectiveness and efficiency of digital marketing. By realizing channel integration through big data technology, enterprises can better manage digital marketing channels and improve the effectiveness and efficiency of digital marketing. Channel integration also helps enterprises realize cross-channel synergy and management, thus improving the effectiveness and efficiency of digital marketing.

4 Data mining-based rural brand perception and marketing strategy

4.1 Analysis of audience perception of rural IP image

The author chooses traditional farming villages in Zhejiang Province as the object to create farming culture IP and rural brand from the perspective of rural tourism. The method of text data mining is utilized to collect the perception of the audience on the image of traditional farming village IP in Zhejiang Province.

This study constructed four required analytical level 1 categories, namely, rural resources,

rural atmosphere, rural environment and rural activities. 13 level 2 categories, namely, natural resources, human resources, farming time, weather seasons, tourists' moods, landscape impressions, road transportation, infrastructure, lodging, gastronomy, geographic location, shopping and recreation. Now, the top 100 high-frequency words obtained in ROST CM6.0 software are sequentially divided into words and frequency statistics according to the analysis categories established in this paper, so as to deeply excavate the cognitive image of traditional farming villages in Zhejiang Province under the background of rural revitalization, and the results are shown in Table 1.

Table 1: The agricultural village cognitive image analysis table

Primary class	Word number	Frequency	Proportion	Secondary class	Word number	Frequency	Proportion
Village resource	29	20188	38.24%	Natural resource	18	13054	24.73%
				Cultural resource	11	7134	13.51%
Village atmosphere	29	15374	29.12%	Farming time	8	3408	6.46%
				Weather & season	2	805	1.53%
				Tourist emotion	6	4815	9.12%
				Landscape impression	13	6346	12.02%
Village environment	34	14686	27.82%	Road traffic	9	2874	5.45%
				Infrastructure	12	6088	11.53%
				Accommodation	3	571	1.08%
				Delicacies	3	1747	3.31%
				Geographic location	7	3406	6.45%
Village activity	8	2542	4.82%	Shopping	3	926	1.75%
				Entertainment	5	1616	3.06%

This paper provides an in-depth analysis of rural resources and rural atmosphere, which account for the largest share of the image perception of farming villages.

4.1.1 Rural resources

The two secondary categories of natural resources and humanities resources together constitute the first-level category rural resources, with a total of 29 high-frequency keywords and a total word frequency of 20,188, accounting for 38.24%, which is the highest percentage among the four first-level categories, which indicates that in the 9,857 online comment data obtained, totaling 52,790 texts, tourists have the most cognitive image descriptions of the rural resources, and that for the traditional farming village In terms of traditional farming villages, it is self-evident that tourists attach great importance to rural resources. Among them, there are 18 high-frequency words for natural resources, with a word frequency of 13,054, accounting for 24.73%, and 11 keywords for human resources, with a word frequency of 7,134, accounting for 13.51%. The high-frequency words of rural resources are shown in Table 2.

In terms of image cognition, rural resources have the highest attention. Among them, the frequency of mentioning natural resources is higher than that of human resources. "Zhuge Bagua", "Esoteric Village", "Seventeen Rooms", "Tonglu", "Wushi Village", "Wanyao Village", "Dongziguan", "Zoumatang", "Furong Village", "Dipu Village" and "Suichang Gold Mine" are the names of ancient villages and scenic spots, which can be seen that in Zhejiang Province, these traditional villages have a high degree of discussion and popularity, and are famous areas that attract a high degree of attention. Although these regional villages are classified as natural

resources, they are rich in natural resources and have a long history of human resources, which are more attractive to tourists. Therefore, the comparison between the strength and weakness of natural resources and historical resources cannot be judged simply by the proportion of word frequency. Natural resources and human resources are closely linked and interconnected, and after in-depth excavation and careful construction, they have become unique resources of traditional farming villages, so as to be recognized by tourists.

Table 2: Village resource high-frequency words

Natural resource				Cultural resource			
Word	Frequency	Word	Frequency	Word	Frequency	Word	Frequency
Zhugebagua	3525	Lotus	403	History	1552	Ming and Qing dynasty	435
Architecture	2483	Zoumatang	393	Ancient house	1224	Thousand years	167
Shenao Village	1087	Flower sea	328	Country	632		
17 houses	784	Park	267	Suichang gold mine	932		
Tonglu	686	Fuchun river	258	Culture	834		
Landscape	704	Furong village	250	Agriculture	558		
Wushi village	403	Dipu village	188	Kid	362		
Dongziguan	489	Water flow	170	Resident	265		
Jiangnan	483	Wanyao village	153	Museum	173		

4.1.2 Rural atmosphere

In this study, the countryside atmosphere is divided into four parts, which are farming time, weather season, tourists' mood and landscape impression, totaling 29 high-frequency keywords, which are consistent with the countryside resources, with a total word frequency of 15,374, accounting for 29.12%. Among them, there are 8 high-frequency words for farming time, with a word frequency of 3408, accounting for 6.46%. Weather season has 2 high-frequency words with word frequency of 805, accounting for 1.53%. Visitor Sentiment has 6 high-frequency words with word frequency of 4815, accounting for 9.12%. Landscape Impression has 13 high frequency words with a word frequency of 6346, accounting for 12.02%. Among the secondary categories, landscape impression is ranked first in the number of high-frequency words, word frequency and percentage. The high-frequency words of rural atmosphere are shown in Table 3.

Visitors were most concerned about landscape impressions with a frequency of 6346 occurrences, followed by visitor mood and farming time with a frequency of 4815 and 3408 occurrences, respectively, and the weather season had the lowest frequency of 805 occurrences. The word with the highest frequency is “happy” in “tourists' emotions”, with a frequency of 2,838 times. Visitors to the traditional farming village landscape in Zhejiang Province as a deep impression of the traditional farming villages in the presentation of ancient residential buildings with a long history, humanistic and heavy, at the same time, so that people leave the world's

hustle and bustle, into the new paradise, but also the pursuit of a unique new experience and sense of cultural access. The IP shaping of farming villages in Zhejiang Province should start from here.

Table 3: Village atmosphere high-frequency words

Farming time		Weather & season		Tourist emotion		Landscape impression			
Word	Frequency	Word	Frequency	Word	Frequency	Word	Frequency	Word	Frequency
Holiday	948	Weather	436	Happy	2838	Free	749	Passion	238
Hour	907	Air	369	Feeling	479	Pretty	761	Primal	249
Next time	390			Advice	452	Commerce	975	Traditional	246
Minute	335			Pity	259	Convenient	646	Special	224
Afternoon	221			Interesting	329	Ancient	564	Hear	397
Middle	212			Nothing	458	Not big	485		
Second time	208					Quiet	483		
First time	187					Nature	329		

4.2 Brand Advertising Strategy Based on Data Mining

4.2.1 Placement categories

In the context of integrated media, marketing is one of the essential means in the process of brand IP creation. This subsection analyzes the strategy of countryside brand IP shaping by taking the advertisement placement in marketing strategy as an example. Descriptive statistics are performed on the fields of category, subcategory, brand gradient, media type, delivery channel and advertisement form in the advertisement placement dataset, and the statistical results of each field are shown in Table 4.

From the point of view of rural IP advertisement placement categories, the three major categories of farming landscape, agricultural products and rural tourism have the most number of advertisements, accounting for 39.70%, 13.97% and 13.82% respectively, which is more than 65% of the overall number, and this result fully explains that advertisers pay more attention to these three types of product placement. From the perspective of different product categories, the number of advertisements placed in farming landscape, agricultural products, and rural tourism have also increased significantly, and advertisers also consider the effect of the placement of these three types of products more often in different categories.

Table 4: Advertising product statistics

	Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	52684	24.06%	24.06%	24.06%
Agricultural product	30578	13.97%	13.97%	38.03%
Agricultural experience	12684	5.79%	5.79%	43.82%
Handmade product	645	0.29%	0.29%	44.11%
Agricultural landscape	86923	39.70%	39.70%	83.81%
Rural tourism	30256	13.82%	13.82%	97.63%
Rural service	4576	2.09%	2.09%	99.72%
Others	614	0.28%	0.28%	100.00%
Total	218960	100.00%	100.00%	

4.2.2 Types of media

PC/MOBILE/OTT is divided according to the media type of “OTV” and “Non OTV”, OTV is Online TV, covering network TV and Internet TV. The terminals used are mainly computer screens and mobile screens. The ad types are mainly patch ads, the most common being pre-video patches, such as OTV patches on popular video sites such as Tencent, Aichiye, MangoTV, etc. Non OTV is a generic term for other non-Internet TV types. OTT (Over The Top) is a new advertising model, which provides services through third-party platforms, such as video sites, games, etc., as well as some traditional advertising forms, such as magazines and newspapers. The PC/MOBILE/OTT statistics of IP marketing of country brand are shown in Table 5.

In Table 5, we can clearly see that Mobile, i.e., the amount of advertisements placed on mobile is the largest, accounting for 13.37%, OTT is the abbreviation of Over The Top, which applies to a variety of applications that provide services to users on the Internet, i.e., the use of the operator's network to provide services to third parties in addition to the operator, the common ones are Internet TV, digital TV boxes) and PC placement accounted for a very small percentage, only 1.10% and 0.41%.

Table 5: PC/MOBILE/OTT statistical results of rural brand IP marketing

	Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	186381	85.12%	85.12%	85.12%
Mobile	29268	13.37%	13.37%	98.49%
OTT	2416	1.10%	1.10%	99.59%
PC	895	0.41%	0.41%	100.00%
Total	218960	100.00%	100.00%	

This is related to the way the public receives information in the era of information economy. The convenience of mobile devices and the high-speed development and update of intelligentization make it possible for people to obtain information through mobile terminals and become an indispensable part of their lives. Mobile advertising has the advantages of high efficiency, convenience and excellent conversion effect, so it is favored by advertisers and media planners. It can quickly disseminate brand information and at the same time effectively provide consumers with relevant information, thus greatly improving the conversion effect of advertising. The statistical results of media type variables of rural brand IP marketing are shown in Table 6.

Among the media types, traditional farming rural brand IP in Zhejiang Province is mainly promoted and marketed by placing Non OTV (12.28%) and outdoor advertisements (5.58%). While Outdoor advertising is to carry out publicity and marketing by placing outdoor billboards and so on, both of which are the main means of brand publicity and marketing. As a result, brands invest a lot of money in placement costs, far more than other media types.

Table 6: Media type variable statistical results of rural brand IP marketing

	Frequency	Percentage	Valid percentage	Cumulative percentage
Magazine	385	0.18%	0.18%	0.18%
Newspaper	106	0.05%	0.05%	0.23%
Non OTV	26895	12.28%	12.28%	12.51%
OTV	7952	3.40%	3.40%	15.91%
Outdoor	12526	5.58%	5.58%	21.49%
Radio	12374	5.56%	5.56%	27.05%
TV	159867	72.95%	72.95%	100.00%
Total	218960	100.00%	100.00%	

4.2.3 Forms of advertising

In the dataset, “ad format Digital” is the expression of Internet advertising based on the division of advertising spots, and descriptive statistics on it, and the results of ad format Digital statistics are shown in Table 7.

From the perspective of placement frequency, full-screen ads (5.47%) and infomercials (5.51%) are the most frequently used digital ad formats by advertisers. Full-screen ads can integrate traditional TV, newspapers, and other media using specific devices, providing fewer distractions, higher user experience and tolerance, and contributing to user acceptance. Infomercials can combine online and on-line resources based on user behavior and interests, facilitating the promotion of audit initiatives and promoting their adoption and sharing, thus increasing the efficiency of secondary distribution. At the same time, infomercials can avoid the interference of ad-blocking software, increase brand effectiveness, and maintain advertising budgets to some extent. Full-screen ads are powerful enough to take great care of the user, ensuring that targeted customer groups see targeted full-screen ad descriptions.

Table 7: Advertising form digital statistical results of rural brand IP marketing

	Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	186381	85.12%	85.12%	85.12%
Button advertising	4	0.00%	0.00%	85.12%
Short video stream	412	0.18%	0.18%	85.30%
Short video stream-APP	187	0.07%	0.07%	85.37%
Focus diagram	395	0.17%	0.17%	85.54%
Open screen	172	0.08%	0.08%	85.62%
Open screen-APP	95	0.04%	0.04%	85.66%
Full screen advertising	12584	5.47%	5.47%	91.13%
Video patch advertising	5975	2.64%	2.64%	93.77%
Video stream	170	0.08%	0.08%	93.85%
Video stream-APP	116	0.06%	0.06%	93.91%
Picture-text stream	423	0.16%	0.16%	94.07%
Picture-text stream-APP	238	0.11%	0.11%	94.18%
Net advertising	596	0.24%	0.24%	94.42%
Stream advertising	12068	5.51%	5.51%	99.93%
Long-banner & large-size advertising	5	0.00%	0.00%	99.93%
Banner	109	0.05%	0.05%	99.95%
Banner-APP	47	0.02%	0.02%	100.00%
Total	218960	100.00%	100.00%	

5 Conclusion

This paper utilizes big data mining methods to explore the possibility of farming culture IP and rural branding in today's integrated media context. The online text data about farming culture and village brand is mined, and based on the data mining results, the village brand IP of farming culture is reached.

Taking traditional farming villages in Zhejiang Province as an example, the audience perception of its rural IP image is explored, and it is found that rural resources receive the highest attention in the first-level category, reaching 38.24%, followed by rural atmosphere and

rural environment, accounting for 29.12% and 27.82%, respectively. The lowest level of audience attention is rural activities, accounting for only 4.82%. Zhejiang Province's advertisement investment in building rural brand IP focuses on farming landscape, agricultural products and rural tourism, accounting for more than 65% of the total. The types of media for advertisement placement favor mobile placement, with Non OTV and outdoor advertisements as the main ones. In rural brand IP marketing, the highest frequency of placement is full-screen ads and infomercials, accounting for 5.47% and 5.51% respectively.

About the Author

Baijing Li Born in 1991, Qinshui, Shanxi Province, Master's degree. Lecturer, Party School of Jincheng Municipal Committee of the CPC, Shanxi Province.

References

- [1] Huang, C. C. (2018). Agrarian Tradition and Chinese Culture: An Interpretive Overview. *Agricultural Ethics in East Asian Perspective: A Transpacific Dialogue*, 13-22.
- [2] Talhelm, T., Wu, S. J., Lyu, C., Zhou, H., & Zhang, X. (2023). People in rice-farming cultures perceive emotions more accurately. *Current Research in Ecological and Social Psychology*, 4, 100122.
- [3] Martínez, J. D. S. (2023). Olive Grove Landscapes in Andalusia: In Search of Synergies Between Agrarian Cultural Heritage and Rural Development. *European Countryside*, 15(3), 422-441.
- [4] Knook, J., & Turner, J. A. (2020). Reshaping a farming culture through participatory extension: An institutional logics perspective. *Journal of Rural Studies*, 78, 411-425.
- [5] Xing, L. (2024). THE BUILDING OF REGIONAL PUBLIC BRANDS OF AGRICULTURAL PRODUCTS BASED ON RURAL REVITALIZATION STRATEGY—A CASE OF “MILLENNIUM-OLD FLAVORS OF HUAI’AN” BRAND BUILDING. *Science Time*, (10 (129)), 5-19.
- [6] Rui, X. U. E., & Ji'an, Y. U. (2022). The revitalization path of rural culture tourism based on the local brand construction. *Economic geography*, 42(6), 198-205.
- [7] Zhang, X. (2019). Research on the development of agricultural intellectual property and the strategies of enriching in rural China. *American Journal of Industrial and Business Management*, 9(04), 799.
- [8] Sharma, D. K. (2014). Intellectual property and the need to protect it. *Indian J. Sci. Res*, 9(1), 084-087.
- [9] Batyuk, B., & Kudla, N. (2019). Non-agricultural activities as a measure of revitalisation of rural areas. *Scientific Messenger of LNU of Veterinary Medicine and Biotechnologies. Series Economical Sciences*, 21(92), 120-124.
- [10] Taylor, K. (2019). New lives, new landscapes. *Landscape, heritage and rural revitalisation:*

Whose cultural values?. *Built Heritage*, 3(2), 50-63.

- [11] Ding, X., & Ding, X. (2024). Study of the impact of new rural cooperatives on the implementation of the rural revitalisation strategy. *Frontiers in Economics and Management*, 5(5), 185-191.
- [12] Smith, R. B., & Perry, M. (2023). University Extension Programs to Develop Intellectual Property in the Agricultural Sector of Marginalized Rural Communities in the ASEAN Region. In *Sustainable practices in higher education: Finance, strategy, and engagement* (pp. 143-163). Cham: Springer International Publishing.
- [13] Prasad, V., Dangi, A. K., Tripathi, R., & Kumar, N. (2023). Educational Perspective of Intellectual Property Rights. *Russian Law Journal*, 11(2S), 257-268.
- [14] Rahmah, M. (2017). The protection of agricultural products under geographical indication: an alternative tool for agricultural development Indonesia. *Journal of Intellectual Property Rights*, 22(2), 90-103.
- [15] Oguamanam, C. (2014). Farmers' rights and the intellectual property dynamic in agriculture. *Sage Handbook of Intellectual Property*, 238-257.
- [16] Clancy, M. S., & Moschini, G. (2017). Intellectual property rights and the ascent of proprietary innovation in agriculture. *Annual Review of Resource Economics*, 9(1), 53-74.
- [17] Zhou, Y., & Gu, H. (2025). Enhancing rural resilience through the rural revitalisation strategy in rural China: Evidence from Wushi Village, Hunan Province. *Journal of Rural Studies*, 113, 103493.
- [18] Huang, B. W., & Yang, Y. C. (2018). Evaluation indicators and development strategies of agricultural revitalization for rural rejuvenation. *Journal of Reviews on Global Economics*, 7, 269-279.
- [19] Akanksha Yadav, Namrata Dhanda & Debabrata Singh. (2025). Intelligent cognitive health monitoring for seniors using natural language processing-integrated GRU attention and Q-reinforcement learning. *International Journal of Speech Technology*, (prepublish), 1-18.
- [20] Ting Yang, Hongyi Yu, Danhong Lu, Shengkui Bai, Yan Li, Wenyao Fan & Ketian Liu. (2025). Detection and Classification of Abnormal Power Load Data by Combining One-Hot Encoding and GAN-Transformer. *Energies*, 18(5), 1062-1062.
- [21] Arar Al Tawil, Laiali Almazaydeh, Doaa Qawasmeh, Baraah Qawasmeh, Mohammad Alshinwan & Khaled Elleithy. (2024). Comparative Analysis of Machine Learning Algorithms for Email Phishing Detection Using TF-IDF, Word2Vec, and BERT. *Computers, Materials & Continua*, 81(2), 3395-3412.
- [22] Lanxin Zhao, Wanrong Gao & Jianbin Fang. (2024). Optimizing Large Language Models on Multi-Core CPUs: A Case Study of the BERT Model. *Applied Sciences*, 14(6).
- [23] Mehrshad Kashi, Salim Lahmiri & Otmane Ait Mohamed. (2025). Comprehensive

analysis of Transformer networks in identifying informative sentences containing customer needs. *Expert Systems With Applications*,273,126785-126785.