

Identification of Spatial Conflicts between Tourists and Local Residents: Based on “Nanjing Travel Pitfall Avoidance” Posts on Rednote

Yixuan Zhang, Shijie Sun
Southeast University

Email: zyx980720@163.com, sun_shijie@seu.edu.cn

Abstract

This study identifies spatial conflicts between tourists and local residents in Nanjing using Rednote “Nanjing Travel Pitfalls” posts, applying AI-based natural language processing and spatial analysis. Findings show: (1) Conflicts are “localised concentration and overall dispersion”, with high-intensity zones in multifunctional areas like Laomendong and Xinjiekou; (2) Conflicts fall into three types: High-Intensity Clustered Type, Intersecting and Compressed Type, and Low-Frequency, High-Sensitivity Type; (3) Residents’ perceptions focus on old town living spaces, tourists’ are more dispersed, yet both align on key areas; (4) Social media amplifies conflicts via algorithmic recommendation and emotional contagion. The study suggests shifting from conflict control to spatial regeneration, promoting coexistence through time-sharing and community negotiation. It contributes theoretical and methodological insights to digital-era urban tourism governance.

Keywords: Spatial conflict; Social media; Urban tourism; Xiaohongshu; Nanjing

1 Introduction

With the ongoing popularisation, routinisation, and digitalisation of tourism activities, urban tourism spaces are undergoing unprecedented reconstruction. This transformation is evident not only in the shifting behavioural patterns of tourists but also in the blurring of traditional boundaries between tourism spaces and everyday living spaces. Through digital platforms such as Rednote, tourists now independently plan their itineraries, extending their activities beyond conventional scenic zones and increasingly embedding themselves into the daily spatial routines of local residents. While this spatial reconstruction enriches the diversity of tourism experiences, it simultaneously gives rise to new forms of spatial conflict. The recent surge of “Travel Pitfall Avoidance” posts on social media platforms like Rednote offers a vivid and direct reflection of these emerging conflicts. These user-generated contents not only document specific instances of spatial conflict, but also reveal deeper divergences in spatial use ideologies between tourists and residents. Systematic analysis of such content contributes to a more nuanced understanding of the challenges urban space governance faces in the digital age.

As an interdisciplinary research subject, the concept of spatial conflict has been continuously refined through academic inquiry. It has often been understood from a resource competition perspective, where incompatible demands for space among different groups generate conflict (Cocklin, 1988; Biagini, 1993). In the Chinese academic context, this concept has been further localised and expanded. One perspective emphasises the scarcity of spatial resources, portraying spatial conflict as a form of opposition during resource allocation (Zhou et al., 2012). Another interpretation draws attention to divergent development ideologies, which may lead to spatial imbalances and thus to conflict (Cheng, 2013). A more integrative approach sees spatial conflict as the result of intertwined processes, including resource redistribution, relational shifts, and value redefinitions (Chen et al., 2015). Overall, spatial conflict can be understood as a state of disharmony arising when multiple interest groups compete over established spatial resources and perceive their interests to be compromised. In this study, spatial conflict specifically refers to the tensions and oppositions between tourists and local residents that emerge within defined spatial and temporal contexts, due to discrepancies in resource usage, behavioural norms, and cultural understanding.

A review of existing literature reveals three prominent limitations in current research on tourism-related spatial conflict. First, in terms of research perspective, most studies have focused on specific types of tourism communities or rural destinations. A typical example is the analysis of multi-group conflict in Xijiang Qianhu

Miao Village, which sheds light on spatial dynamics within ethnic tourism settings (Liu and Zhao, 2021). However, comparative research in urban tourism contexts remains limited. Second, from a methodological standpoint, although some scholars have made progress in exploring spatial conflict mechanisms—particularly in tourism communities—the dominant reliance on qualitative analysis persists, with quantitative methods receiving less attention (Pan, 2021). Third, regarding data sources, most studies continue to depend on traditional methods such as surveys and in-depth interviews. While emerging research has begun incorporating data like GPS-tracked tourist mobility, concerns about data authenticity and representativeness remain (Li, Xie and Wang, 2018). Furthermore, social media data—rich in real-time, user-generated sentiment and spatial expression—has not been fully leveraged. These methodological limitations hinder a comprehensive understanding of the dynamic and evolving nature of spatial conflict in contemporary urban tourism spaces.

In response to these gaps, this study selects Nanjing as a representative case and uses the most viewed “Nanjing Tourism Pitfalls” posts on Rednote as its primary dataset. These posts offer unfiltered, real-time insights into tourists’ and residents’ emotional reactions and lived experiences of spatial conflict. By employing a mixed-methods approach that integrates qualitative content analysis and quantitative spatial analysis, the study systematically examines the characteristics of spatial conflict in the context of urban tourism. Specifically, it analyses these characteristics from three key dimensions: overall spatial distribution, dominant functional zones, and core subject object perspective. The study seeks to uncover the mechanisms driving the emergence of spatial conflict and to clarify the mediating role of social media—particularly through algorithmic recommendation systems and affective transmission—in amplifying these conflicts.

2 Methods

This study draws on data from the Chinese social media platform Rednote. Using Python-based web scraping techniques, we collected posts published before 5 April 2025 that contained keywords such as “Nanjing Travel Pitfall Avoidance”, ranked by popularity. The initial dataset comprised 220 entries. Following manual screening to remove neutral or positive content, 181 negative posts were retained as valid samples for further analysis. To distinguish between different subject perspectives, user identities were classified as either tourists or local residents based on IP location metadata and profile information available on user homepages.

2.1 Spatial conflict point identification

The identification of spatial conflict points involved a hybrid method combining artificial intelligence (AI) technologies and manual verification. Natural Language Processing (NLP) techniques based on the DeepSeek model were employed to analyse post content, enabling the automated extraction of location-specific keywords that exhibit spatial characteristics—e.g., well-known tourist destinations such as “Fuzimiao” (Confucius Temple).

To ensure the precision of spatial identification, a three-stage manual verification process was subsequently implemented:

- Correction of non-standard toponyms – colloquial or abbreviated terms (e.g., “Nanbo”) were matched with their full official names (e.g., “Nanjing Museum”);
- Elimination of vague spatial references – imprecise descriptions such as “a mall in the city centre” were excluded;
- Removal of irrelevant or erroneous geographic information – spatial references lacking clear or accurate locational meaning were discarded.

2.2 Measurement of spatial conflict intensity

User interactions on the Rednote platform primarily include four forms: likes, favourites, comments, and shares. These metrics not only reflect the communicative popularity of a given post but also indirectly indicate the level of public attention and perceived impact associated with specific spatial conflicts. To quantify spatial conflict intensity, this study adopts a two-step approach: first, a weighted formula is developed to calculate the comprehensive heat value of individual posts based on the differential characteristics of each interaction type;

second, the total conflict intensity of each spatial conflict point is calculated by aggregating the heat values of all related posts.

(1) Calculation of post-level heat value

A weighted formula was established to determine the composite heat of each post:

$$\text{Post_Heat}_i = 0.2 \times \text{Likes}_i + 0.1 \times \text{Favourites}_i + 0.4 \times \text{Comments}_i + 0.3 \times \text{Shares}_i$$

where Post_Heat_i denotes the heat of post i , and Likes_i , Favourites_i , Comments_i , and Shares_i represent the corresponding interaction counts (Table 1).

Table 1 Weight design based on interaction behaviour characteristics

Interaction Type	Interaction Features	Weight
Likes	- Indicates user attention or recognition. - Often passive behaviour ("casual likes"). - May reflect content utility rather than stance on conflict. - Limited validity in capturing conflict intensity.	0.2
Favourites	- Represents archiving or bookmarking intent. - Primarily reflects the perceived usefulness of information. - Weak temporal association with conflict immediacy; exhibits a lag effect.	0.1
Comments	- Requires active engagement via text input. - Directly reveals depth and contentiousness of discourse. - Serves as the primary arena for local-tourist confrontation. - High indicator of conflict intensity due to two-way interaction. - Captures the extent of information diffusion.	0.4
Shares	- Greater share volume suggests broader public impact. - While motivations vary, sharing amplifies conflict exposure.	0.3

(2) Calculation of spatial conflict intensity

For a specific spatial location L , conflict intensity is computed by aggregating the comprehensive heat values of all posts associated with that location. This cumulative figure reflects the extent of public attention, emotional engagement, and discursive activity tied to the identified conflict site.

$$\text{Conflict_Intensity} = \sum_{i=1}^n (0.2 \cdot \text{Likes}_i + 0.1 \cdot \text{Favourites}_i + 0.4 \cdot \text{Comments}_i + 0.3 \cdot \text{Shares}_i)$$

(3) Classification of spatial conflict intensity levels

Based on the distribution of calculated values, spatial conflict intensity is categorised into five levels. The maximum observed intensity value is 42,406.6, and the minimum is 3.6. Classification criteria are presented in Table 2.

Table 2 Classification of spatial conflict intensity levels

Conflict Level	Value Range	Data Characteristics
Low	3.6 – 1,000	Scattered, low-engagement interactions; predominantly neutral content with minimal contentious expression.

Moderately Low	1,000.1 – 5,000	Occasional controversial topics; limited discussion scope; participants express fragmented, non-confrontational views.
Moderate	5,000.1 – 15,000	Emergence of polarised viewpoints; regionalised discussion patterns; significant increase in interaction frequency.
Moderately High	15,000.1 – 30,000	Sustained multi-group discussions; heightened emotional expressions; accelerated information diffusion.
High	30,000.1 – 42,406.6	Large-scale cross-community discourse; featured discussions on mainstream platforms; heightened need for content regulation.

2.3 Spatial analysis

This study employs ArcGIS 10.8 to conduct multi-level spatial analyses, including global spatial autocorrelation and kernel density estimation. These methods collectively uncover the spatial distribution patterns of tourism-related conflict.

Global spatial autocorrelation analysis utilises Moran's I index to evaluate whether conflict intensities exhibit clustering, dispersion, or randomness across space, thereby offering a macro-level perspective on the spatial configuration of tourism conflict in Nanjing.

Kernel density estimation visualises the spatial concentration of conflict points by calculating their frequency per unit area. This generates a continuous density surface, illustrating the spatial gradient of conflict intensity, identifying core conflict zones, and revealing potential diffusion pathways. This provides a valuable foundation for understanding the spatial propagation mechanisms of tourism-related conflict.

3 Research findings

3.1 Overall spatial distribution characteristics of conflict

(1) Spatial distribution patterns

The spatial distribution of conflict points between tourists and local residents in Nanjing exhibits a pattern of localised concentration and overall dispersion (Figure 1). Conflict hotspots are primarily clustered in two key areas: (1) the historic inner city, particularly around Xinjiekou and Laomendong; (2) the Zhongshan Scenic Area, located outside the old urban core. These zones serve as major tourist attractions while simultaneously functioning as vital public spaces for residents' daily activities.

In addition, sporadic conflict points are distributed throughout the central urban area beyond the old city, including locations such as Yuhuatai, Guochuangyuan, and Suojincun. Beyond the central districts, isolated instances of spatial conflict are also observed in the Niushou Mountain Scenic Area. This spatial pattern suggests that conflict emerges not only in core tourist zones but also in areas where daily residential life intersects with tourism activity, highlighting the complex socio-spatial entanglements within the urban tourism landscape.

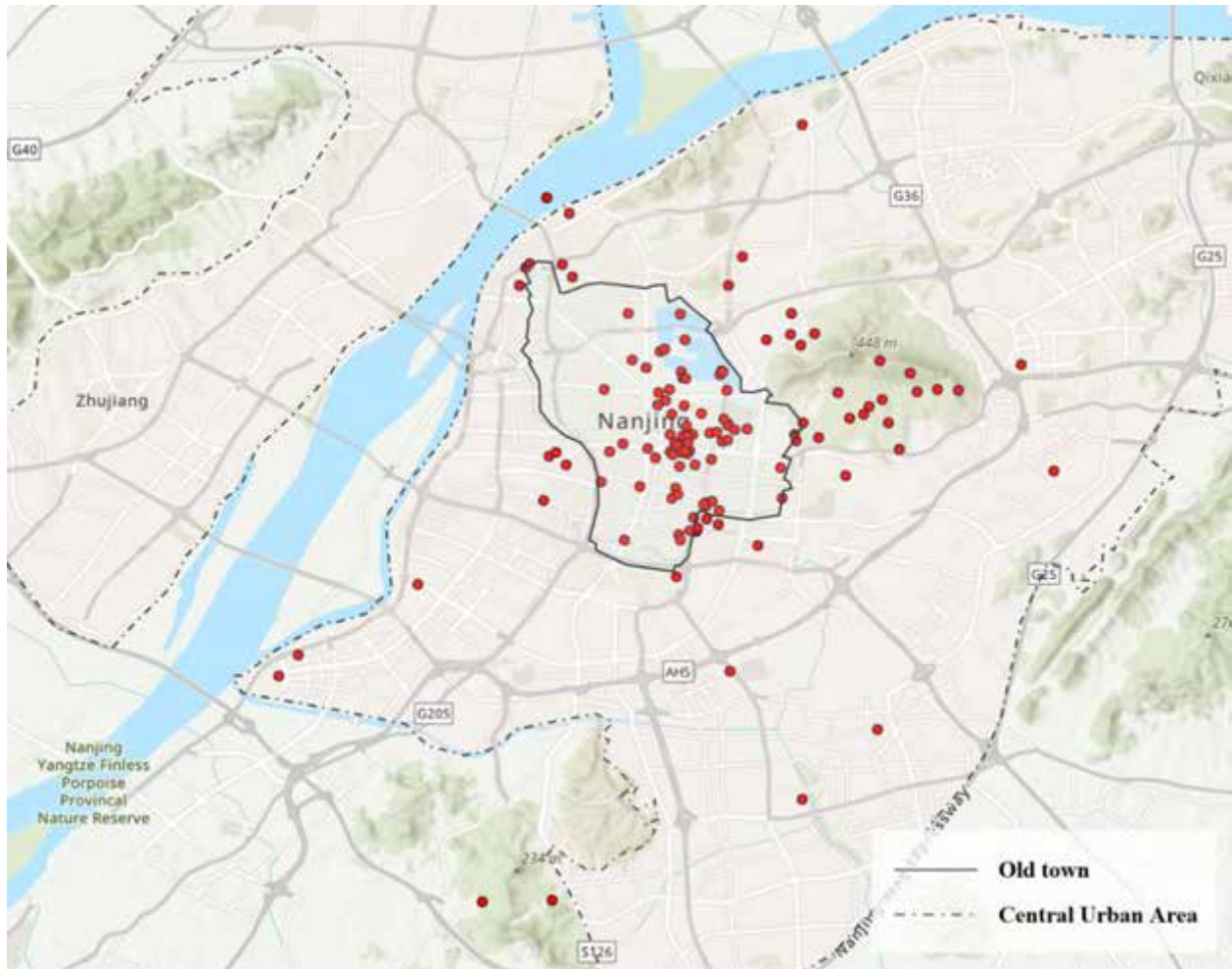
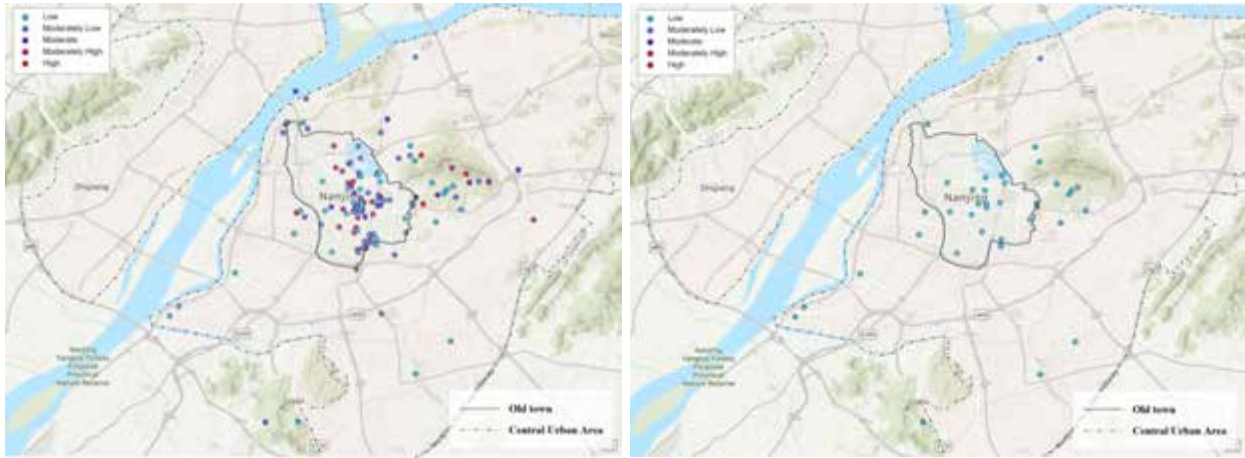


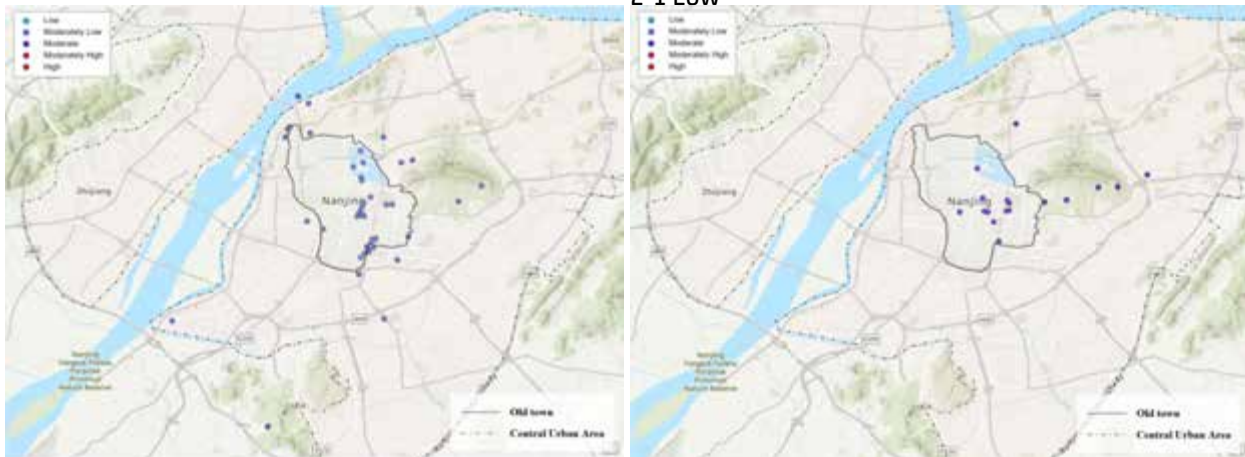
Figure 1 Spatial distribution of conflict points in Nanjing

Further analysis of spatial conflict intensity reveals that 38% of identified conflict points fall within the “moderate” to “high” intensity categories (Figure 2). These points are predominantly concentrated in Nanjing’s old city centre and the Zhongshan Scenic Area. Specifically, seven locations—Laomendong, Xinjiekou, Jiming Temple, Nanjing Museum, Xuanwu Lake Park, the Memorial Hall of the Victims in Nanjing Massacre, and the Sun Yat-sen Mausoleum—are identified as sites of “high-intensity” spatial conflict. These areas are characterised by both high tourist footfall and the convergence of multiple urban functions, including culture, commerce and recreation.

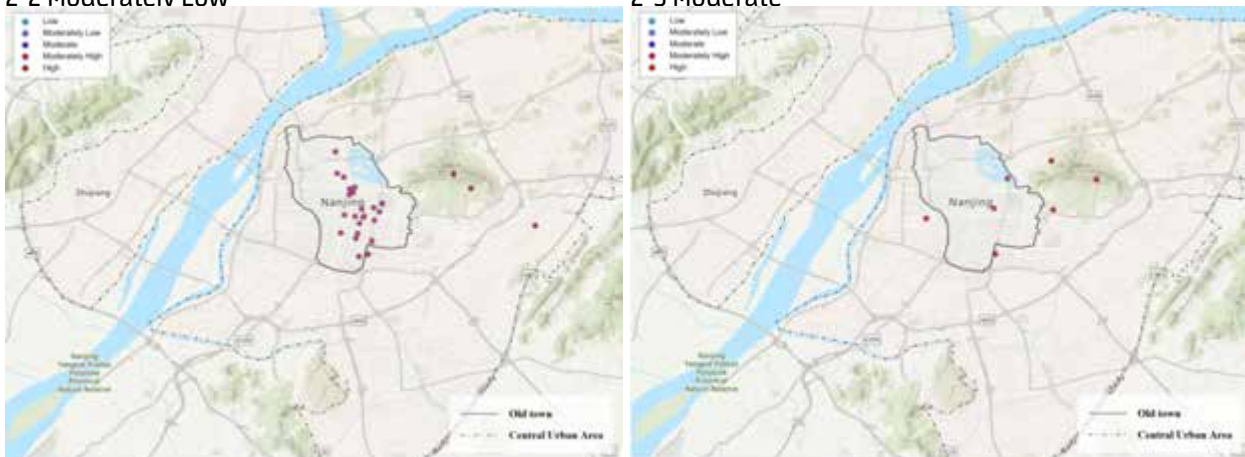
Conflict points with “moderately low” intensity are mainly concentrated in Laomendong and Xinjiekou districts, reflecting periodic and localised tensions. In contrast, “low-intensity” conflict points are more diffusely distributed across the old city, indicating a spatial diffusion pattern from the core to the periphery. This outward dispersal trend corresponds with a gradual decline in both conflict frequency and intensity as distance from the city centre increases.



2-1 Low



2-2 Moderately Low



2-3 Moderate

2-4 Moderately High

2-5 High

Figure 2 Spatial distribution of conflicts across intensity levels in Nanjing

(2) Spatial autocorrelation characteristics

The results of the global spatial autocorrelation analysis (Table 3) indicate that the overall distribution of tourism-related spatial conflict intensity in Nanjing exhibits a significantly dispersed pattern. Specifically, "high-intensity" and "low-intensity" conflict points tend to be spatially separated, rather than concentrated in particular areas.

Table 3 Results of global spatial autocorrelation analysis

Indicator	Value	Interpretation
Moran's I	-0.084664	Indicates a slight overall spatial dispersion (negative spatial correlation). High- and low-intensity conflict points are spatially distinct.
z-score	-2.024578	Deviates significantly from the mean of a normal distribution, confirming negative spatial correlation.
p-value	0.042911	Less than 0.05, indicating statistical significance.

3.2 Spatial conflicts under differentiated functional domains

(1) Typological classification and functional characteristics

Based on the dominant function of each spatial conflict location, a typological approach was adopted to classify conflict sites into eight categories (Table 4).

Table 4 Typology of spatial conflicts based on dominant functional attributes

Type Code	Type Description	Examples
T1	Commemorative and Exhibitory Spaces:	Nanjing Museum, Memorial Hall of the Victims in Nanjing Massacre
	Public spaces primarily focused on historical commemoration and cultural exhibition.	
T2	Tourist Attractions:	Laomendong Historic District, Yihe Road Historic District, Sun Yat-sen Mausoleum
	Nationally rated A-level scenic spots and other major tourism destinations.	
T3	Commercial Consumption Areas:	Golden Eagle International, The Mixc Mall, Greenland Zifeng Tower
	Modern commercial complexes centred on shopping and consumer activities.	
T4	Creative-Cultural Spaces:	Librairie Avant-Garde, Guochuangyuan Innovation Park
	Areas combining cultural industries with lifestyle experiences.	
T5	Food and Leisure Spots:	Hongfu Noodle Shop, Volcano Izakaya
	Locations attracting visitors primarily for distinctive local cuisine and social consumption.	
T6	Everyday Living Spaces:	Taogu New Village, Hongmiao Community, Kexiang Alley
	Traditional residential communities and daily life areas.	
T7	Transport Nodes:	Nanjing Yangtze River Bridge, Wutong Avenue, Beijing East Road
	Key metro stations and major road intersections within the city.	

Scenic Parks:		
T8	Open green spaces focused on ecological leisure and recreation.	Hongshan Forest Zoo, Mochou Lake Park

(2) Spatial distribution characteristics

A systematic analysis of the 125 identified spatial conflict points (Figures 3 and 4) reveals significant variations in terms of quantity, conflict intensity, and spatial clustering across different dominant functional types.

In terms of quantity, spatial conflicts associated with Tourism Attractions (T2) far exceed those of other categories, totaling 35 cases, which accounts for 28% of the total sample. This suggests that although urban tourism space is becoming increasingly diversified, traditional tourist sites remain the primary arenas for spatial conflict. Food and Leisure Spots (T5) and Everyday Living Spaces (T6) registered 27 and 18 conflict points, respectively. This pattern indicates a growing tendency for contemporary tourism activities to penetrate the quotidian spaces of city life. By contrast, Creative Cultural Spaces (T4) exhibited the lowest number of conflict points (only 2), a phenomenon that may be attributed to their niche positioning and the relatively higher cultural literacy of their visitors.

In terms of conflict intensity, "high-intensity" conflicts are predominantly concentrated in Tourism Attractions (T2) and Commemorative and Exhibitory Spaces (T1). For instance, traditional sites such as Laomendong have experienced disruptions due to excessive tourist density, resulting in spatial disorder. Similarly, institutions like the Nanjing Museum and the Memorial Hall of the Victims in Nanjing Massacre manifest conflicts between visitor behavior and the solemn atmosphere required by such spaces. "Moderately high-intensity" conflicts, meanwhile, are more frequently observed in Transport Nodes (T7) and Food and Leisure Spots (T5). In the former case, conflict points such as Xinjiekou Station and Zhangfuyuan Station indicate that the urban commuting system has become a critical locus of tourism-induced spatial tension. In the latter case, disputes often arise from issues related to service quality, taste expectations, and pricing strategies.

In terms of spatial clustering, Tourism Attractions (T2) exhibit a dual-core agglomeration pattern, with concentrations in both the Zhongshan Scenic Area and the Laomendong Historic District. This indicates considerable spatial conflict pressure on traditional tourism zones. Commercial Consumption Spaces (T3) and Food and Leisure Spots (T5) together form a "composite conflict zone" around Xinjiekou, underscoring the spatial competition generated by multi-functional convergence in commercial centers. Everyday Living Spaces (T6) present a single-core clustering pattern centered in the Gulou District, where dense historic alleys and a rich local lifestyle atmosphere have recently attracted heightened attention from external tourists. This area's high concentration of long-term residents has further intensified the tensions between tourism practices and daily urban life.

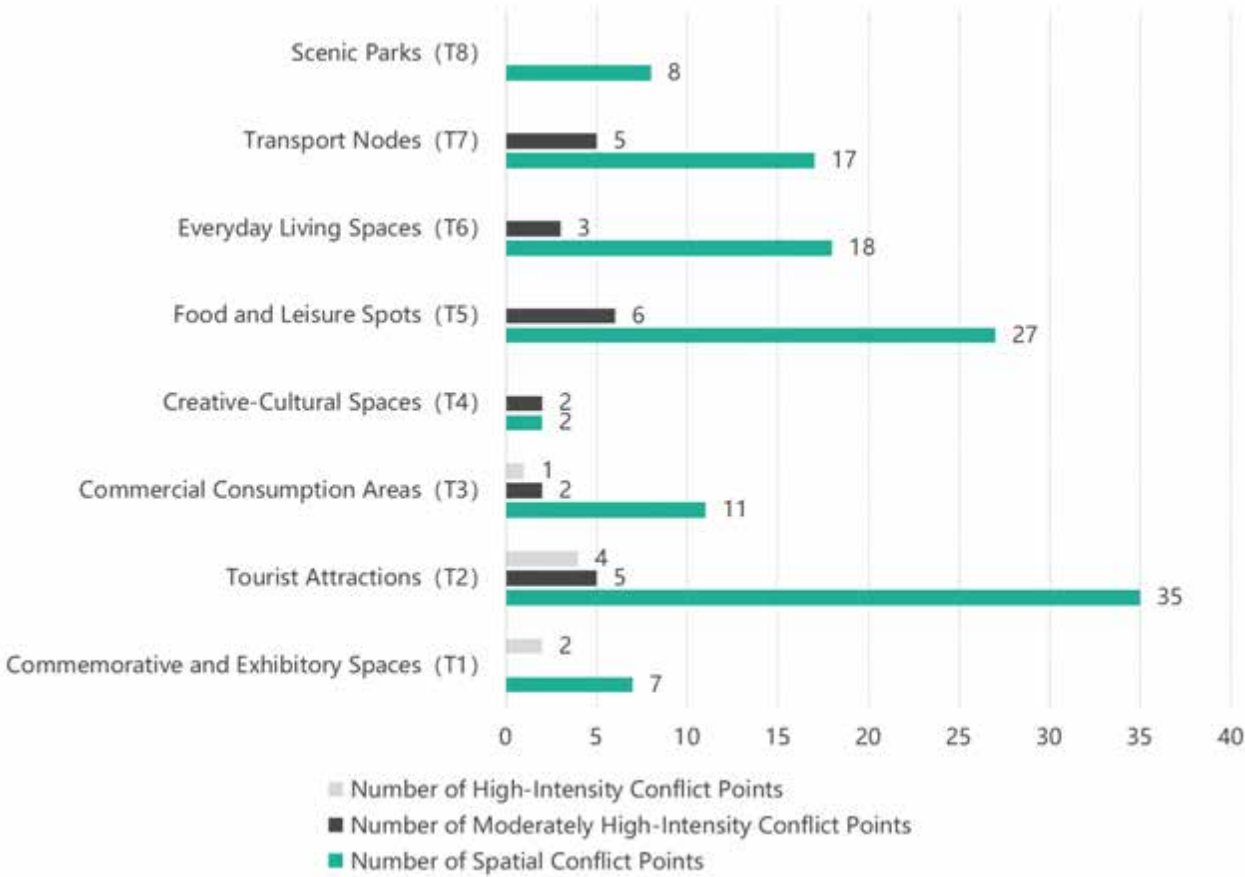
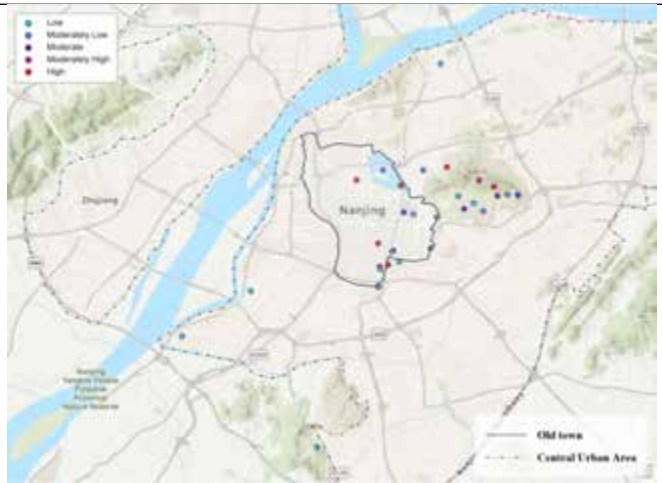


Figure 3 Statistical distribution of spatial conflict points



T1-Commemorative and Exhibitory Spaces



T2-Tourist Attractions

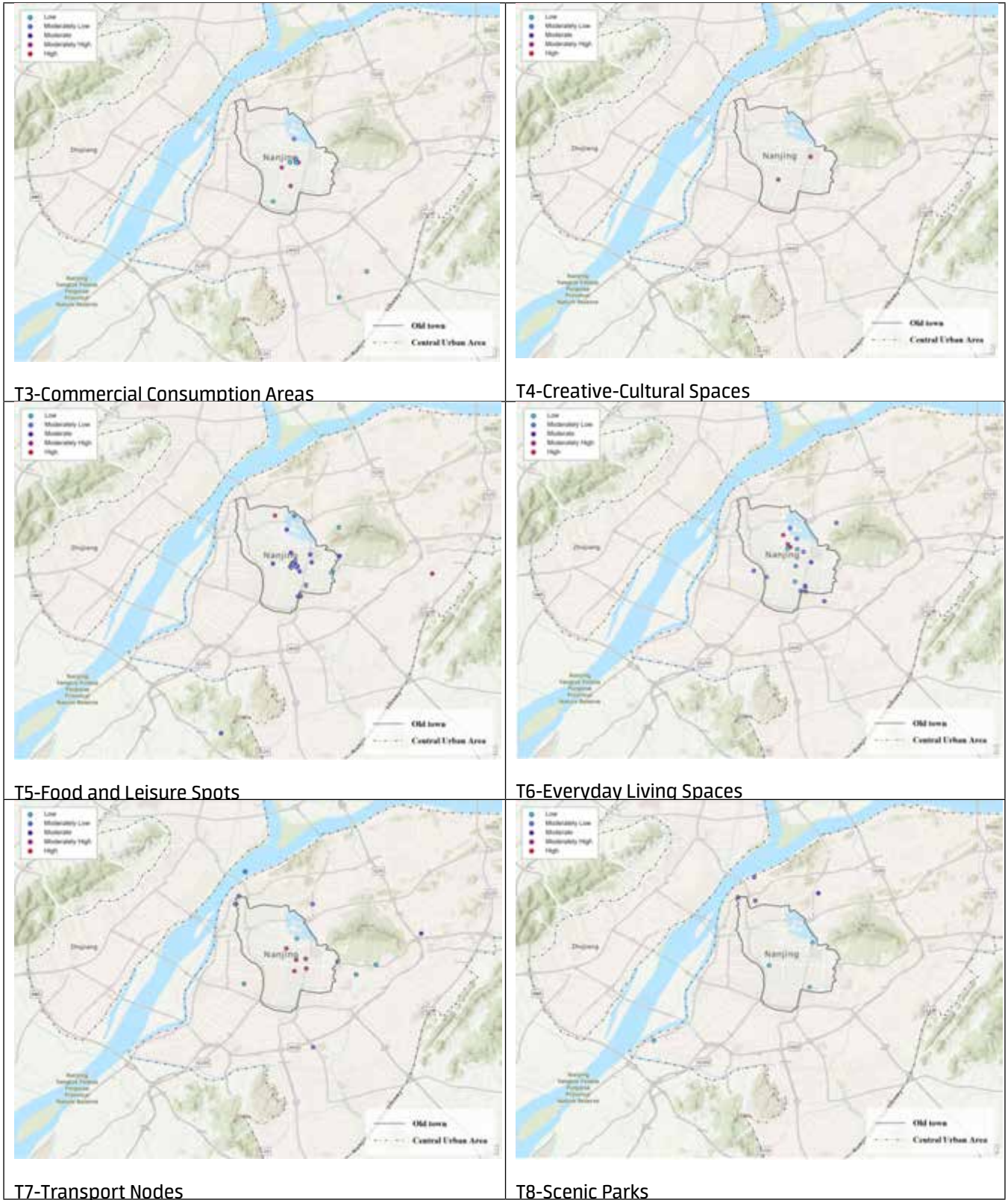


Figure 4 Spatial distribution of conflicts by dominant functional type

(3) Spatial conflicts and dominant functional types

Based on the typological classification and spatial distribution characteristics of conflict points, this study identifies three typical patterns that reflect the relationship between dominant functional types and the manifestation of spatial conflicts in urban tourism areas:

High-intensity clustered type: Tourist Attractions (T2), Food and Leisure Spots (T5)

This type of conflict pattern predominantly occurs in areas with the highest concentration of tourists and the most diverse range of tourism-related activities. These zones exhibit a high number and intensity of spatial conflict points, accompanied by a significant degree of spatial clustering. Representative cases include Laomendong, Sun Yat-sen Mausoleum, Xuanwu Lake, and the Xinjiekou commercial district. The conflicts in these areas are primarily driven by overcrowding, disruption of spatial order, and overloading of local resources, resulting in high-pressure scenarios. As such, these zones represent the primary risk areas in terms of urban tourism-related spatial tensions.

Intersecting and compressed type: Everyday Living Spaces (T6), Transport Nodes (T7)

This pattern mainly arises in urban spaces originally serving daily residential or transit functions. In recent years, such spaces have increasingly been integrated into the exploration-oriented tourist routes, such as "citywalk", due to tourists' growing interest in local lifestyles and authenticity. The overlap of spatial use between residents and visitors generates tensions rooted in mismatched temporal rhythms, spatial behaviors, and normative expectations. Typical examples include residential alleys in the Gulou District and metro station areas in the urban core. These spaces become points of friction as tourism penetrates into everyday life zones, challenging traditional patterns of use and social norms.

Low-frequency, High-sensitivity type: Commemorative and Exhibitory Spaces (T1), Creative-Cultural Spaces (T4)

Although conflicts in this category occur less frequently, the spaces involved carry strong symbolic and emotional significance, thus requiring a higher degree of behavioral regulation. When visitors' actions deviate from the cultural or normative expectations embedded in these spaces, even a limited number of conflict events can trigger strong emotional reactions and widespread public scrutiny. Notable examples include the Memorial Hall of the Victims in Nanjing Massacre and the Vanguard Bookstore. These spaces typically exhibit characteristics of "high sensitivity and low tolerance," where symbolic disruption outweighs quantitative frequency, and thus represent a unique and particularly delicate form of spatial conflict.

3.3 Spatial conflicts from the perspective of different actors

(1) Local residents

From the perspective of local residents, spatial conflicts are primarily concentrated in the eastern part of Nanjing's old city (Figure 5), generally forming a dual-core spatial distribution characterized by "one primary, one secondary" conflict center (Figure 6). The Xinjiekou area emerges as the most prominent conflict zone perceived by residents. As the commercial, transportation, and employment hub of Nanjing, Xinjiekou plays a crucial role in residents' daily commuting, consumption, and social interactions. However, the continuous influx of tourists has disrupted the balance of spatial usage, leading to intensified pedestrian congestion, overcrowding in public spaces, and frequent noise pollution. These disruptions have significantly lowered residents' tolerance for tourism-related activities in the area.

Laomendong constitutes the second core of perceived conflicts among residents. As a traditional neighborhood that retains both historical character and everyday life patterns, Laomendong has undergone a process of tourism-oriented transformation, which has attracted large volumes of visitors. Nevertheless, this has also triggered residents' discontent toward the "touristification of living spaces." The frequent overlap between visitor behavior and community life results in persistent intrusions on residents' privacy, tranquility, and daily routines, turning the area into a typical hotspot of "shared space conflict."

Notably, nearly all “moderate-to-high intensity” conflict points perceived by residents are concentrated within the old city boundaries. This highlights residents’ heightened sensitivity and defensive responses to disruptions in their daily living environments.

In summary, residents’ perception of spatial conflict primarily stems from the ongoing disturbance of established living patterns caused by tourism activities. The spatial distribution of these conflicts is concentrated in areas with dense residential functions and high tourist footfall, showing pronounced features of spatial centrality and conflict intensity.

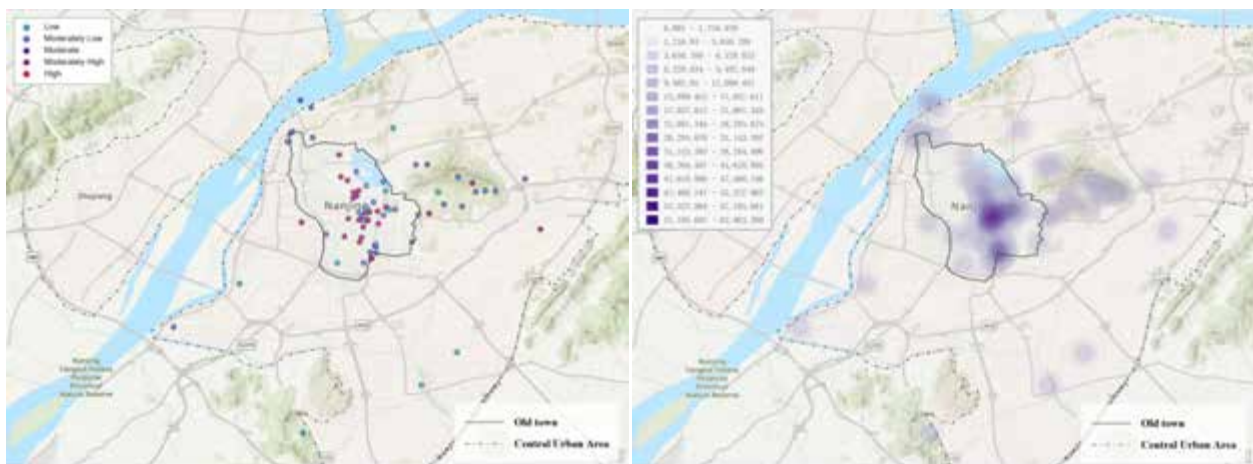


Figure 5 Spatial conflict distribution and intensity from the perspective of local residents

Figure 6 Kernel density analysis of spatial conflicts from the perspective of local residents

(2) Tourists

Unlike local residents, tourists exhibit a more dispersed perception of spatial conflicts (Figure 7), which overall presents a “one primary, three secondary” four-core distribution pattern (Figure 8). The Xijiekou area remains the principal conflict perception zone for tourists, which aligns closely with the perspective of local residents. As a key node for shopping and transportation interchange—and often the first impression space encountered by tourists—this area bears significant functions related to public service provision and urban image. However, the coexistence of mixed spatial functions, unclear signage systems, insufficient service facilities, and aging infrastructure tends to generate a sense of disorientation during tourists’ initial experience, thereby intensifying their perception of spatial conflict.

Similarly, the Laomendong area is another zone where tourist and resident conflict perceptions significantly overlap. As a historical district that attracts prolonged tourist visits, tourists often express concerns about the increasing commercialization, spatial homogenization, and excessive crowding. These issues, when intertwined with residents’ resentment toward the “touristification” of their living space, highlight the area’s typical “shared space conflict” characteristics.

The Presidential Palace–Kexiang neighborhood represents a boundary zone where tourism and everyday life are densely interwoven. Tourists frequently enter residential courtyards by mistake, generate noise, or loiter for extended periods during their visits, often resulting in friction with community life. On one hand, such behaviors may lead to discomfort or embarrassment for the tourists themselves; on the other, they further exacerbate residents’ dissatisfaction with tourism-induced disruptions.

The Zhongshan Scenic Area, as a suburban-oriented core attraction with abundant natural and cultural resources, also emerges as a conflict zone during peak seasons. Despite its significance, the site suffers from inadequate navigation systems and severe congestion, which degrade the overall visitor experience and prompt short-term conflict perceptions.

In general, spatial conflict perceptions among tourists mainly stem from their immediate experiences with services, information, and spatial order in unfamiliar environments. These perceptions are spatially dispersed, with a clear multi-core structure, and the intensity of perceived conflict tends to be moderate and fragmented. This distribution stands in sharp contrast to the local residents' concentrated and high-intensity conflict patterns, revealing the differentiated mechanisms through which distinct user groups engage with urban space.

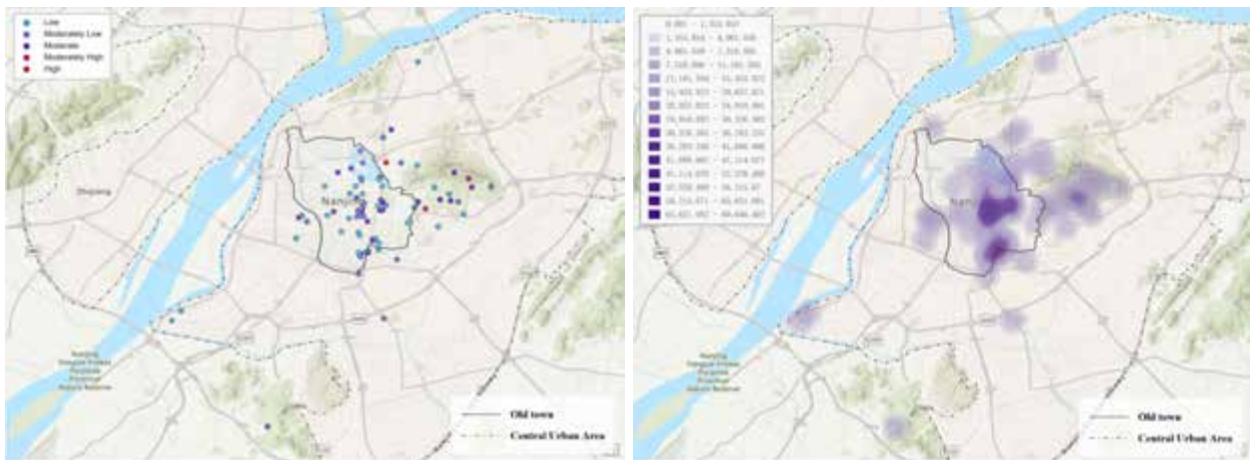


Figure 7 Spatial conflict distribution and intensity from the perspective of tourists

Figure 8 Kernel density analysis of spatial conflicts from the perspective of tourists

(3) Comparative differences

In terms of the number of spatial conflict points, tourists identified a total of 87 conflict locations, significantly more than the 73 points identified from the perspective of local residents. This discrepancy suggests that tourists, due to their broader activity trajectories in an unfamiliar city, are more prone to encounter experiential friction during movement, consumption, and interaction, thereby exhibiting a heightened sensitivity to spatial conflicts.

Regarding conflict intensity, local residents' perceptions are mainly concentrated within the old urban core, demonstrating a "high-intensity, high-density" clustering pattern. In contrast, the "high-intensity" conflict points perceived by tourists are more often located in peripheral scenic areas and key urban nodes, forming a distribution characterized by "high-value points, wide-area coverage." This reflects tourists' wider spatial scope and more scattered conflict experiences compared to the residents' localized concerns.

From the perspective of spatial structure, residents' perception of conflict presents a "concentrated" pattern, revealing their strong desire to protect the stability of specific everyday living spaces. Conversely, tourists' conflict perception shows a "dispersed" pattern, often emerging as incidental friction encountered during the tourism mobility process. The root of this divergence lies in differing urban space usage logics: residents emphasize the continuity and order of daily life, while tourists prioritize the completeness and comfort of short-term experiences.

Despite these differences, both groups show high levels of agreement in their conflict recognition within certain critical urban spaces (Figure 9). For example, Xijiekou, as a multifunctional urban core where commercial,

transportation, and employment functions overlap, and Laomendong, a historic district where everyday life and tourism are tightly intertwined, are both frequently cited by residents and tourists alike. These areas jointly constitute the most prominent zones of spatial conflict in the city.

Overall, spatial conflict is not merely a manifestation of behavioral friction at the individual level. More profoundly, it reflects the tensions and coordination challenges among different social groups in the process of “sharing the city.” Understanding these differentiated perceptions is crucial for formulating inclusive and responsive urban planning strategies.

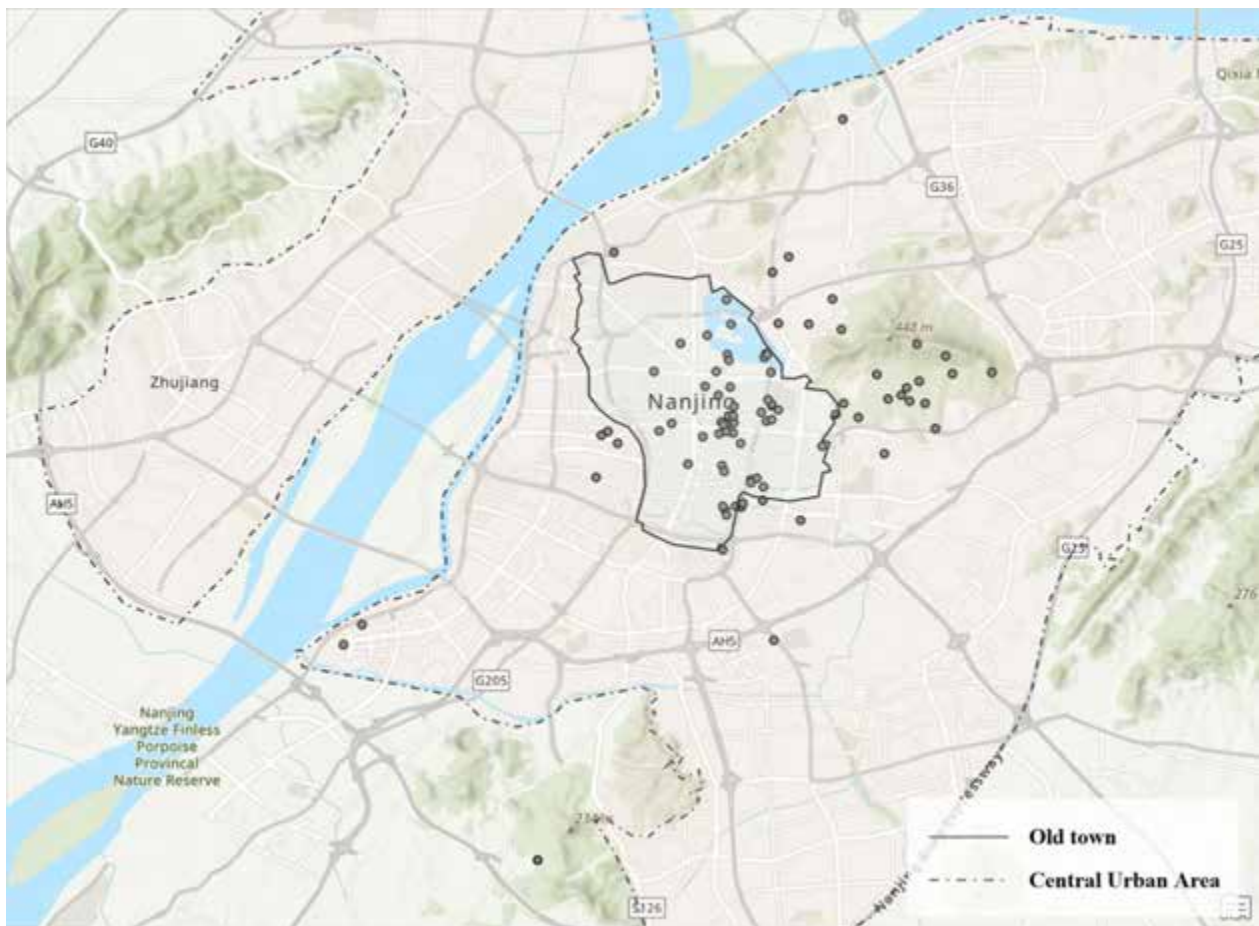


Figure 9 Shared conflict points from different actor perspectives

4 Discussion and Conclusion

4.1 The mechanism of spatial conflict generation: The interaction among structure, action, perception, and platform

Spatial conflicts in tourism are not merely the accumulation of isolated and accidental incidents; rather, they represent a systemic phenomenon embedded within the city's spatial structure, social behavior patterns, and digital platform mechanisms. To develop a more systematic understanding of the logic behind conflict generation, this study draws on Henri Lefebvre's theory of the “production of space” to construct a three-dimensional model encompassing the structural layer (representational space), the action layer (spatial practice), and the perceptual layer (representations of space).

At the structural level, urban planning regulations, tourism development policies, and the functional layout of

space provide the institutional and material foundations for spatial conflicts. In Nanjing—particularly within the old city—there exists a high degree of overlap between historical heritage and modern urban functions. Residential, transportation, commercial, and tourism activities coexist and often overlap, intensifying competition over space and increasing conflict intensity. Additionally, the lack of clear functional zoning, imbalances in infrastructure allocation, and uneven distribution of tourism resources all contribute to spatial tension and functional antagonism.

At the action level, spatial practices by diverse actors form the behavioral mechanisms through which conflicts emerge. Tourists, guided by social media platforms, tend to follow hotspot-driven routes of exploration, while local residents utilize the same spaces according to the rhythms of daily life. These two user groups differ significantly in their behavioral tempo, adherence to spatial norms, and expectations of space. Urban governance often lags behind these spatial dynamics; the boundaries of regulation remain ambiguous, and management mechanisms struggle to respond effectively. Meanwhile, the algorithmic recommendations, tagging systems, and hotspot aggregation functions of platforms further guide and reinforce individual spatial preferences, exacerbating tensions in space usage.

At the perceptual level, spatial conflicts are constantly generated and amplified through individual experiences, cognitive dissonances, and emotional expressions. Tourists who encounter negative experiences frequently share them on social media using warning-laden terms such as “red flags” or “traps,” turning their posts into user-generated content that enters the public opinion sphere. Local residents, feeling the encroachment of tourists, develop psychological defenses toward their living spaces, which often manifest as cognitive opposition to tourist activities. These emotional narratives and cognitive divergences overlap and reinforce one another within the digital environment, amplifying awareness and perception of conflict.

Social media platforms, as deeply embedded spatial agents, play a dual role in the conflict generation process. On one hand, they transform fragmented individual experiences into collective perceptions, enabling originally dispersed tensions to be “tagged” and “mapped,” thereby acquiring characteristics of public dissemination and cognitive stability. On the other hand, through mechanisms such as trending lists, check-in culture, and personalized recommendations, platforms reconstruct tourists’ spatial imaginaries and anticipated pathways, intensifying the spatial burden and disorder in hotspot areas and giving rise to new conflict nodes.

Therefore, the generation of spatial conflicts in tourism should not be oversimplified as a result of governance failure or individual misbehavior. Instead, it should be understood as a continuous negotiation among multiple actors within urban space over resource allocation, behavioral norms, and cognitive orders. Urban space is not a neutral physical container but a socially produced space constantly shaped through institutional structures, behavioral interactions, and emotional expressions. In this evolving spatial production, the mechanisms of digital platforms have emerged as indispensable participants in governance and influential forces in reshaping urban order.

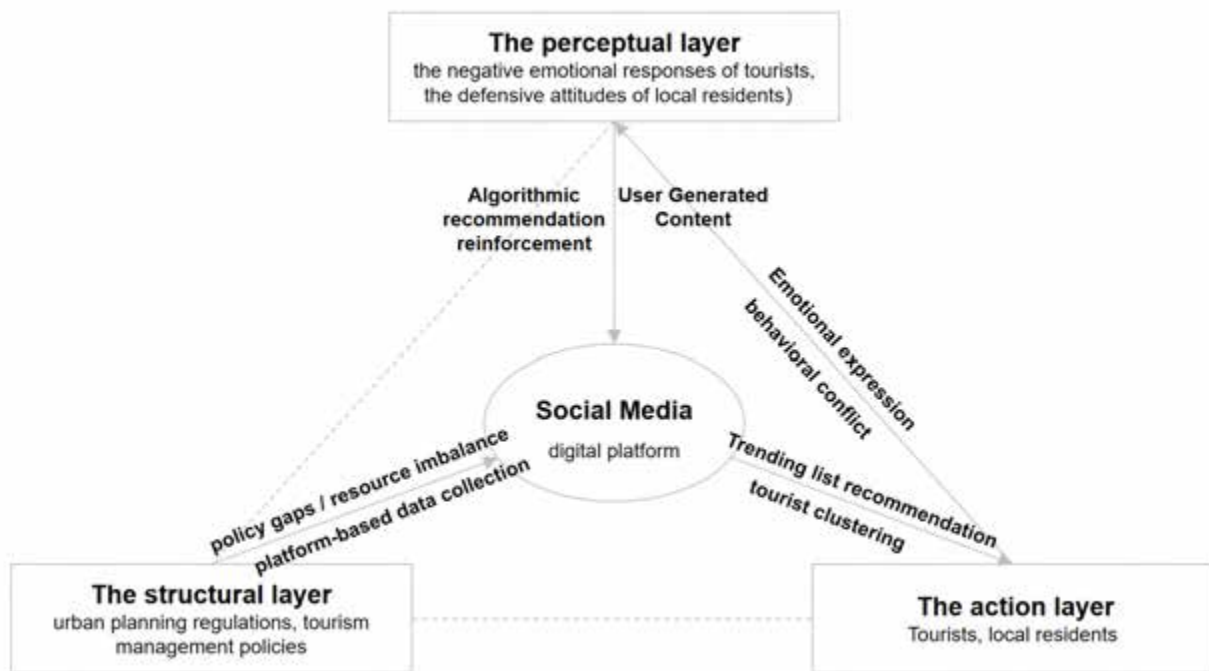


Figure 10 The mechanism of spatial conflict generation: the interaction among structure, action, perception, and platform

4.2 Governance shift of spatial conflicts: From passive management to spatial regeneration

In response to the growing prevalence of spatial conflicts in urban tourism areas, urban governance urgently needs to shift from a passive logic oriented toward emergency response and control to a proactive pathway of spatial (re)production centered on promoting coexistence. This transformation entails a systematic advancement in four key dimensions: enhancing spatial carrying capacity, optimizing behavioral guidance mechanisms, strengthening data feedback capabilities, and embedding adaptive renewal strategies—collectively shifting the governance paradigm from problem patching to spatial activation.

Enhancing the spatial carrying capacity and dynamic adaptability of high-intensity conflict zones. In high-conflict areas such as Xijiekou and Laomendong, integrated strategies combining “micro-renewal” and “refined governance” can be employed to improve pedestrian accessibility, introduce temporary rest nodes, and incorporate flexible space-use mechanisms. These measures strengthen the area's resilience to high-density flows. During peak periods, time-sharing policies can be introduced to dynamically regulate tourist volume and mitigate disruptions to residents' everyday lives.

Recognizing and softly managing “gray conflict spaces.” These spaces—typically found in residential alleys, transit hubs, or other non-typical tourist zones—often feature blurred functional boundaries and insufficient formal governance, making them potential blind spots for conflict generation. Soft spatial interfaces, participatory community co-management, and strengthened behavioral guidance can improve local self-regulation. For example, establishing “quiet hours,” enhancing the readability of wayfinding systems, and creating communication platforms between residents and tourists can reduce friction.

Integrating social media feedback mechanisms into spatial governance frameworks. A dynamic feedback loop—consisting of conflict detection, consensus-building, and behavioral intervention—can be developed by incorporating platform-generated data. Real-time monitoring of spatial hotspots, semantic intensity, and actor

profiles enables early warning systems and cross-sectoral response, facilitating a shift from static regulation to adaptive coordination.

Embedding the governance of tourism-related spatial conflicts into broader urban renewal and regeneration strategies. Addressing spatial conflict can become a critical entry point for reactivating urban vitality and reconstructing publicness and collective identity. High-intensity conflict zones can serve as experimental fields for governance innovation, where cultural nodes, public art, and local life scenes are embedded to foster incremental, flexible renewal of old neighborhoods. This approach cultivates a public space culture grounded in humanistic care and shared values. The governance mindset thus transitions from “controlling space” to “empowering space,” fostering a symbiotic relationship among tourism, everyday life, and urban development, and steering cities toward a more resilient and inclusive model of coexistence-oriented governance.

4.3 Reframing spatial conflict: From “Avoidance” to “Coexistence”

By analyzing the spatial semantics and typologies of UGC content categorized under “Nanjing Tourism Red Flags” on the Xiaohongshu platform, this study uncovers three emerging characteristics of urban tourism spatial conflicts under the influence of digital platforms:

Decentralized and fragmented conflict distribution. Spatial conflict is no longer concentrated in traditional tourist attractions but is widely dispersed across everyday alleys, transportation nodes, and consumption-oriented spaces. This fragmented pattern reflects both the increasing normalization of tourism within everyday urban life and the amplification effect of social media platforms that bring visibility to non-traditional tourist spaces.

Diversification and heterogeneity of conflict types. This study identifies three typical spatial conflict patterns: “High-intensity clustered type,” “Intersecting and compressed type,” and “Low-frequency, High-sensitivity type”. These typologies reveal the complex interplay between tourist mobility patterns, residents’ daily rhythms, and spatial governance logic. Each conflict type differs in its mechanism of emergence, spatial attributes, and emotional feedback, requiring tailored governance strategies rather than a one-size-fits-all approach.

Platform-mediated differentiation of perceptions and amplification of emotions. Social media platforms have transformed both the generation and dissemination of spatial conflict. Individual experiences are rapidly aggregated into collective perceptions, while behavioral frictions are compounded by perceptual divergences and emotional expressions, resulting in an emotionally charged digital public sphere. Differences in spatial expectations, cognitive tensions, and imagined orders between residents and tourists are continuously constructed and intensified through platform-based narratives.

Taken together, spatial conflicts in Nanjing’s tourism context can no longer be treated as manageable “issues” within the purview of a single administrative department. Rather, they represent a complex phenomenon shaped by institutional logics, behavioral patterns, and media mechanisms. Social media platforms are no longer mere amplifiers of conflict—they have become deeply embedded actors in the (re)construction of spatial order.

Future urban spatial governance must move beyond traditional frameworks of physical space and administrative zoning, and instead, respond to the embedded mechanisms of platform-mediated spatial order. This study’s empirical analysis of tourism-related spatial conflicts in Nanjing presents a multidimensional portrait of how urban conflict is produced in the platform era, offering both theoretical grounding and practical insight for constructing a “coexistence-oriented” governance system.

Further research could deepen this inquiry by integrating data across multiple platforms, tracing temporal evolution trajectories, and examining micro-scale individual behaviors, thereby enriching our understanding of how digital media intervenes in the production of urban space and the transformation of spatial conflict.

References

- Barns, S., 2019. Negotiating the platform pivot: From participatory digital ecosystems to infrastructures of everyday life. *Geography Compass*, 13(9), pp.1-13.
- Biagini, E., 1993. Spatial dimensions of conflict. *GeoJournal*, 31, pp.119-128.
- Chen, L. and Zheng, X., 2015. Rational reflections on contemporary urban spatial conflicts. *Zhejiang Social Sciences*, (6), pp.76-81, 157-158. (In Chinese)
- Cheng, J., 2013. Research on spatial conflicts and governance mechanisms in ecologically fragile ethnic areas of China. PhD. East China Normal University. (In Chinese)
- Cocklin, C., 1988. Environmental values, conflicts and issues in evaluation. *Environmentalist*, 8(2), pp.93-104.
- Cui, L., Wang, M. and Zhou, Y., 2024. Research on the spatial reshaping of urban cultural and creative parks from the perspective of social media: A case study of Shanghai. *Geographical Research*, 43(5), pp.1166-1186. (In Chinese)
- Langley, P. and Leyshon, A., 2017. Platform capitalism: The intermediation and capitalization of digital economic circulation. *Finance and Society*, 3(1), pp.11-31.
- Li, Y., Xie, J. and Wang, Q., 2018. Evaluation and spatial optimisation strategies of behavioural conflicts in tourism space: A case study of Gulangyu. *Geography and Geo-Information Science*, 34(1), pp.92-97. (In Chinese)
- Liu, Y. and Zhao, Z., 2021. Spatial characteristics and formation mechanism of multi-group conflicts in ethnic tourism communities from the perspective of residents: A case study of Xijiang Qianhu Miao Village. *Geographical Research*, 40(7), pp.2086-2101. (In Chinese)
- Pan, Z., 2021. Research on spatial conflicts and influencing mechanisms in tourism communities. MA. Xi'an International Studies University. (In Chinese)
- Zhou, G. and Peng, J., 2012. Evolution characteristics and impacts of spatial conflicts: A case study of the Chang-Zhu-Tan urban agglomeration. *Progress in Geography*, 31(6), pp.717-723. (In Chinese)
- Zhou, K., Zhang, H. and Xia, Y., 2021. New characteristics of urban consumption space under the influence of social media: A case study of Changsha's 'internet-famous check-in places' on Xiaohongshu. *Modern Urban Research*, (9), pp.20-27. (In Chinese)
- Zhou, L., Chen, C. and Xie, Y., 2024. Research on the spatial production mechanism of the 'internet-famous transformation' in Shanghai's historic districts: A case study of the renovation of Yuyuan Road in Changning District. *Urban Planning International*, pp.1-17. [Online] Available at: [URL if available] [Accessed 27 November 2024]. (In Chinese)