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Counter-mapping place ballet for urban design: Informal *Yu* opera practices among elderly rural migrants at Youran Pavilion, Jinan, China

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Abstract

This paper develops a counter-mapping approach to informal public performance spaces. It examines how these spaces take shape through everyday negotiations, rhythmic practices and micro-spatial tactics. The mapping techniques constitute counter-mapping because they intentionally trace patterns of use that remain absent from official zoning maps and scenic masterplans, making visible the lived routines and spatial claims of elderly rural migrants that formal representations typically overlook. These mapped rhythms also provide a basis for small design and management adjustments that move beyond the limits of static base-maps and enforcement-led zoning. The analysis draws on the concept of *place ballet* to interpret these mappings and examine the temporal routines, spatial rhythms and power relations embedded in public performances. Focusing on elderly rural migrants in Jinan, China, particularly within the city's historic core and the renowned Daming Lake Park, the study uses participant observation, interviews and mapping techniques organised around five analytical lenses: timeline of events; trajectories, movements, rhythm and power; layout and spatial organisation; environmental factors; and props, imagination and cultural symbols. These analyses reveal how performance practices function both as cultural expression and as a means of fostering social connection and emotional resilience, while also uncovering the complex dynamics of everyday spatial practice.

Keywords Counter-mapping · Informal public performance space · Place ballet · Elderly rural migrants · Spatial negotiation · Temporary appropriation

Introduction

Since the late 20th century, China's rapid urbanisation has driven large-scale internal migration, including a growing number of older adults relocating from rural to urban areas (MacLachlan and Gong 2022). Jinan, the capital of Shandong Province, draws many elderly rural migrants from the southwestern region—including Heze, Jining and

Liaocheng—who move to the city for family reunification, access to healthcare, or to care for grandchildren (Wang and Lai 2022; see Fig. 1). Despite their crucial role in urban family life, these migrants often remain marginalised in formal public spaces due to household registration (*hukou* 户口)¹ restrictions and limited access to community services (Yang and Kang 2025). Yet, social participation is increasingly recognised as central to their well-being in urban China

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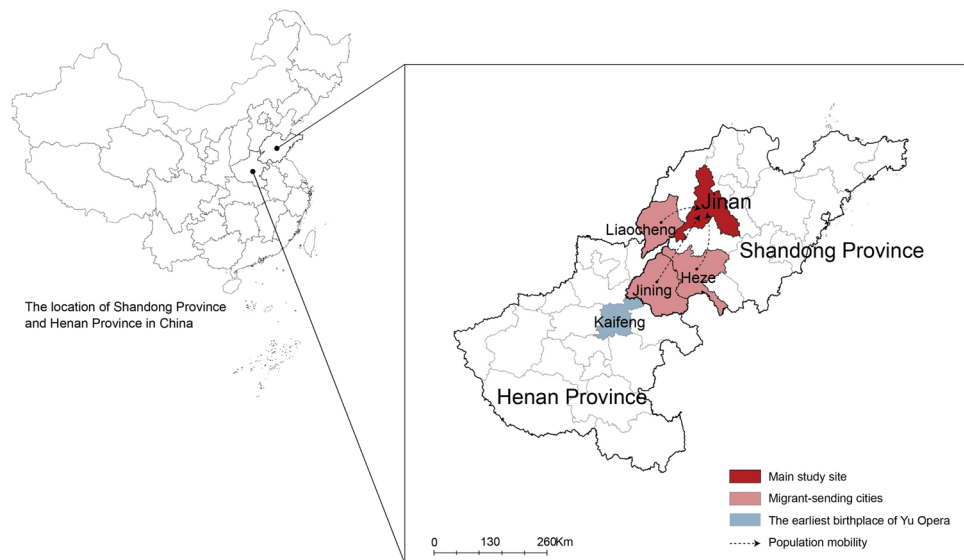
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¹ China's *hukou* (household registration) system was formally established in 1958 to control internal migration. It divided citizens into rural and urban statuses, linking access to jobs, education, and social services with one's place of registration. During the 1960s–70s, migration was tightly restricted. Since 1978, reforms have slowly eased controls, but big cities still maintain barriers. In 2014, China began merging rural and urban *hukou* categories, yet full access to benefits remains unequal for many rural migrants. (Vortherms and Liu 2022).



Fig. 1 Geographical origins of elderly rural migrants and their proximity to the birthplace of Yu opera. (Drawn by the first author)



(Wang 2011; Zhang et al. 2022), even as such institutional and social barriers constrain their ability to engage in community life.

In response to these conditions, many elderly rural migrants engage in informal cultural practices, most notably the performance of *Yu* opera (Henan opera)² in everyday urban settings such as parks, plazas, streets, infrastructure edges and privately owned public spaces. Rooted in the dialects, stories, and vocal traditions of their rural childhoods in southwestern Shandong—a region proximate to the birthplace of *Yu* opera—these performances serve as both cultural expression and affective continuity (Qian 2014a; Li and Yan 2020). While younger migrants or local residents may watch briefly as bystanders, the regular sessions are sustained almost entirely by elderly rural migrants. Their ability to participate derives both from life-course conditions such as retirement and caregiving duties, and from generational cultural memory, as *Yu* opera, performed in dialect, recalls the dominant form of rural entertainment in their youth. One of the most prominent sites where these dynamics unfold is the Youran Pavilion in Jinan's Daming Lake Park, a well-known scenic and cultural landmark. Although officially designated as a scenic attraction, the pavilion has also become a regular gathering place for *Yu* opera performances by elderly rural migrants, tactically reconfigured through rhythmic routines, props, and negotiated use (Fig. 2).

This research aims to address two key questions: How do elderly rural migrants use and adapt informal public spaces through embodied and rhythmic practices? How can these embodied temporal-spatial practices be captured and translated into design-relevant insights for inclusive public space planning?

For the elderly performers, these performances are highly regular and socially meaningful, yet their spatial and temporal needs remain largely invisible in urban design and park management. This invisibility stems from a representational gap: official zoning maps, scenic masterplans and enforcement registers, which prioritise order, predictability and visual control (Flock 2023), frame spaces like Youran Pavilion primarily as scenic overlooks or regulated cultural halls. Such representations overlook the embodied routines and negotiated uses that sustain the performers' activities, and they limit the ability of designers and managers to recognise where seating, shade, circulation buffers or more flexible-use zones may be required.

Making these lived routines visible is essential because it directly shapes elderly performers' access, recognition, and opportunities in public space. To address this gap and translate lived practices into design-relevant knowledge, the study adopts an integrated approach of counter-mapping informed by the concept of 'place ballet'. Place ballet provides an analytical lens for understanding how embodied routines and temporal rhythms generate a shared spatial order. Counter-mapping, in turn, makes these spatial and temporal routines legible in ways that formal representations typically overlook. This combination reveals the situated, rhythmic and negotiated ways in which elderly migrants inhabit the pavilion, offering insights that can support more inclusive and responsive public space design.

² *Yu* Opera (豫剧) As one of China's five major traditional operas, *Yu* opera originated in Henan Province and is known for its bold vocal style and themes of loyalty, resilience and everyday life. Its popularity in rural northern China—including southwestern Shandong—has made it an enduring part of many migrants' cultural memory.

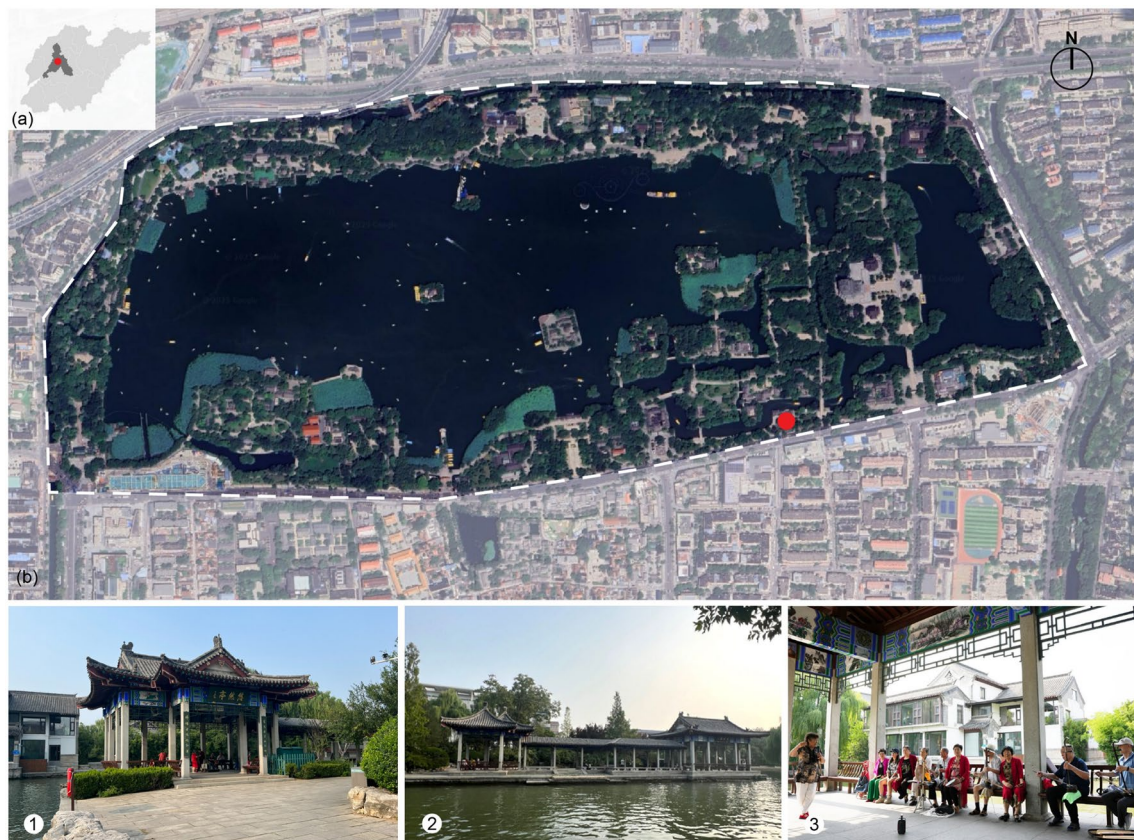


Fig. 2 Location and site images of Youran Pavilion in Daming Lake Park, Jinan. **a** The location of the study site in Jinan, Shandong Province. **b** The boundary of Daming Lake Park, with the red dot marking the position of Youran Pavilion. (1–2) Street-level views of Youran

Pavilion and its surroundings. (3) Informal *Yu* opera performance by elderly rural migrants inside the pavilion. (Google Earth maps annotated by the first author; Photos by the first author)

While existing research on elderly rural migrants in China often focuses on political narratives or urban development (Liu et al. 2020) or remains limited to economic status and rights among migrant workers (Chen and Quick 2024; Kerzhner 2023; Zou and Deng 2020), it rarely addresses their spatial agency. This study offers an original contribution by combining the concept of place ballet (Seamon 1979) with counter-mapping to document the temporal rhythms, spatial trajectories, and power negotiations embedded in everyday performance. In doing so, it converts observed spatial behaviours into practical knowledge for inclusive design, moving beyond traditional planning models based on rigid, predefined functions.

Theoretical framework: Place ballet in informal public spaces

The concept of place ballet, introduced by sociologist David Seamon (1979, 1980a), offers a valuable framework for understanding how urban spaces are dynamically shaped through bodily movements and social routines. Place

ballet is composed of ‘body ballets’—repetitive bodily movements—and ‘time–space routines’—regular behaviours anchored in specific locations. When these routines converge within a shared space, they generate a place ballet, producing emotional attachment and socio-spatial meaning (Seamon 1979; Seamon and Nordin 1980b). These routines, comparable to Hägerstrand’s (1970) time–space paths and Shove’s (2009) practice time profiles, reduce the need for constant decision-making and foster familiarity and ease of movement.

The case of *Yu* opera at Youran Pavilion shows how a specific cultural form structures embodied routines into a recognisable place ballet. As a traditional performance form widely practiced among older populations in north-central China, *Yu* opera provides a codified grammar of sound, movement, and sequence that actively generates collective rhythms of use. Its rhythmic percussion (*luogu dian* 锣鼓点) regulates timing, emotional intensity, and transitions, while choreographed gestures such as the slow spiral entrance organise performers’ bodily positions within space. The rotating solo format, typically three to five minutes per performer, establishes a regular temporal routine that

structures participation through repeated turns, ensuring continuity in an open public setting. These conventions directly materialise Seamon's (1979) concepts of body ballet and time–space routines: percussion synchronises collective attention, rotating solos establish sequential order, and the shared familiarity with the form enables smooth coordination without explicit instruction. Through these embodied conventions, *Yu* opera transforms the pavilion into an informal stage, not by altering its physical form but by orchestrating social rhythm, audience orientation, and pedestrian flow, thereby continually reshaping public space through the affective rhythms of everyday life (Lefebvre 1991). As Edensor (2010), Wunderlich (2010), and Lewicka (2011) suggest, such rhythmic, situated practices underlie the creation of place in contemporary urban settings. At the same time, these rhythmic routines extend beyond coordination, shaping how participants negotiate identity and belonging in the city.

Extending the concept of place ballet as a culturally embedded script, for elderly rural migrants at Youran Pavilion, their spatial routines are a fundamental process of identity construction. Identity here is understood not as a static label but as a lived, strategic formation (Bhabha 1994) shaped through cultural practice in public space. For participants, *Yu* opera performance is not merely leisure but a means of negotiating belonging in the city, operating on three interrelated levels. First, it involves the reassertion of a cultural and regional identity. Interviews revealed that participants often introduced themselves as carriers of *Yu* opera heritage, emphasising their knowledge of dialect, repertoire, and stage conventions as a form of cultural authority, countering perceptions of marginality often attached to rural migrants. Second, it fosters a community of mutual recognition and support. Repeated observations showed that the group provides companionship, validation, and a shared sense of purpose. This is particularly important in the absence of formal urban networks for those whose everyday lives and values are otherwise defined by domestic caregiving responsibilities. Third, it constitutes a nostalgic, practice-based community. Participants described how shared memories, embodied gestures, and familiar lyrics helped them maintain symbolic ties to their home villages and earlier life stages. This layered identity is not abstract; it is continually enacted and embodied through the repeated spatial routines, collective gestures, and interactions that form their place ballet. Much like ritual practice generates new social realities (Houseman 2004), this performance actively reproduces public space as a site of belonging and resilience, resonating with Turner's (1970) notion of temporary *communitas*.

Methodology and methods

A counter-mapping approach

Building on this theoretical framing, the study employs counter-mapping to operationalise Seamon's notion of place ballet, tracing how embodied routines of *Yu* opera performances are spatially enacted. Counter-mapping refers to mapping practices developed to challenge dominant cartographic conventions, making visible the everyday experiences, claims and negotiations of marginalised groups (Peluso 1995; Wood 2010). Conventional cartographic approaches, often reliant on GIS or large-scale spatial datasets, privilege fixed representations and quantitative patterns, even when applied to informal urban contexts (Petrooulos et al. 2015; Ngo and Kamalipour 2024). Such methods risk overlooking the micro-scale, culturally specific practices that constitute everyday life while reproducing exclusions through claims of neutrality. Alternative approaches such as psychogeography, participatory mapping, and ethnographic mapping (Debord 1967; Peltó 2013; Gordon et al. 2016) have sought to foreground lived experience, yet they remain underutilised in studies of informal cultural practices. As Wilmott and Wood (2024) critically demonstrate, integrating mapping with an analysis of rhythm and social interaction can reveal the otherwise invisible dynamics of urban spaces.

In this study, counter-mapping at Jinan's Youran Pavilion was employed to trace the dynamic place ballet generated by *Yu* opera performances. This process was guided by Seamon's (1979, 1980a) framework, focusing on capturing the three core constituents of place ballet: the repetitive gestures of body ballet, the habitual pathways of time–space routines, and their convergence within the physical setting of the pavilion. Ethnographic observations were transformed into iterative drawings and diagrams that captured sequences of movement, rhythm, and spatial negotiation. These mappings systematically recorded temporal patterns (such as performance starts, breaks, and endings), movement trajectories (including performers' entrances and audience circulation), and spatial arrangements (placement of props, tricycles, and instruments), ensuring that the counter-maps reflected the structured routines underpinning the pavilion's place ballet. Through this iterative process, the mappings revealed ephemeral practices such as the use of props, shifting formations, and negotiated occupations, highlighting how performers collectively produced spatial rhythms that exceeded formal designations of use.

This framework understands mapping as a practice entangled with power, discourse, and memory (Edney 1993; Harley 2011). *Yu* opera performance maps are treated as active, world-making devices that render otherwise invisible



social relations visible (Wood 1992, 2010, 2012; Crampton 2009). Such an understanding also resonates with other urban contexts. Piazzoni's (2022) study of street vending in Rome, for instance, demonstrates how mapping uncovers the negotiations and material arrangements sustaining an ever-shifting spatial order. Mapping thus functions simultaneously as an interpretive act (Corner 1999) and a performative act (Del Casino and Hanna 2005), continually reshaped through its production and use (Dodge et al. 2009).

By synthesising counter-mapping with place ballet, the study advances a methodological framework rooted in design research. The resulting visualisations operate dually: as analytical practices that trace embodied rhythms and shared routines, and as projective design tools that visualise the adaptive strategies of marginalised groups. In doing so, the approach makes the cultural strategies of elderly rural migrants, expressed through *Yu* opera performance, temporary appropriation, and material improvisation, legible to urban design, offering more inclusive ways of engaging with everyday spatial production.

Research methods

This empirical study involved 17 participants aged between 62 and 90, all living near the Youran Pavilion. In China, people aged 60 and above are officially classified as *laonianren* (老年人, literally 'elderly person'), according to the Law on the Protection of the Rights and Interests of the Elderly (National People's Congress Standing Committee 2012). The term frequently emerged as a self-referential category in interviews and conversations during fieldwork. This identification is not only age-related but also reflects earlier life-course transitions, such as assuming grandparental responsibilities and facing limited access to formal urban employment. These factors contribute to their socio-spatial marginality within the urban context, for which the term 'elderly rural migrants' is used throughout the study. Meanwhile, the label 'elderly performers' highlights their active role as cultural practitioners who shape public space through embodied performance. For many elderly migrants, *Yu* opera was the dominant form of rural entertainment and moral storytelling in their youth, performed in familiar Henan and Southwestern Shandong dialects. This generational experience differentiates them from younger migrants and urban residents, who generally lack the same familiarity or emotional attachment.

Regular *Yu* opera performances at the Youran Pavilion, held Tuesday to Saturday from 2:00 to 4:00 p.m., are sustained largely by this group. Their predictable mid-afternoon schedule reflects both routine family care duties and the stability of a long-standing collective practice (Wang and Lai 2022). The park was selected for its function as a common meeting place for 'familiar strangers' (Milgram

1972) and as a popular destination for daily strolls, making it an ideal site for observing place ballet among older adults. The concept of 'familiar strangers' refers to individuals who, though not personally acquainted, frequently encounter each other during routine activities—for example, elderly people accompanying grandchildren to the playground or regular dog walkers sharing the same paths or benches. These repeated, mutually observed but unspoken co-presences subtly acknowledge one another's existence and collectively contribute to the creation of a place ballet.

The fieldwork primarily relied on participatory observation to capture the daily lives and embodied routines of participants (Rollinson 1990). The first author observed and documented expressive patterns not limited to language, but also encompassing appearance, gaze, gestures, body movements and spatial arrangements. Field visits to the Youran Pavilion were conducted every Tuesday and Saturday from July to the end of September 2023, focusing on performance days, while non-performance days were observed on other weekdays. August, as the peak tourist season, provided particularly rich opportunities for observing social interactions in Daming Lake Park. During these observation walks, interviews were also conducted, gathering participants' thoughts and experiences in a conversational, natural manner (Anderson 2004).

Each participant was interviewed several times, sometimes daily, as repeated interactions deepened the researcher's understanding of the phenomenon (Osborne 1990). This approach helped build rapport and trust, eliciting more authentic accounts of participants' experiences. It also encouraged reflection on habitual behaviours and routines that might otherwise remain unconscious (Creswell 2014; Hitchings 2012). Interviews were generally participant-led, with the first author asking relevant follow-up questions as the conversation unfolded. 'Why' questions were avoided to prevent over-rationalisation or defensive responses (Thompson et al. 1989), allowing participants to share their stories more naturally; deeper meanings were inferred from their narratives.

Observation sessions began in the park but did not always conclude there. On some occasions, the first author accompanied participants to their homes or nearby shopping areas. For those hesitant to engage in lengthy interviews, a semi-structured format with open-ended questions was used, focusing on specific topics such as walking routes. Initial interviews were recorded, while subsequent sessions relied on note-taking and drawing. As the first author's presence became routine, participants began to expect her visits and became more open to sharing their experiences. In addition, further observations were made from a distance to provide broader context, including the daily behaviours of other park visitors. The following section presents the fieldwork



findings, analysing the pavilion's place ballet through narrative descriptions and counter-mapping drawings.

Mapping place ballet at the Youran Pavilion

Jinan's Youran Pavilion is a dynamic site of temporal rhythms, spatial negotiations and evolving power dynamics, particularly during *Yu* opera performances. This section examines not only how space is used, but also by whom, for whom, and against whom. It further uncovers the hidden decisions about inclusion and exclusion, and the subtle acts of resistance that define the social order of the pavilion. For 7 years, performances have typically taken place on Tuesdays and Saturdays from March to December, with activities moving indoors in winter. Before each session, performers and organisers arrive early to prepare instruments and the performance area. The group is composed mainly of 15 resident actors, along with elderly rural migrants who rotate between various sites. Regular audiences include about seven core members, with others comprising passers-by, tourists and local residents. The performances feature three main themes: war and political struggles, folk tales, and love stories. These themes are performed in dialectal singing, using Henan and Southwestern Shandong inflections that immediately index regional belonging. Hearing one's 'own' dialect encourages migrants from the same areas to stop, listen, and join, reinforcing a shared emotional connection. Each event includes a short break, ending around 4:00 p.m., after which props are packed up and larger items are transported by tricycle.

These performances exemplify a process of temporary appropriation (Lara-Hernandez et al. 2020), whereby elderly rural migrants repeatedly inhabit and redefine public parks as cultural stages. This shifting spatial hierarchy illustrates the interplay of power, place-making and cultural identity—echoing Amanda Rogers' (2018) argument that intercultural performances enable marginalised groups to negotiate urban identities. Building on David Seamon's (1979, 1980b) three core concepts of 'body ballet' (purposeful bodily movement), 'time-space routine' (repetitive, cyclical behaviours), and 'place ballet' (the convergence of these routines within a shared environment), this study develops five analytical categories through a combination of theoretical extension and empirical observation. 'Trajectories, Movements, Rhythm and Power' builds on body ballet by attending not only to coordinated gestures but also to how spatial rhythms reflect patterns of negotiation and control among different user groups. 'Timeline of Events' extends time-space routine, capturing the cyclical rhythms and temporal regularities that structure informal access to the pavilion. 'Layout and Spatial Organisation' and 'Environmental Factors' elaborate

on the spatial embeddedness of place ballet, showing how physical arrangements and infrastructural conditions enable and constrain performance. By contrast, the fifth category, 'Props, Imagination and Cultural Symbols', was derived inductively from fieldwork, as material objects such as tricycles, costumes and musical instruments emerged as active participants in shaping performance, evoking collective imagination and signifying cultural meaning. Mapping these dynamics thematically, rather than relying on static boundaries, reveals how the pavilion is continually reshaped by its users. Objects, gestures and social relations together define the spatial and temporal rhythms of public life.

Trajectories, movements, rhythm and power

Body ballet at the Youran Pavilion encompasses more than coordinated gestures and steps; it is a structured interplay of rhythm, movement and interaction that produces social and cultural meanings in space (Fig. 3). Each performer sings for three to five minutes while others prepare through footsteps, gestures and drumbeats, creating a rhythm that draws audience attention and ensures sequential participation.

Figure 3 illustrates how 'moments', 'perception', 'rhythm', 'music score' and 'movement' jointly shape informal performance spaces. Sound, footsteps, sightlines and gestures guide spatial experience: performers often begin from the periphery and spiral toward the centre, using posture and gesture to focus the crowd's attention. Rhythm adapts across tempos such as 'pause', 'smooth' and 'accelerate', each shifting the emotional tone and narrative intensity. Changes in steps, gestures and posture during climactic moments are closely synchronised with drumbeats, amplifying dramatic intensity and reinforcing the immersive atmosphere of the performance.

These bodily routines are not random but structured negotiations of power. Broad, assertive gestures such as sweeping arm movements or pointing signal leadership and authority, carrying cultural meanings rooted in Chinese performance traditions (Siu and Lovrick 1997). In *Yu* opera, these gestures follow well-recognised role conventions. Expansive outward movements typically indicate heroic or authoritative *sheng* (生) roles, while softer inward-curving gestures align with the modest or emotionally restrained *dan* (旦) roles. Stylised actions such as a circular wrist turn that signals hesitation or a forward lunge used in martial scenes are immediately recognisable to older audiences who are familiar with *Yu* opera's narrative grammar. At Youran Pavilion, performers draw on these familiar expressive forms: when a singer moves toward the centre and uses expansive, outward gestures, audiences commonly interpret this as a legitimate claim to the focal zone and adjust their position accordingly, creating a wider central space. Upright



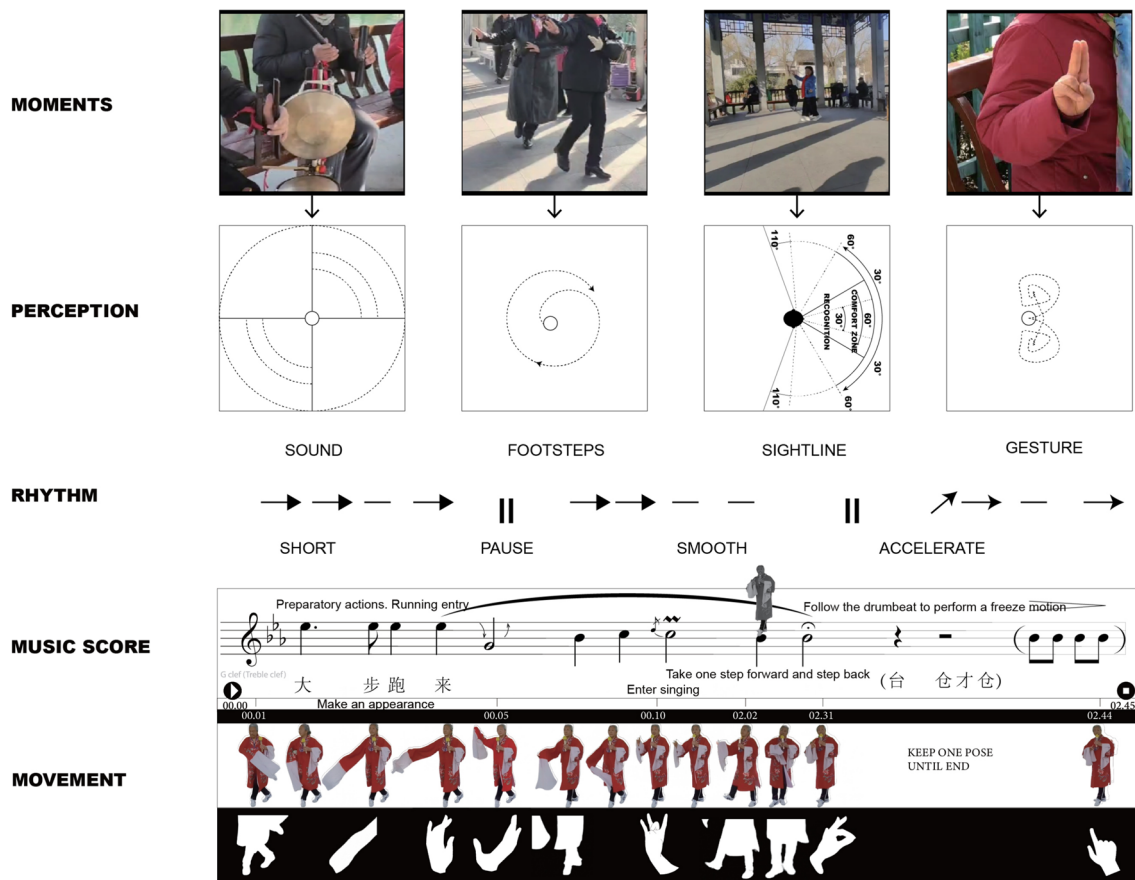


Fig. 3 Analysis of moments, perception, rhythm, music score and movement in performances. (Drawn by the first author)

posture conveys confidence and bent posture suggests humility or marginality (Farnell 1999). Eye contact and rhythmic intensity regulate dominance and subordination within the group (McNeill 2005). Field observations from Jinan in September 2023 show that audience members also participate through subtle bodily responses such as nodding, clapping or stepping back, which reinforce or resist performers' claims to space.

These subtle responses translate performers' narrative and emotional cues into collective spatial choreography. During moments of heightened percussion or dramatic gestures, spectators tend to widen the viewing arc or lean inward, concentrating the focus, while softer passages prompt smaller and quieter adjustments. Through these interactions, the codified grammar of *Yu* opera and the audience's embodied reading of it jointly and continually produce the pavilion's performance space.

Such micro-level negotiations connect directly to broader structures of urban governance. Performative rituals appropriate the pavilion without formal permits, thereby superimposing the lived space of collective practice upon the conceived space of park management (Lefebvre 1991). Regular spectators informally regulate boundaries by

guiding passers-by to the edges, while tourists inadvertently disrupt this fragile order. Park staff exercise discretionary authority, sometimes suspending performances, asking groups to lower volume after complaints, or restricting gatherings during politically sensitive times. During major municipal governance campaigns or national holidays, elderly performers generally accepted such interventions out of a sense of collective responsibility, yet once these events passed, they returned to the pavilion and re-established their routines (*fieldnotes*, September 2023). These interactions also reveal a tacit reading of cues: familiar rhythms, entry sequences and pacing signal to staff that the activity is routine and manageable, while louder, more dramatic passages tend to trigger closer monitoring. In this sense, embodied performance practices subtly shape managerial responses, producing a situational, negotiated form of oversight.

These patterned gestures and micro-negotiations do not only structure social interaction; they actively reorganise the pavilion's spatial order, pulling the performance nucleus toward the centre, pushing pedestrian movement to the edges, and redrawing, however temporarily, who may stand, pause, or pass through the space.

Timeline of events: From performances to everyday use

The Youran Pavilion follows a clear rhythm of use, shaped by daily routines and weekly patterns. Mornings before 9:00 a.m. are typically quiet, with only a few elderly visitors engaging in solitary activities such as quiet reflection, light social interaction or simply sitting. On weekday mornings, fewer people visit the space, as many are occupied with school drop-offs and commuting. Around 12:00 noon and early evening, 6:00 p.m., visitor numbers also decrease, as most people are having meals. On Fridays, the pavilion becomes busier compared to other weekdays, marking the transition into the weekend. Saturdays and Sundays see the

highest levels of activity, as young parents, no longer at work, take their children out, and elderly visitors have more freedom to socialise. Tourist numbers also increase from Friday onwards, adding to the shifting flow of people.

Body ballet and time-space routines bring together the audience and performers regularly, forming a shared performance space. The regularity of participation between the audience and the performance group intertwines, establishing Tuesday and Saturday as the expected event days. Every Tuesday and Saturday from 2:00 p.m. to 4:00 p.m., the *Yu* opera performance takes place, bringing together mainly elderly performers together with some local retirees and regular audience members. These local participants were present primarily as spectators, whereas the elderly rural

EVENT

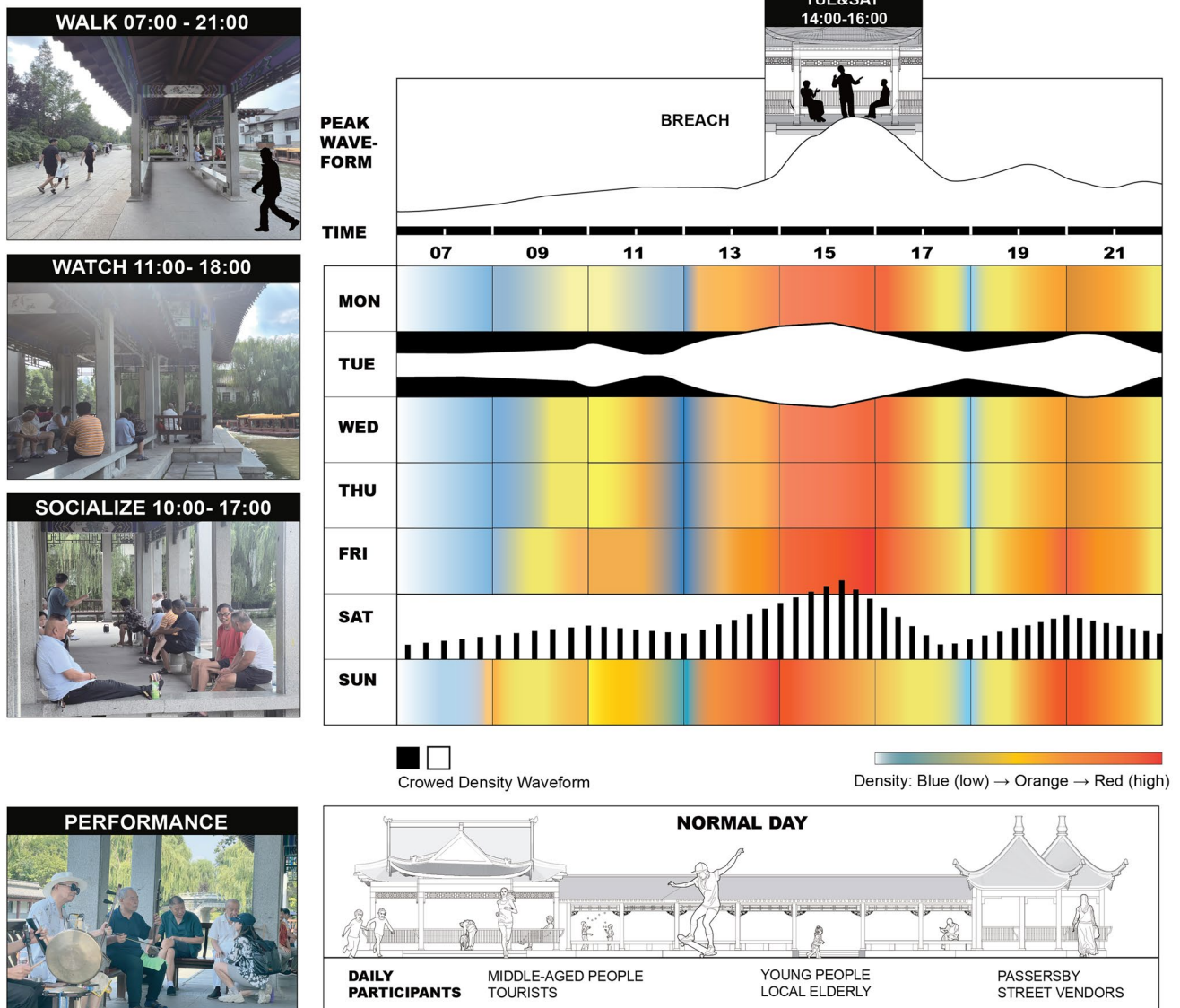


Fig. 4 A colour-coded chart of time and activities. (Drawn by the first author)



migrants organised and sustained the performances, making them the core actors of this place ballet. In practice, however, the group typically occupies the pavilion from around 1:00 p.m. to 5:00 p.m., as early arrivals prepare instruments and space, and departures extend into packing up props and socialising (Fig. 4). One of the performances occurs during the busiest times, at the weekend, enabling elderly rural migrants to increase their visibility and assert their cultural presence in a space typically dominated by younger generations and tourists.

This timing reflects the constraints faced by elderly rural migrants, who are often responsible for caring for their grandchildren during weekdays and can only take part in performances on select days, balancing caregiving with cultural activities. These performances draw large audiences, including tourists, transforming the pavilion into a focal point of cultural activity. During these times, performers assert their presence through movement and gestures, establishing a form of spatial claiming that influences how others use the space (Simpson 2011). This shift aligns with Turner's (1987) concept of a 'breach' in social dramaturgy, where different user groups momentarily disrupt the usual order of the space. It also reflects a form of place ballet, as performers and spectators engage in structured, repetitive spatial interactions that reinforce their presence. On non-performance days, the pavilion takes on a different character. During early mornings and evenings (9:00 a.m. until 10:00 a.m., 7:00 p.m. until 8:00 p.m.), it is used by a mix of skateboarders, dog walkers and joggers, who engage with the space in a more fluid and transient manner. Unlike the structured, predictable use of the pavilion by opera performers, these groups do not claim the space for fixed periods. Instead, their presence highlights the flexible nature of public spaces, where access and control shift depending on time and activity (Mitchell 2003; Low and Smith 2005).

The rhythm of public spaces, defined by regularity and diversity, ensures a balance between different user groups and activities (Van Eck and Pijpers 2017).

Seasonal changes further influence the pavilion's use. From mid-November to late February, elderly rural migrants move their activities indoors due to the cold, allowing other groups, such as tourists and casual visitors, to take up more space. This cyclical shift in user groups mirrors the seasonal rhythm of the pavilion, reinforcing the structured yet adaptable nature of public space. The consistent return of opera performances each spring highlights the repetitive, patterned interactions that define place ballet—a spatial choreography where familiar routines, social interactions and environmental conditions continuously shape and reaffirm the pavilion's role as a shared cultural space.

Thus, the very regularity of their caregiving rhythm, and the agency required to work within it, anchors the temporal pattern of their place ballet. For elderly performers, caregiving creates a rigid daily routine, and they negotiate a public cultural presence within the cracks of this domestic schedule, most often during the mid-afternoon lull between lunch and school pick-up. This interstitial timing is pragmatic: it enables participation without conflicting with their duties. What may seem like a narrow time slot is in fact a carefully negotiated public role, embedded within the temporal constraints of domestic life. Rather than constituting an overt act of resistance, this practice reflects how performers make use of less structured periods in the park's daily rhythm. Through their consistent, seasonal return to the pavilion, they establish a form of temporal presence that, following Lefebvre (1996), expresses a lived claim to the time-space of the city without directly challenging formal scheduling.

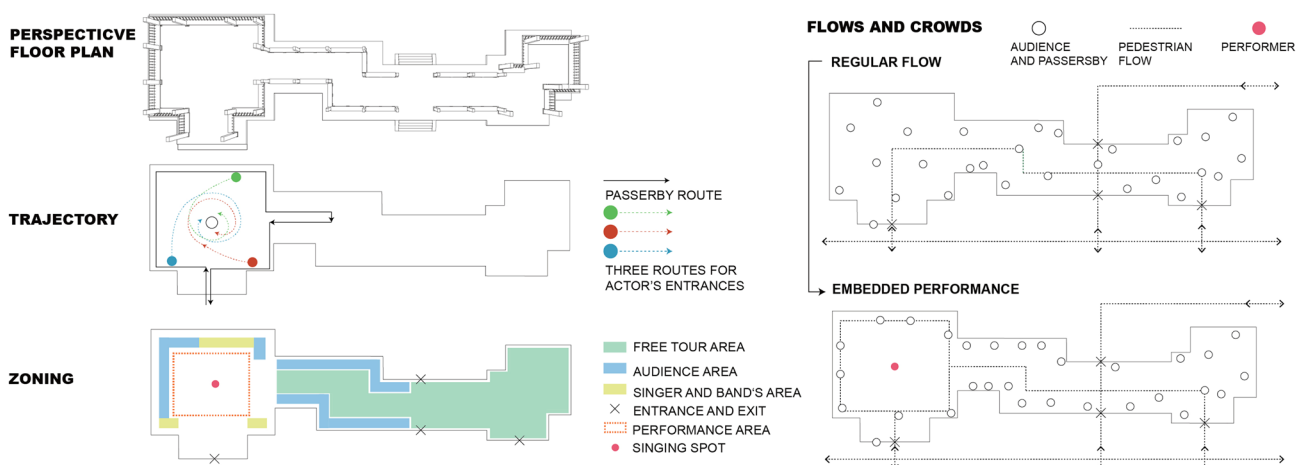


Fig. 5 Spatial zoning, crowd flow and performer trajectories towards the stage. (Drawn by the first author)

Layout and spatial organisation

The layout and spatial organisation of the Youran Pavilion play a crucial role in shaping the flow of movement and the interaction between performers and visitors. As Lynch (1960) suggests, the spatial arrangement of a place creates particular viewing perspectives that guide how individuals move through and experience that space. In the case of the Youran Pavilion, when there is no performance, the crowd is generally dispersed, with no set pattern, moving freely through the space. However, when a performance is introduced, the dynamics change drastically. The crowd density and movement paths are reorganised, creating a more structured flow. Figure 5 illustrates how movement shifts from dispersed to linear and directed once the performance starts.

In traditional *Yu* opera, performers enter the stage with measured, often spiral movements accompanied by rhythmic percussion, building both anticipation and focus. At Youran Pavilion, this ritualised entrance is recontextualised in an open, everyday public setting. Performers typically approach the pavilion from three key directions, an adaptive spatial practice shaped by the site's conditions. This choice serves two primary purposes. First, it allows the group to embed their movement within the existing pedestrian flow, strategically intercepting and attracting passers-by to form an audience without direct solicitation. Second, the chosen routes make use of the informal buffer zones surrounding the pavilion. These open edge spaces enable performers to claim territory through movement, marking the performance zone not with physical barriers but through embodied spatial presence. As the performers take their positions, passers-by are naturally inclined to avoid the performance area, adjusting their routes along the perimeter and forming a loose circular buffer around the action. This redirection of movement can be seen as a form of power control over the space, grounded in both cultural convention and embodied spatial practice.

One elderly performer explained: 'We don't tell people to move, but when they see the costumes and hear the gongs, they step aside naturally. It's like giving the stage back to us.' A regular audience member echoed this: 'When they start walking in with the music, you just know that's their time and space. We move a bit back so they can have the centre.' Field observations confirm this dynamic. For instance, on August 23, 2023 at 15:11 (*fieldnotes*), two spectators quietly directed passers-by to 'walk the edge,' after which through-movement hugged the perimeter, producing a moment of soft, temporary spatial claiming without fixed barriers. In this way, the entry sequence becomes part of the site's place ballet, orchestrating movement and interaction in a way that blends performance tradition with everyday spatial negotiation.

This pattern was not incidental but consistent. Across six observed performance days in August and September 2023, including three weekday sessions (Tuesdays) and three weekend sessions (Saturdays), more than 90% of recorded pedestrian interactions (54 out of 60 cases) showed passers-by voluntarily altering their path when encountering the performers or the initial sounds of the gong. The consistency held regardless of crowding levels: even on weekends, when visitor numbers were higher, the same tacit adjustment of movement was observed. The few exceptions, such as hurried tourists or distracted smartphone users, were gently redirected by regular attendees, reinforcing the shared spatial norm of giving space to the performance.

This informal, self-policing spatial claim, achieved without any official permit or designation, works around the top-down mechanisms through which the right to use public space is typically granted (e.g., permits for events). It demonstrates how spatial rights can be earned through cultural practice and social consensus, rather than being solely allocated by administrative fiat. In this sense, the performers and audience, through their collective action and mutual understanding, temporarily overturn the park's conceived space to produce a vibrant lived space centred on cultural performance (Lefebvre 1991).

Environmental factors: Structures and site elements

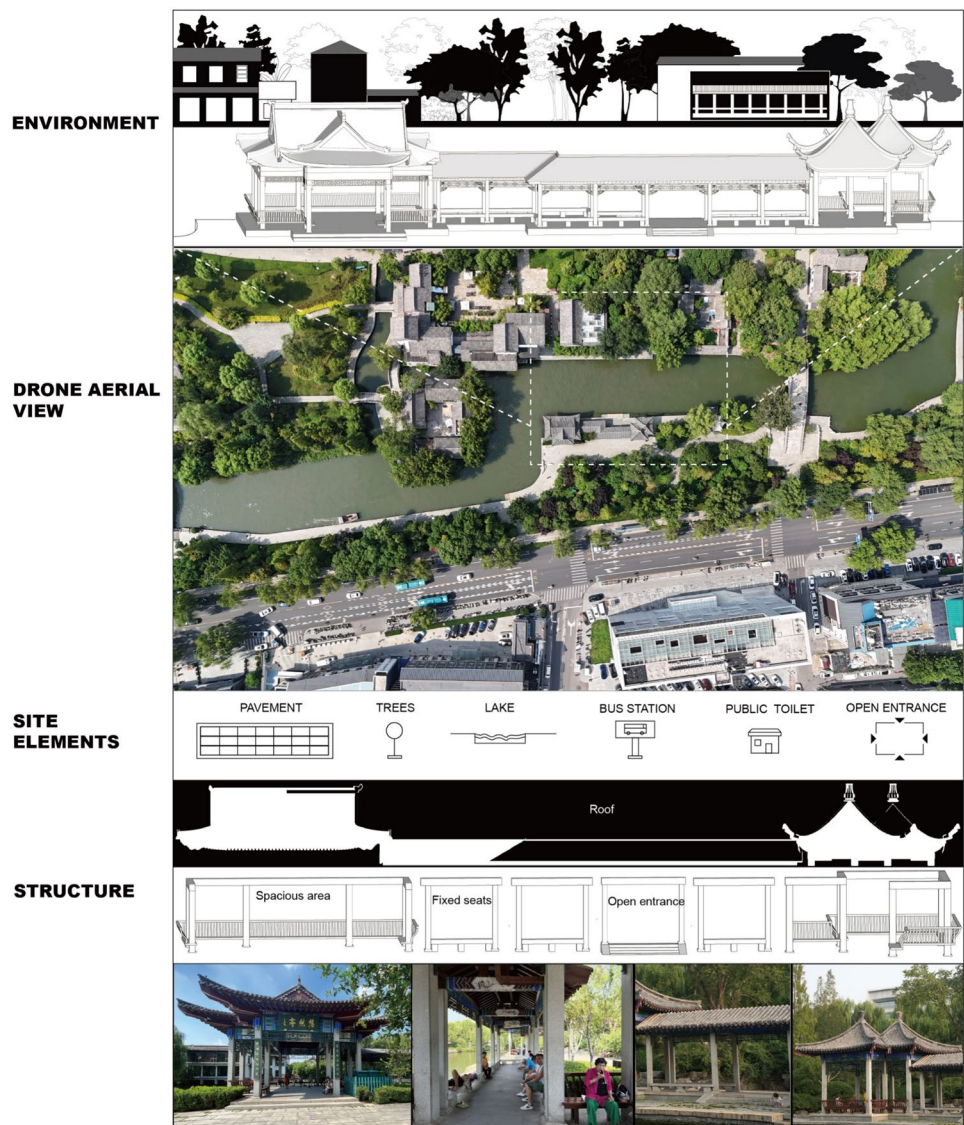
The Youran Pavilion is a historic site in Jinan, located on the edge of Daming Lake Park and a residential neighbourhood, and it is characterised by organic elements such as vegetation, water features and pathways, which together create an open public space. The pavilion's traditional Chinese roof provides shelter, while its built-in seating offers comfort without requiring visitors to bring their own (Fig. 6).

In the case of the Pavilion, these features particularly accommodate the elderly rural migrants who regularly gather at the site. The wooden structure and traditional Chinese roof amplify sound, enhancing the vocal performances of *Yu* opera and creating an 'auditory field' (Augoyard and Torgue 2005) that resonates throughout the pavilion. These acoustic properties, combined with the pavilion's layout, create a supportive physical environment that facilitates both the movement of performers and audience engagement.

The pavilion's physical attributes—such as public toilets for elderly convenience, a nearby bus station for easy access and paved pathways for smooth movement—all play a crucial role in shaping the place ballet. These features support the rhythmic routines of both performers and visitors. Additionally, the symbolic elements of the space, including the greenery of the plants and the reflections in the water, deepen emotional connections and contribute to the formation of shared identities (Finlay et al. 2015; Foley and Kistemann 2015). This supports Duff's (2010) argument



Fig. 6 Structure and site elements of Youran Pavilion.
(Drawn by the first author)



that social spaces foster a sense of belonging and healing, emphasising the interplay between physical and social environments in shaping well-being (Qian 2014b). When multiple routines converge within a supportive physical setting, they give rise to a place ballet, a rhythmic pattern of everyday life that transforms otherwise anonymous public environments into lived, domesticated places (Koch and Latham 2013; Mandich and Cuzzocrea 2016).

Props, imagination and cultural symbols

In Youran Pavilion's performance, props play a vital role in shaping the performance space. Their arrangement is quick and habitual because the process is well established. Over 7 years of performances, the props have been set up in the same location, and each performer occupies the same seat, which provides a sense of continuity and familiarity (Fig. 7).

Props in Yu opera, such as traditional costumes, opera masks and musical instruments, serve more than just functional purposes. They transport elderly rural migrants into an imagined space that evokes the atmosphere of their hometown culture. These cultural symbols strengthen their identities and alleviate the disconnection caused by migration by evoking nostalgic emotions (Li and Yan 2020). Anderson and Tolia-Kelly (2004) suggest that the relationship between objects and space can trigger deep memories and emotions, and in this context, props serve as tangible representations of this relationship within the performance space.

In street performances, props function as 'actors' that co-construct the performance space. Objects like fans, water bottles and parasols do more than assist the performer; they shape control over space and influence how interactions unfold. Likewise, musical instruments such as percussion and string instruments are not merely tools



Fig. 7 Props, everyday objects, and means of transportation used by Elderly rural migrants at Youran Pavilion. (Drawn by the first author)

for producing sound but also shape the bodily gestures and spatial organisation of a performance. Drums, for example, dictate rhythmic movement and collective synchronisation, while string instruments extend the performer's bodily reach, defining spatial relationships through posture and interaction. Props are not passive tools but active agents that contribute to spatial boundaries, access, visibility and authority.

A fan in a *Yu* opera performance, for example, does not merely serve as an accessory; its flicking and snapping punctuate key moments, influencing the rhythm of the performance. A water bottle symbolises both practical needs and the performer's endurance. A parasol, often used by elderly performers and regular audience members during hot summer days, modulates bodily experience by providing temporary shade before being folded away upon entering a pavilion. Likewise, transportation tools such as tricycles, bicycles, motorcycles and buses are more than just a means for elderly rural migrants to reach performance spaces—they reflect their lifestyle and identity. The team leader, typically an elderly performer with strong organisational skills, vocal ability and musical talent, often uses tricycles to transport costumes, musical instruments and other props, making these vehicles an integral part of the performance process. The mobility of performance spaces interacts with the flexibility of transportation, allowing performers on tricycles or motorcycles to adjust locations based on audience distribution, weather conditions or urban management restrictions. In cases of intervention by city authorities, they can quickly relocate, demonstrating their adaptability in navigating urban public spaces.

This mobility is a tactical response to their precarious status. The ability to quickly assemble, perform, and disperse offers an alternative to the fixed, permanent, and regulated model of cultural expression favoured by the state (e.g., in official cultural centres or designated performance zones). It represents a flexible, adaptive mode of inhabiting the city, rooted in everyday practice rather than formal permission.

From place ballet to spatial proposals: Design implications from counter-mapping

Counter-mapping of the *Yu* opera place ballet at Youran Pavilion goes beyond documentation, generating actionable evidence for urban design. It deciphers the spatial and temporal logic of self-organised cultural practices, which often remain invisible to or are dismissed as 'disorder' by conventional planning frameworks. The implications are not blueprints but generative principles and subtle interventions that can support a more responsive and inclusive approach to public space.

The first implication concerns designing for temporal capacity. While conventional zoning allocates static functions to space, the mappings reveal that urban vitality emerges from the rhythmic overlap and succession of different user groups over time. The mapped 'mid-afternoon lull' (2:00–4:00 p.m.), a product of caregiving schedules, is not empty but a crucial temporal niche for elderly rural migrants' cultural participation. Design and management protocols can recognise such windows, shifting the question

from what a space ‘is’ to what it ‘becomes’ at different hours of the day.

The second implication involves micro-design tactics that anchor informal practice. Mapping the consistent ‘performance nucleus’ (a 2–3 m core) and the self-organised ‘perimeter slip-lane’ shows that design should reinforce existing patterns rather than impose new ones. Subtle interventions, such as a canopy surface that improves acoustics or low seating that indicates an audience zone, can support activity without formalising or stifling it. Mapping prop logistics also points to the value of micro-infrastructure: lockable power outlets on columns, discreet storage niches, or movable seating that reduce physical burdens and embed support into the landscape.

The third implication calls for a shift in policy and governance, from enforcement to curatorial stewardship. Conflicts over noise or space often arise from management models that prioritise control. Counter-mapping suggests a facilitative approach, where managers curate a temporal mosaic of uses based on observed rhythms. The mapped routines can be translated into simple operational protocols for shared use, for instance allocating time slots between opera groups and skateboarders or coordinating performance times with tourist flows and maintenance schedules. Such strategies transform potential conflict into structured coexistence.

In summary, counter-mapping functions as a translational framework: it converts ethnographic observation (what occurs) into spatio-temporal intelligence (how and where it occurs), which in turn generates strategies for design and management. Figures 3, 4, 5, 6, and 7 document the mapping process, showing how embodied routines, rhythms and spatial arrangements were recorded. Table 1 synthesises

these layers into design-relevant principles, indicating how informal practices can inform more adaptive and inclusive approaches to urban public space.

Conclusion

While this study is grounded in the specific case of elderly rural migrants performing *Yu* opera in Jinan, its insights extend to broader patterns observable across many Chinese cities. In contexts of rapid urbanisation and ageing populations, numerous informal cultural practices such as square dancing, red song choirs and other collective performances have emerged among both migrant and local elderly groups. These practices are often shaped by caregiving responsibilities, residual collectivist values and a shared need to assert presence in increasingly regulated public spaces. By foregrounding the temporal, embodied and negotiated nature of such everyday practices, this study shows how public spaces are not merely consumed but actively produced as cultural stages and sites of belonging through rhythmic routines and collective negotiation. In the case of Youran Pavilion, what is produced is not simply a scenic overlook, but a performance zone structured by audience perimeters, negotiated times and embodied cultural routines.

Crucially, these performances also navigate the dominant structures that define how urban public space is conceived and controlled. At Daming Lake Park, conceived space emphasises scenic order and tourist consumption, supported by masterplans and a permit system that typically restricts performances to official venues, while tourist circulation and everyday pedestrian flows correspond to the perceived space,

Table 1 Counter-mapping of *Yu* opera at Youran Pavilion: observed patterns and design implications. (Drawn by the first author)

Diagnostic layer (from mapping)	What the map shows	Design implications: translating lived practice into spatial rules
Timeline of events: from performance to everyday use	Regular show window ($\approx$ 14:00–16:00, Tue/Sat peak season)	Protect this temporal niche in scheduling; avoid conflicting official programming; introduce temporal signage or subtle cues to indicate live use (temporary capacity/governance)
Trajectories, movements, rhythm and power	Centre-of-gravity; edge circulation, drum cue triggers	Mark stage core; maintain edge slip-lane; use drum cue as collective coordination tool (micro-design tactics)
Layout and spatial organisation	Audience clusters on benches; spiral entry movements	Zoned bench seating; on/off-stage points embedded into paving or pier markings (micro-design tactics)
Environmental factors: structures and site elements	Columns, roof, acoustics, paths	Lockable power on columns; indirect under-eave lighting; protected cable routes (micro-design tactics)
Prop, imagination and cultural symbols	Prop placement: tricycle access; quick clear-down	Short-stay loading bay; mobile prop staging; no permanent storage (micro-design tactics/governance)



and the embodied routines of elderly migrants produce the lived space (Lefebvre 1991). Elderly rural migrants navigate these frameworks not through overt protest but through embodied tactics: occupying a scenic pavilion without permission, negotiating time slots with other groups, redirecting pedestrian flows and using props and sound to reorient the space. Through these practices, the pavilion is transformed into a cultural stage that unsettles the official logic of order, zoning and control. These dynamics demonstrate that access and visibility in public space are continually negotiated rather than granted, a micro-politics that provides the foundation for design insights developed in this study.

The counter-mapping approach developed in this study may also be transferable to non-Chinese and non-performance contexts, including informal street markets, migrant religious gatherings or pop-up festival sites, where everyday routines and negotiated boundaries shape how public space is produced and inhabited.

The methodological novelty of this study lies in combining place ballet theory with a rhythm-based counter-mapping approach, which makes visible the temporalities, repetitions and micro-strategies that remain overlooked in conventional planning. As Table 1 indicates, these mapped layers can also be translated into generative principles for design and management, offering urban designers' cues for more adaptive and inclusive approaches.

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Declarations

Competing interests The authors declare no competing interests.

Ethical approval All participants took part voluntarily and provided written and audio-recorded informed consent. The study followed the ethical and data-protection guidelines of the first author's institution.

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