

# Transmutation, Transformation, Transcendence: Exploring the 'Shadow' Technique in Lei Liang's Music

## Transmutação, Transformação, Transcendência: Explorando a Técnica Composicional da 'Sombra' na Música de Lei Liang



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**Abstract:** Lei Liang is a renowned Chinese-born American composer whose works synthesize traditional Chinese culture with Western modern musical idioms. His signature “shadow” compositional technique—rooted in traditional Chinese genres such as Mongolian long song—serves as a core creative approach across his oeuvre. This study examines Liang’s “shadow” technique through a systematic analytical framework grounded in conceptual metaphor theory, which posits that the technique operates by mapping visual relationships onto auditory structures. The investigation proceeds across three interconnected dimensions. Part One examines the “melodic shadow” technique in his string work *Verge*, introducing the foundational operations of the approach, in which primary melodic entities generate dependent transformations through pitch retention and rhythmic displacement. Part Two explores the “harmonic shadow” technique across multiple works, demonstrating how pitch collections function as source domains that generate derivative sets through systematic modification—preserving parametric continuity while introducing transformation. Part Three analyzes the “spatial shadow” and “timbral shadow” techniques, investigating how Chinese landscape aesthetics and calligraphic stroke patterns are mapped onto orchestral spatial trajectories and instrumental color layering. Finally, the paper summarizes

how Liang's compositions draw on traditional Chinese culture while integrating Western contemporary techniques to form a distinctive musical language. It discusses the significance of his works within the field of cross-cultural music composition, arguing that the shadow technique, by activating both universal perceptual mechanisms and traditional Chinese aesthetic symbols, provides an effective pathway for intercultural musical understanding.

**Keywords:** Lei Liang, shadow technique, composition techniques, melodic shadow, harmonic shadow, spatial shadow, *A Thousand Mountains*, *A Million Streams*, *Verge*,

**Resumo:** Lei Liang é um renomado compositor sino-americano cuja obra sintetiza a cultura tradicional chinesa com as linguagens da música ocidental moderna. Sua técnica composicional da “sombra” — enraizada em gêneros tradicionais chineses, como o canto longo mongol — constitui uma abordagem criativa central ao longo de todo o seu catálogo. Este estudo examina a técnica da “sombra” de Liang por meio de um quadro analítico sistemático fundamentado na teoria da metáfora conceitual, segundo a qual a técnica opera por meio do mapeamento de relações visuais em estruturas auditivas. A investigação desenvolve-se em três dimensões interligadas. A primeira parte examina a técnica da “sombra melódica” em sua obra para cordas *Verge*, introduzindo as operações fundamentais da abordagem, nas quais entidades melódicas primárias geram transformações dependentes da retenção de alturas e do deslocamento rítmico. A segunda parte explora a técnica da “sombra harmônica” em múltiplas obras, demonstrando como conjuntos de alturas funcionam como domínios-fonte que geram conjuntos derivados por meio de modificação sistemática — preservando a continuidade paramétrica e introduzindo transformações. A terceira parte analisa as técnicas da “sombra espacial” e da “sombra tímbrica”, investigando como a estética da paisagem chinesa e os padrões dos traços caligráficos são mapeados em trajetórias espaciais orquestrais e na camada de cores instrumentais. Por fim, o artigo sintetiza como as composições de Liang se baseiam na cultura

tradicional chinesa e, ao mesmo tempo, integram técnicas ocidentais contemporâneas, formando uma linguagem musical singular. Discute-se a importância de suas obras no âmbito da composição musical intercultural, argumentando que a técnica da sombra, ao ativar tanto mecanismos perceptivos universais quanto símbolos estéticos tradicionais chineses, oferece um caminho eficaz para a compreensão musical intercultural.

**Palavras-chave:** Lei Liang, técnica da sombra, técnicas composicionais, sombra melódica, sombra harmônica, sombra espacial, *A Thousand Mountains, A Million Streams, Verge,*

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## 1. Introduction

Lei Liang is among the most internationally influential Chinese-born American composers of our time. His creative output has earned him a host of prestigious accolades over the past two decades, including the Copland Composition Award (2008), Guggenheim Fellowship (2009), Rome Prize (2011), a Pulitzer Prize nomination (2015), and the Grawemeyer Award for Composition (2020)—honors that underscore his profound impact on contemporary music and the interdisciplinary nexus of art and science.

Liang's music is profoundly influenced by Eastern philosophy and traditional Chinese ink painting. Rooted in the classical Chinese aesthetic principle of *Shifa Ziran* (师法自然, learning from nature), he skillfully integrates it with compositional techniques of the 20th and 21st centuries—such as serialism, sonorism, minimalism, and spectral music—creating a distinctive polystylistic synthesis.

In recent years, Liang's work has garnered substantial scholarly attention across Eastern and Western academia. Leading voices such as ethnomusicologist Kay Kaufman Shelemay (2020), renowned Chinese-born American composer Chou Wen-chung (Chou, 2017), and music critic James Chute (Chute, 2017) have all explored his compositions. Their research draws from music history, aesthetics, compositional theory, and cultural studies to offer diverse interpretations—ranging from multimedia works like *Soundscape of Chinese Landscape Ink Painting* (Rao, 2017) to the brushinspired musical language of his Grawemeyerwinning *A Thousand Mountains, A Million Streams* (Hong, 2022; Zhang, 2022). Further scholarship examines his synthesis of Eastern and Western elements alongside themes of home and politics (Everett, 2019), while close analytical attention has been given to his original techniques, including “sonic brushwork” (Ban, 2016; Bian, 2025), “one-note polyphony” (Zhang, 2025), and the structural use of “breath” (Jia, 2019). Interdisciplinary studies exploring soundvisual connections in his work (Shen, 2022; Lu, 2023) further attest to its

cross-cultural resonance. However, few studies have delved into a comprehensive analysis of his most representative compositional technique—the “shadow” technique—and its evolutionary trajectory across multiple works and musical parameters.

This study addresses this gap by examining the development and manifestations of the “shadow” technique across several works—*Verge*, *Hearing Landscapes*, and *A Thousand Mountains, A Million Streams*. The study adopts a dual analytical framework. First, it employs qualitative and analytical methods, combining close score study with visual data collected by Liang at the Qualcomm Institute, University of California, to investigate the conceptual, philosophical, technical, and contemporary dimensions of his music. Second, and more centrally, it draws upon conceptual metaphor theory (Lakoff & Johnson, 1980) to establish a systematic framework for understanding how visual imagery—derived from Chinese calligraphy, ink painting, and the structural properties of Chinese characters—is translated into auditory structure. This framework, which we term “conceptual mapping,” posits that the “shadow” technique operates through a consistent cognitive logic: visual or sonic sources serve as source domains that generate target domains (melodic, harmonic, spatial, and timbral shadows) through systematic operations of dependent transformation. Applying this framework, the study investigates how Liang’s distinctive “shadow” technique—rooted in Mongolian long-songs (a traditional vocal art featuring extended vocal techniques and ornamentation) and *Chao'er* (a genre of northern Chinese narrative singing)—manifests across four interconnected musical dimensions: the melodic dimension, which focuses on the transformation of core pitch materials; the harmonic dimension, which examines pitch combinatorial relations within vertical structures; the spatial dimension, which analyzes the mapping of calligraphic stroke patterns onto orchestral spatial trajectories; and the timbral dimension, which explores the layering of instrumental colors as acoustic “ink shadows.” By tracing the evolutionary trajectory of the shadow

technique across Liang's works, the study demonstrates how his compositional language integrates traditional Chinese culture and Western modern musical idioms to forge a unique artistic voice.

In addition to delineating the technical manifestations of Liang's shadow technique, the study elucidates, through conceptual metaphor theory, the cognitive logic by which visual imagery is translated into auditory structure—thereby establishing the necessary link between visual and musical representations that previous scholarship has left implicit. By situating Liang's creative practice within contemporary musicological discourse on global modernity and examining how composers in cross-cultural contexts address comparable philosophical and aesthetic challenges, the study further clarifies the unique significance of his case.

## 2. The “Shadow” Technique

Born in 1972 in Tianjin, China, and raised at the Music Research Institute of the Chinese Academy of Arts in Beijing, Lei Liang was immersed in a musical environment from an early age—thanks to his parents, musicologists Liang Maochun (梁茂春) and Cai Liangyu (蔡良玉). As a child, he listened to recordings and field interviews from across China, absorbing the rich heritage of its traditional Chinese music. His most representative compositional technique—the “shadow”—also finds its roots in the Mongolian music he encountered during his youth. During family gatherings, Liang heard improvisational performances of *Urtiin duu*<sup>1</sup> (Mongolian long song) by Ulanjay (乌兰杰), a prominent Mongolian ethnomusicologist. This early experience would exert a profound influence on his creative practice. He later curated a tribute album dedicated to the late master of the *Cha'er* (潮尔, a Mongolian bowed string instrument), Serashi (1887–1968), to preserve his distinctive performing techniques. Liang also drew theoretical inspiration from “the dialectical relationships between the different voices in Mongolian and Japanese traditional polyphonic music” (Liang,

<sup>1</sup> Mongolian long song (*Urtiin duu*) is a traditional vocal genre of the Mongolian people. It has been inscribed on UNESCO's Representative List of the Intangible Cultural Heritage of Humanity.

2012). This insight led him to conceptualize the Mongolian long song as a musical line characterized by temporal asynchrony and displacement: one that can unfold simultaneously while remaining independently interpretable. He dubbed this phenomenon “shadow” and incorporated it into his personal compositional language.

The “shadow” technique, as conceptualized by Liang, originates from his exploration of the relationship between “convergence and separation” in the traditional Mongolian music. Its core operation comprises the contrapuntal juxtaposition and dynamic transformation of multiple melodic strands—a procedure closely aligned with the heterophonic textures found in traditional Chinese music. However, Liang has systematically extended this initial insight through a dual process of cultural and cross-media translation. Drawing upon traditional Chinese visual arts, he maps the visual relationship between “object and its shadow” onto temporal relationships in the auditory domain. This mapping operation constitutes the generative logic of the technique: a primary melodic entity (the “object”) generates secondary voices (its “shadows”) through systematic operations of dependent transformation that preserve parametric continuity with the source while introducing displacement, inversion, or distortion.

This conceptual framework—grounded in the cognitive logic of cross-domain mapping—has been extended across specific musical parameters, generating a series of works composed through this technique. These include the solo cello piece *Feng* (1998), the string quartets *Serashi Fragments* (2005) and *Gobi Gloria* (2006), the string orchestra work *Verge* (2009), the double bass concerto *Luminous* (2014), and his Grawemeyer Award-winning orchestral work *A Thousand Mountains, A Million Streams* (2017), among others. Across these compositions, the shadow technique manifests in progressively elaborated forms—melodic, harmonic, spatial, and timbral—while maintaining its foundational logic: the generation of dependent transformations from an identifiable source.

### 3. Melodic Shadow

#### 3.1 The "Melodic Shadow" in *Verge*

In 2009, Liang was commissioned by the New York Philharmonic to compose a work for the orchestra's inaugural New Music Series: CONTACT! concert. The resulting piece, *Verge*, is structured as four string quartets plus two double basses. Compared to a standard string orchestra, this arrangement places a higher emphasis on the bass voices (Liang, 2020). Liang has stated that in *Verge*, "relationship between light and shadow," a concept he had explored in an earlier string quartet, is presented to an ensemble of 18 strings, which presented a greater compositional challenge (Liang, 2009).

Adding an extra layer of meaning, *Verge* was composed during a significant personal moment: the birth of Liang's son, Albert. As a gift for his child, Liang incorporated his son's name into the fabric of the composition. He used it as a musical motive to shape the melodic and harmonic foundation of the entire piece. The motivic core derived from the name—A, <sup>b</sup>B, E, D (re)—serves as the structural backbone driving the work's development.

On the technical level, *Verge* explores the convergence and divergence of melodic lines, an idea rooted in Mongolian traditional polyphonic music. Spatially, the piece represents a significant elaboration and evolution of his "shadow" technique.

#### Example 1 Mongolian long song *The White Little Camel*, mm. 1-6



Example 1 presents material adapted from *The White Little Camel* from *Verge*. It is an ancient Mongolian long song with numerous regional variations throughout Inner Mongolia. The piece is distinguished by a wide vocal range, significant pitch fluctuations, and a melodic structure that is spare with lyrics but elaborate in its phrasing, often shaping a wave-like melodic contour

through ascending and descending movements. Within this example, measures 1, 4, and 6 prominently feature a sequence of perfect fourths constructed from the ascending pitches E—A—D. This ascending melodic figure is a fundamental component of the long song's folk melody. Additionally, measure 5 incorporates a descending major ninth interval (A—G). These upward and downward intervallic leaps are characteristic of the broad melodic profile that defines the long song style.

In *Verge*, Liang reworks melodic material from *The White Little Camel* and also incorporates the Nogula (诺古拉) vibrato—a melodic ornament that decorates the main pitch with a note a third higher- to delineate the straightforward and energetic quality of Mongolian music. In Example 2, dialogic exchanges between the string instruments weave together and merge their melodic lines. Within each solo part, the composer builds connections based on pitch continuation, where a subsequent instrument creates the “melodic shadow”—a characteristic method frequently found in Liang's work. This technique is evident in m.14, where Viola 3 and Viola 2 sustain the same pitch A in unison, and again in m.16, where Viola 2 and Violin 8 share the pitch D. In the same measure, Viola 2 returns to pitch D but presents it in a modified form. The composer uses rhythmic patterns such as sixteenth-note sextuplets and septuplets, as well as sixteenth-note triplets and sixty-fourth quadruplets, with variations. These elements collectively articulate the unique musical traits of the long song.

Although this melodic variation is derived from the original melody of *The White Little Camel*, its pitch organization is not an exact transcription of it.

In this section, all these details demonstrate the sophisticated application of the “melodic shadow” technique. In doing so, Liang offers a new, modern interpretation of the long song genre through the sonic colors of string instruments. It reflects his interpretation of the long song's musical aesthetic and imagery. Additionally, the “melodic shadow” effect of the Nogula vibrato produces subtle changes in musical texture within the soundscape of *Verge* and

across similar instrument timbres. This technique thus functions as a fundamental means of sustaining and propelling the melodic progression throughout the composition.

### Example 2 *Verge*, mm. 14–17

### 3.2 The “Melodic Shadow” in *A Thousand Mountains, A Million Streams*

Moreover, Liang’s “melodic shadow” technique is applied in various forms in his orchestral composition *A Thousand Mountains, A Million Streams* (2017). Commissioned by the Boston Modern Orchestra Project (BMOP) and the Jebediah Foundation, the piece was composed from 2016 to 2017. It was the recipient of the 2020 Grawemeyer Award for Composition. The creative impetus for this work came from a landscape painting album by the modern Chinese painter Huang Binhong (黄宾虹, 1865–1955).

Huang Binhong is regarded as a master of modern Chinese landscape painting. He made significant contributions to *wenrenhua*

(literati painting) and attained artistry that outshone most of his contemporaries. His oeuvre is extensive, and his painting theories are highly individualized. In 1952, at the age of eighty-seven, Huang Binhong was nearly blind from cataracts yet continued his artistic practice. Despite this challenge, the paintings from this period exhibit both his command of brush techniques and a remarkable creative capacity sourced from his "inner Eye." Deeply moved by Huang's perseverance and the profound quality of his late work, Liang infused *A Thousand Mountains, A Million Streams* with a musical language of "sound as brushwork." This method aims to build an auditory landscape that mirrors the *shanshui* (山水, mountains and water) imagery found in Huang's paintings.

To explore the musical potential of Huang's ink-wash art, Liang and his team at the UC San Diego Qualcomm Institute employed X-ray Fluorescence Spectroscopy (XRF) to scan Huang's original painting for interdisciplinary analysis. The scan results were analyzed for their fluorescence peak values, with parameters with potential musical value extracted (Liang, 2017). Art historians have commented on this process, stating:

Professor Liang's technical analysis of the paintings reveals the physical properties of ink wash at multiple levels, while simultaneously departing from traditional perspectives for viewing ink painting (Wang, 2025).

In *A Thousand Mountains, A Million Streams*, Liang not only integrated insights from Huang's distinctive ink-wash brush techniques but also used the Qinghai Hua'er folk song *Ascending a Hill to Look at the Plain* (上去高山望平川) as the core musical material and applied the "melodic shadow" technique (Zhang, 2022).

A representative Hua'er folk song from the Hehuang region of Qinghai, *Ascending a Hill to Look at the Plain* is a prevalent genre that embodies the hybrid cultural ecology and lived experiences of multiple ethnic groups in China. Building on this cultural background, Liang translated these cultural connotations and life

experiences into musical language, further associating the Hua’er thematic material with the “mountain” imagery of *A Thousand Mountains, A Million Streams* and, through the “melodic shadow” technique, sustaining the theme’s presentation, transformation, and development throughout the work.

**Example 3 “Hua’er” Theme (*A Thousand Mountains, A Million Streams*, mm. 14–17)**

The image shows a musical score for four instruments: Flute I (Fl.I), Flute II (Fl.II), Oboe I (Ob.I), and Oboe II (Ob.II). The Flute I part is labeled 'Theme' and has a red box around it. The other three parts (Fl.II, Ob.I, Ob.II) are labeled 'Shadows' and are enclosed in a larger red box. The score includes dynamics like *p*, *espress.*, and *pp*, and various musical notations such as slurs, accents, and fingerings.

Example 3 introduces the “Hua’er” theme, which Liang employs as a musical symbol evoking lofty mountain imagery. From this folk source, he extracts the core pitches [B, D, E] and their constitutive intervals—perfect fourth, minor third, and major second—establishing them as the primary pitch material for multiple sections of *A Thousand Mountains, A Million Streams*. These core pitches undergo development through what this study identifies as the “melodic shadow” technique—a compositional procedure in which a primary melodic entity generates secondary voices that simultaneously unfold and transform the original material.

The first manifestation of this technique appears in Example 4, where the “Hua’er” theme emerges in Flute I. Here, two flutes and two oboes interweave continuously in the high register, creating a stratified texture. Flute I plays the principal “Hua’er” theme, functioning as the melodic “entity”—the main tune. Flute II, Oboe I, and Oboe II constitute the “shadows” of this theme. Instead of

inventing independent melodies, the shadows use dependent variation, which means they maintain pitch connection to the core [B, D, E] but continuously transform the rhythm. This approach emphasizes modifying rhythm while remaining linked to the original melodic material.

**Example 4 Transformation of the "Hua'er" Theme (A Thousand Mountains, A Million Streams, m.115)**

The image shows a musical score for two oboes, Ob.I and Ob.II, in measure 115. Both parts are in treble clef with a key signature of one sharp (F#). The music is marked 'Norm.' and 'quasi-soloistically'. The dynamics range from 'pp' (pianissimo) to 'mp' (mezzo-piano). The music features a melodic line with a triplet of eighth notes and a half note, with a fermata over the final note. The two parts are separated by a minor second interval.

At measure 115 (see Example 4), the "Hua'er" theme undergoes a significant developmental transformation. Previously centered on the pitch collection [B, D, E], the thematic material is now expanded to include pitch A, forming a new tetrachord [E, A, B, D]. Liang assigns this material to two oboes, constructing a two-voice texture that serves as a crucial site for examining the "shadow" technique.

In terms of sonic actuality, Oboe I plays the original form of this collection—E—A—B—D—functioning as the auditory "foreground entity." Oboe II, in nearly synchronous rhythm, performs a transposed transformation of this collection: #D—#G—#A—#C. The two voices are separated by a minor second in vertical alignment, creating a dissonant sonority that extends beyond the folk song's original monophonic presentation.

Drawing upon the conceptual mapping framework established in this study, Oboe II does not constitute an independent melodic line but rather an "acoustic shadow" of Oboe I. Its generative logic lies in the transposition of the foreground voice's pitch

structure by a semitone—a musical analog to the visual shadow's "contour following" and "spatial displacement." This treatment simultaneously activates two core features of the "shadow technique": first, at the pitch level, it demonstrates "dependent variation" (the shadow 依附于 the entity yet emerges through transformation rather than mere replication); second, at the textural level, it creates "spatial juxtaposition" (the simultaneous vertical presentation of entity and shadow, producing an auditory sense of depth).

Crucially, the minor-second interval between the two voices generates an auditory texture of "near yet distant"—simultaneously overlapping and separate. This resonates profoundly with the dialectic of "substance" (实, *shi*) and "void" (虚, *xu*) in traditional Chinese landscape painting theory: the foreground constitutes the "substance" (Oboe I is clear original). In contrast, the shadow constitutes the "void" (Oboe II is a transformed variant). Together, they form a complete, multi-layered sonic tableau rather than a simple linear statement. Here, Liang expands the folk material from a monophonic presentation into an auditory field embodying the aesthetic principle of "mutual generation of substance and void" (虚实相生, *xushi xiangsheng*).

As this pitch-overlapping model intensifies and recurs, Liang further elevates the "shadow" technique in the work's sixth section, "Open the Inner Eye" (mm. 185–233). Here, he integrates the symmetrical structure of the Chinese character Shan (山, mountain) into the pitch organization, merging this conceptual framework with the compositional practice of "shadow."

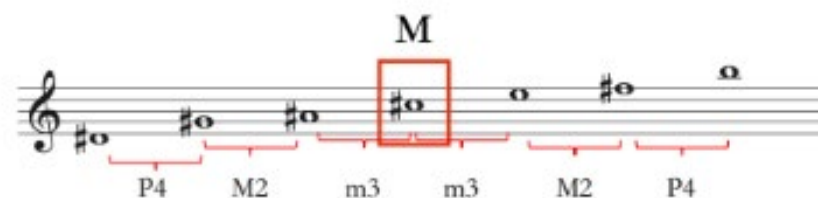
In the section "Mountains Gradually Draw Closer" (mm. 74–120) of *A Thousand Mountains, A Million Streams*, Liang retains the #D Shang-mode<sup>2</sup> (商调式) pitch collection from the previous section (see Example 4): #D, #G, #A, #C. As the piece advances to the "Open the Inner Eye" section (mm. 185–233), this mode is transformed

<sup>2</sup> The Shang mode (商调式) is a mode within the pentatonic scale system of traditional Chinese music. The pentatonic scale consists of five scale degrees, namely Gong (宫), Shang (商), Jue (角), Zhi (徵), and Yu (羽). In any pentatonic scale, a mode can be constructed by taking each of these degrees as the tonic, resulting in five corresponding modes: The Gong mode, Shang mode, Jue mode, Zhi mode, and Yu mode. The pentatonic scale plays a pivotal role in traditional Chinese music and broader East Asian musical traditions.

into the  $\sharp C$  Yu-mode<sup>3</sup> (羽调式):  $\sharp C$ , E,  $\sharp F$ , B. This transformation not only shifts the modal center to  $\sharp C$  but also introduces a new set of intervallic relationships, affecting the mood and texture of the music. The shift places  $\sharp C$  as the symmetry axis, around which the surrounding sections are structured.

The transformation of its pitch structure is shown in Example 5. Here,  $\sharp C$  forms the symmetry center, and the pitch structures on either side comprise a perfect fourth, a major second, and a minor third, creating contrasting sonorities.

### Example 5 Pitch Central Symmetry

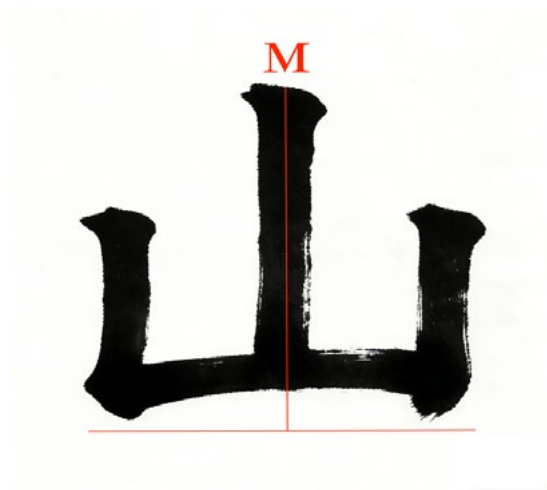


Drawing on the conceptual mapping framework established in this study, this symmetrical pitch organization can be understood as an auditory mapping of the visual properties inherent in the Chinese character *Shan* (山, mountain, Figure 2). The character's bilateral symmetry—its left and right sides mirroring one another—finds its musical analog in the pitch structures symmetrically arranged around the axis of C-sharp ( $\sharp C$ ), meaning pitches are organized to reflect symmetrical relationships on either side of this central note. Liang thus maps the spatial symmetry of a visual form onto the temporal organization of pitch, effectively translating calligraphic structure into sonic structure. This process embodies the traditional Chinese artistic tenet of *Xingshen Jianbei* (形神兼备, the unity of form and spirit): the “form” of the character's visual symmetry is preserved, while its “spirit” is reembodyed in auditory experience. This musical mirroring deepens the shadow technique's expression: the core theme and its symmetric shadows interweave

<sup>3</sup> The Yu mode (羽调式) is also part of the pentatonic mode system of traditional Chinese music.

to create an acoustic space evoking layered mountain contours, seamlessly fusing cultural symbolism with musical language.

**Figure 2** The Character *Shan* (山/Mountain) in Kaishu (楷书, Regular Script in Chinese calligraphy)



*Source: Drawn by the author*

Within the richly symmetrical section “Open the Inner Eye” (mm. 185–233), the composer’s application of the “melodic shadow” technique also assumes diverse forms. As shown in Example 6, the woodwind section, with pitch material performed by Flute 1, oboes, and clarinets, is based on the “Hua’er” theme; the second voice in each instrumental subgroup serves as the “shadow” voice. These three woodwind subgroups enter sequentially, separated by a fixed one-beat rhythmic gap. Horizontally, each second voice mirrors the first; vertically, the second voice also shadows the first within the vertical structure. Meanwhile, harp and percussion emphasize the woodwinds’ “Hua’er” theme with a one-beat rhythmic offset, enhancing the “melodic shadow” qualities.

This multi-dimensional shadowing—operating simultaneously on horizontal and vertical axes—demonstrates how the mapping principle functions across multiple parametric dimensions: pitch retention, rhythmic displacement, and registral stratification, all serving as pathways through which the “entity” (the theme) casts its “shadows.”

**Example 6** Transformation of the “Hua’er” Theme (*A Thousand Mountains, A Million Streams*, mm. 189–191)

Woodwind section

Harp and Percussion

Liang’s diverse deployment of the “shadow” technique in pitch organization not only reflects his sustained evocation of emotional connections to his homeland’s musical traditions but also reveals his innovative approach to musical material—one deeply rooted in cross-disciplinary dialogue between music, Chinese calligraphy, and visual art. He transplants the “Hua’er” theme—rooted in the multicultural folk music of Qinghai’s Hehuang region—into sonic contexts and instrumental configurations that lie outside the familiar realm of traditional Chinese music. Through the “transformation,” “metamorphosis,” and “displacement” enabled by the shadow technique, he forges organic connections between isolated sonic fragments.

Clearly, the ongoing elaboration of his “melodic shadow” technique has propelled the in-depth evolution of Eastern imagery in his musical works. By integrating this technique with modern compositional devices, he has facilitated a new interpretation of traditional Chinese music within the landscape of contemporary music.

## 4. Harmonic Shadow

### 4.1 The “Harmonic Shadow” in *Verge*

Building on our previous exploration of the “melodic shadow” technique, Liang’s works across different periods exhibit diverse expressions of this approach. As mentioned earlier, his work *Verge* uses the pitch classes corresponding to the name “Albert” as the foundational pitch material sustaining the entire piece. From the vertical pitch structure of this work, he dissects and recombines the twelve chromatic pitches within an octave. The four-note set A, B, E, D acts as the work’s musical core, designated the “core pitch set”; the remaining eight pitch classes serve as supporting material, termed the “derivative pitch sets.”

Example 7 *Verge*, mm. 54–57

The image displays a musical score for Example 7, measures 54-57. The score is arranged in a system with eight staves, labeled from top to bottom as Va. 5, Va. 6, Vla. 3, Vc. 3, Va. 7, Va. 8, Vla. 4, and Vo. 4. The music is in 4/4 time and features a complex texture with many notes. Five specific patterns of notes are highlighted with red boxes, each labeled with a set of pitch classes: [0, 1, 2, 7]. These patterns appear in the upper strings (Va. 5, Va. 6, Va. 7, Va. 8) and the bass (Vo. 4). The patterns are repeated and often combined with other notes, creating a dense harmonic texture. The score includes dynamic markings such as *f*, *pp*, and *mf*.

Example 7 illustrates the diverse combinatory patterns of the “harmonic shadow” technique in *Verge*, including vertical, horizontal, and intersecting forms. The “core pitch set” [0,1,5,7] is performed by Viola 4 and Cello 4. The two derivative pitch sets [0,1,2,7] (F,  $\sharp$ F, G, C) and [0,2,4,7] ( $\flat$ A, B,  $\flat$ D,  $\flat$ E) —are performed by Violins 5–8 and by Viola 3 and Cello 3, respectively.

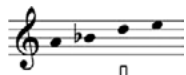
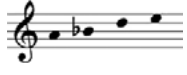
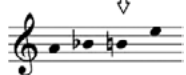

In this segment, the pitch structures and voice-leading relationships between the two derivative pitch sets exhibit multiple layers of interconnection. As indicated by the pitch classes marked within the red box in measure 3 of Example 7, when the core pitch set and Derivative Set 2 are performed as two groups of sixteenth notes across the first two beats, Derivative Set 1 fills the sonic space of beats 3 and 4, forming their “shadow.”

Applying the conceptual mapping framework established earlier, this textural configuration exemplifies how pitch materials are organized through a process of dependent transformation: Derivative Set 1 occupies the temporal space left by the core, while Derivative Set 2, functioning as their acoustic shadow, arises through temporal displacement rather than pitch distortion.

Furthermore, a closer examination of the core pitch set and its derivative sets clearly reveals that the subtle pitch variations in the latter are achieved through the expansion and contraction of the core set (Example 8).

First, we adopt a unified bass notation for analytical purposes. Derivative Pitch Set 1 was created by lowering D from the core pitch set, changing the pitch content from [0, 1, 5, 7] to [0, 1, 2, 7]. Derivative Pitch Set 2 is generated by raising the  $\flat$ B in the core set to C, resulting in a pitch-class configuration of [0, 2, 4, 7]. These modifications operate through a consistent mapping rule: each derivative set retains three of the four original pitch classes while altering a single pitch class by semitone displacement—a musical analog to the visual shadow’s simultaneous fidelity to and distortion of its source.

### Example 8 Core Pitch Set and Derivative Pitch Set

Core Pitch Set		Core Pitch Set	
Derivative Pitch Set 1		Derivative Pitch Set 2	

Continuing this “harmonic shadow” technique of core and derivative pitch sets, Example 9 shows a more diverse range of pitch combinations. As shown, when cellos performed the core pitch set, Violas 2 and 4 presented Derivative Pitch Set 1 (F—#F—G—C) in horizontal voice-leading, while Violins 1, 2, 3, 5, 6, 7, deliver Derivative Pitch Set 2 (B—#C—#D—#G) in vertical sonic structure.

In Example 9, we can observe that from both vertical and horizontal structural perspectives, the fixed voice group (as shown in blue)—performed by Violas 1, 3, and Violins 4, 8 (a concept elaborated in Section 5.1 of this study)—continues to employ the aforementioned “shadow” developmental technique. Presented in an orderly sequence with a one-beat rhythmic offset, these voices create a layered effect in which each subsequent layer serves as the “shadow” of the preceding one. This rhythmic displacement represents yet another dimension of the mapping operation: temporal offset becomes the conduit through which shadow voices emerge from their source, extending the mapping principle from pitch space into time space.

Through a variety of horizontal and vertical presentations, Liang creates a meticulously organized sound space with contrasting musical imagery. By tightly integrating original and transformed material, he demonstrates the significant structural and expressive value of the “harmonic shadow” technique through sophisticated pitch-combinatorial techniques. His conception of this core-derivative relationship draws inspiration from traditional Chinese paper-cutting aesthetics, which he has explicitly linked to his sonic philosophy. If the core pitch set is regarded as the “front,” the derivative pitch sets act as its corresponding “back” (Liang,

2017). This conceptualization extends his consistent practice of translating visual-spatial relationships into musical structure—a cross-media mapping that informs the pitch organization of *Verge*.

This application of the “harmonic shadow” technique within the vertical structure creates a dimensional sound space in which core and derivative sets mirror each other as reciprocal shadows. The relationship between core and derivative sets can thus be understood as a mapping operation: the core pitch set serves as the “source domain” (the entity), while the derivative sets constitute the “target domain” (its shadows), generated through systematic pitch modification that preserves parametric continuity while introducing transformation.

### Example 9 *Verge*, mm. 76–79

The image displays a musical score for Example 9, measures 76 through 79. The score is arranged in a system of 12 staves, labeled Va.1 through Va.12. The notation includes various musical symbols such as notes, rests, and dynamic markings. Overlaid on the score are several pitch sets, represented by numbers in brackets: [0, 1, 5, 7] in red, [0, 2, 4, 7] in green, and [0, 1, 2, 7] in yellow. These sets are distributed across the staves, indicating their relationship to the core and derivative sets discussed in the text. The score also includes performance instructions like 'Barek pizz.', 'molto eger.', and 'ritardando macabro'.

## 4.2 The "Harmonic Shadow" in *A Thousand Mountains, A Million Streams*

In *A Thousand Mountains, A Million Streams*, Liang integrates his "harmonic shadow" technique with two distinct resources: the 20th-century Western compositional device of "added resonance"<sup>4</sup> (developed by Olivier Messiaen) and his own proprietary technique of "one-note polyphony"<sup>5</sup> (Liang, 2012). This synthesis enriches the work's pitch and timbral space.

Example 10 illustrates the section "Landscape's Heartbeat Returns" (mm. 440–443) from *A Thousand Mountains, A Million Streams*. Here, Violins I-a and II-a perform a linear glissando around pitch A, creating a 3:2 rhythmic counterpoint. In measure 441, Violins I-b, II-b, and the violas enter on the half-beat, playing E with pianissimo. Cellos and double basses sustain pitch A using pizzicato, forming a pedal point. This rhythmic pattern generates a fixed pulsation, evoking the sonic imagery of a "heartbeat."

In this segment, Liang synthesizes "added resonance" with "one-note polyphony," anchoring this fusion in the "harmonic shadow" technique. Applying the conceptual mapping framework established in this study, we can view this passage as a mapping operation that extends the shadow principle from melodic to harmonic space. The fundamental pitch A—sustained as a pedal point in cellos and double basses—functions as the harmonic "entity" or source domain. Its overtones—(E), fifth overtone (#C), eighth overtone (<sup>b</sup>B), and later seventh overtone (G, m. 444)—are layered into the vertical space by flutes, violins, marimba, and other forces, constituting the "harmonic shadows" or target domain.

The relationship between fundamental and overtones exemplifies a natural acoustic mapping: each overtone is simultaneously derived from and dependent upon the

4 Added resonance (or "chord of resonance") is a harmonic technique pioneered by Messiaen, involving the artificial enhancement of a sound's natural overtone series

5 One-note polyphony (一音多声) is a compositional technique pioneered by Lei Liang, and also his signature creative device. It was inspired by his experience of learning to play the *guqin* (a traditional Chinese zither) at the home of ethnomusicologist Professor Rulan Chao Pian (1922–2013) during his time at Harvard University. Drawing on the unique sonic philosophy of the *guqin*, he initiated an exploration of the rich timbral colors and subtle variations of single notes in Eastern music through the lens of "one-note polyphony."

fundamental, yet possesses distinct pitch identity and timbral character—precisely the dual condition of the “shadow” as both attached to and transformed from its source. By extracting these overtones and deploying “added resonance,” Liang superimposes frequencies of distinct notes around the fundamental A, creating a layered vertical acoustic space. This “harmonic shadow”-driven approach not only expands the work’s pitch spectrum and creates striking timbral contrasts but also elevates the harmonic dimension of the shadow technique—cementing its role as a pivotal device for shaping the vertical sonic landscape and deepening the harmonic expressiveness of the entire piece.

**Example 10** *A Thousand Mountains, A Million Streams*, mm. 440–443

The image shows a page of a musical score for Example 10, spanning measures 440 to 443. The score is arranged in a standard orchestral format with staves for Violins I and II, Violas I and II, Violas III and IV, Cellos I and II, and Double Basses. The key signature is one flat (B-flat major/D minor) and the time signature is 4/4. The score includes various dynamic markings such as *pp*, *p*, *f*, and *ppp*, as well as articulation like *staccato* and *acc*. There are also performance instructions like *and legato hair.* and *arco*. The notation is dense, particularly in the string parts, with many sixteenth and thirty-second notes.

**Example 11** The Harmonic Series of the Pitch A

The image shows the harmonic series of the pitch A. It is written on a single treble clef staff. The notes are numbered 1 through 8 below the staff. The notes are: 1. A (one line), 2. C (first space), 3. E (second space), 4. G (second line), 5. B (third space), 6. C# (third line, sharp), 7. D (third space), 8. E (fourth space). The notes are represented by whole notes.

## 5. Spatial Shadow

The exploration of sonic space has always been pivotal in Lei Liang's works across different periods. Beyond the chamber string work, *Verge*, his percussion piece *Trans* (2013) also employs varied sonic strategies to organize "inward," "outward," and other "mental" spaces (Schick, 2019). These diverse approaches to spatial design can be understood as an extension of his signature "shadow" technique—specifically, a "spatial shadow" that expands the concept from melodic and harmonic dimensions into the realm of sonic spatialization.

### 5.1 The "Spatial Shadow" in *Verge*

In *Verge*, the composer integrates a creative concept centered on "exploring different possibilities of spatial design" (Zhang, 2017). Liang notes, "I deconstructed a string orchestra into different small groups, so that the sound could move flexibly in various spatial directions within the ensemble—clockwise, counterclockwise, forward, backward, left, right, unfolding, concentrating, and in other ways." (Liang, 2017) This approach endows the piece with both the linear continuity of musical time and the dynamic fluidity of spatial transformation.

Figure 3 presents a spatial layout diagram for *Verge*. Each circle represents a pre-configured string quartet. However, during performance, individual instruments can flexibly participate in multiple spatial configurations. For instance, the unlabeled instruments in the diagram—such as Violins 2, 3, Viola 1, and Cello 2 in one group, and Violins 6, 7, Viola 3, and Cello 4 in another—can integrate into adjacent quartets or interact with more distant or opposing groups. This sonic organizational concept enables the ensemble to generate spatial sound transformations that are both independent and interconnected, thereby forging the distinctive "spatial shadow" effect.

We can understand this spatial design as an extension of the shadow principle into the domain of physical performance space:



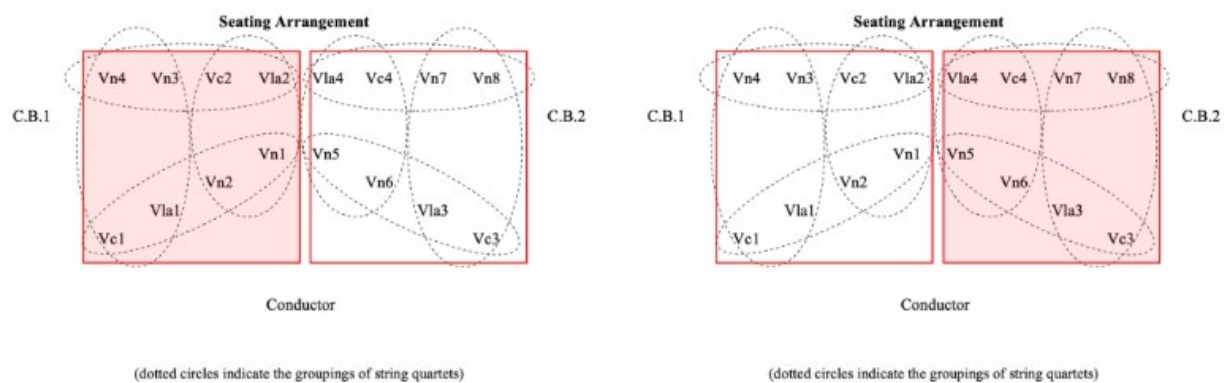
Example 12 presents the first appearance of the “fixed voice group,” performed by the quartet on the left side of the spatial layout in a block-chord texture. Upon encountering the core pitch set motive, this fragment recedes into a background layer, initiating a sustained alternation between the “fixed voice group” and the “core pitch set” [0, 1, 5, 7].

### Example 12 *Verge*, mm. 56–58

The musical score for Example 12, mm. 56–58, consists of four staves: Vla. 1, Vc. 1, Vn. 3, and Vn. 4. The score is written in a key signature of two flats (B-flat and E-flat) and a 4/4 time signature. The first staff (Vla. 1) begins with a rest, followed by a series of eighth notes starting in measure 56. The second staff (Vc. 1) begins with a rest, followed by a series of eighth notes starting in measure 56. The third staff (Vn. 3) begins with a rest, followed by a series of eighth notes starting in measure 56. The fourth staff (Vn. 4) begins with a rest, followed by a series of eighth notes starting in measure 56. The score includes dynamic markings such as *p* (piano) and *ff* (fortissimo), and performance instructions like *lontanissimo* and *stacatissimo*. The music is characterized by a repetitive, rhythmic pattern of eighth notes, creating a sense of temporal stillness.

In Figure 4, the white areas correspond to the fixed voice group, while the red areas represent the core pitch set motive. Owing to the extensive repetitive and pronounced rhythmic regularity of the fixed voice group, this alternating repetition engenders a sense of temporal stillness, producing a distinctly minimalist texture that persists for over one hundred measures. This alternation constitutes a temporal mapping of the shadow relationship: when the core pitch set occupies the foreground as a thematic “entity,” the fixed voice group recedes into the background as its “shadow”; when the fixed voice group returns, it carries the accumulated spatial resonance of its previous shadow function.

**Figure 4 Motion Patterns of the Fixed Voice Group**



*Source: Drawn by researchers based on the composer's score*

According to the directional arrows in Figure 3, the fixed voice group moves from left to right. However, as shown in Figure 4, its trajectory shifts when interacting with the core pitch set (highlighted in red). These two groups of material continuously intertwine, creating a sonic phasing effect characterized by a palpable “sense of alternation”.

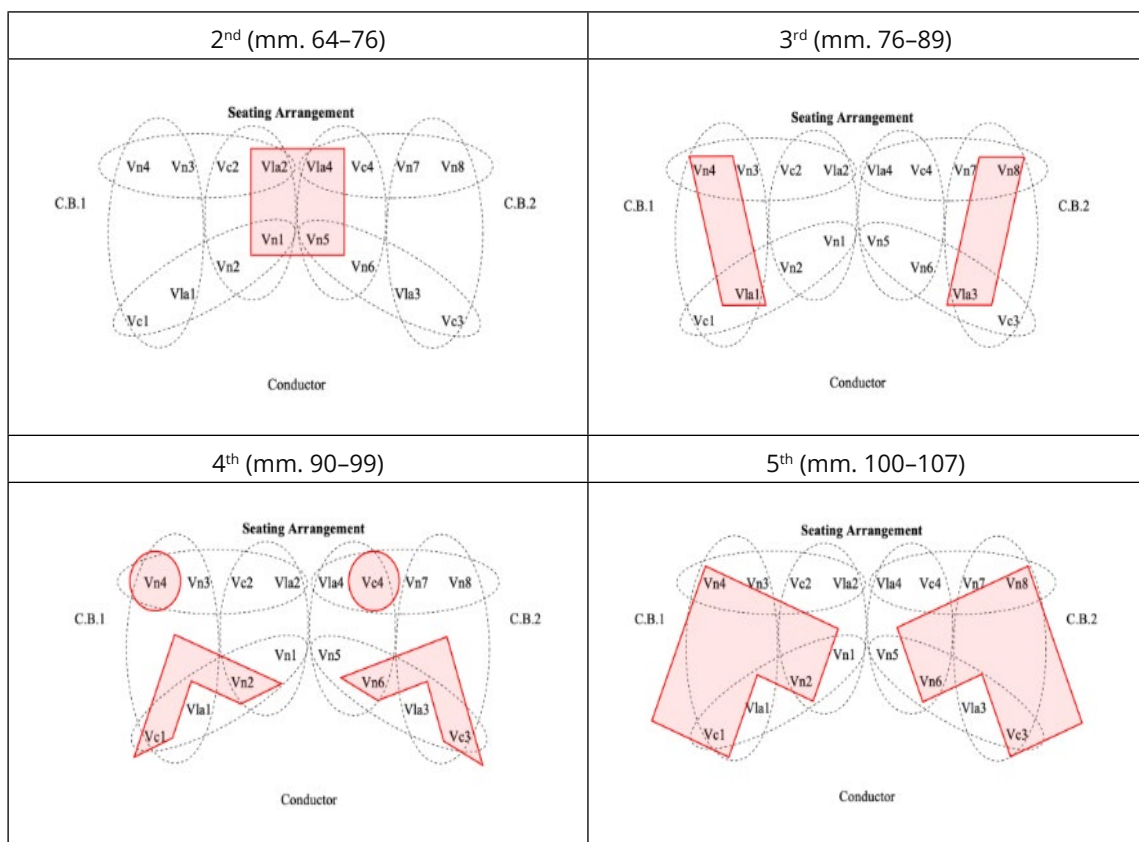
This prolonged interplay fosters an interactive structure in which the two groups mutually function as theme and “shadow”. Whichever material assumes the thematic role, its variant follows closely as a shadow. This is the “spatial shadow” —an extension of the shadow technique from pitch space into physical performance space, wherein spatial trajectory and temporal alternation become the mapping operations through which musical materials generate their dependent transformations.

In addition, Figure 5 illustrates the changes in the spatial orientation of the fixed voice group. Through the position of the red blocks in the diagram, we can clearly perceive their rich spatial directions and melodic movement patterns.

In the development section of *Verge* (mm. 64–107), the expansive “spatial shadow” exhibits characteristics such as “shadows spreading outward from the center to the periphery” (2nd to 3rd presentations), and “asymmetrical shadows advancing from the rear to the front” (3rd to 4th presentations). These spatial

conceptions demonstrate Liang’s creativity in sonic combinations within the string orchestra configuration, and further highlight the diverse manifestations of his overarching “shadow” technique—now operating across melodic, harmonic, and spatial dimensions through a consistent generative logic: a source entity generates dependent transformations that simultaneously preserve and distort the original across parametric space.

**Figure 5 The Spatial Movement of the Fixed Voice Group (mm. 64–107)**



*Source: Drawn by researchers based on the composer’s score*

While the fixed voice groups that constitute the “spatial shadow” exhibit minimalist qualities, their internal pitch content is exceptionally rich. The horizontal progression and rhythmic pulse are spare and consistent, but the vertical alignment of the voices shifts frequently and seamlessly. This compositional balance—activity within stillness, transformation within repetition—reflects the aesthetic principle evident throughout Liang’s work: using

“stillness” to frame “motion” and “motion” to reveal “stillness.” It achieves a sonic correlative to the interplay of “being and non-being” and “void and substance” in traditional Chinese artistic thought, creating a distinctive sonic beauty comparable to the layered depth of *shanshui* paintings.

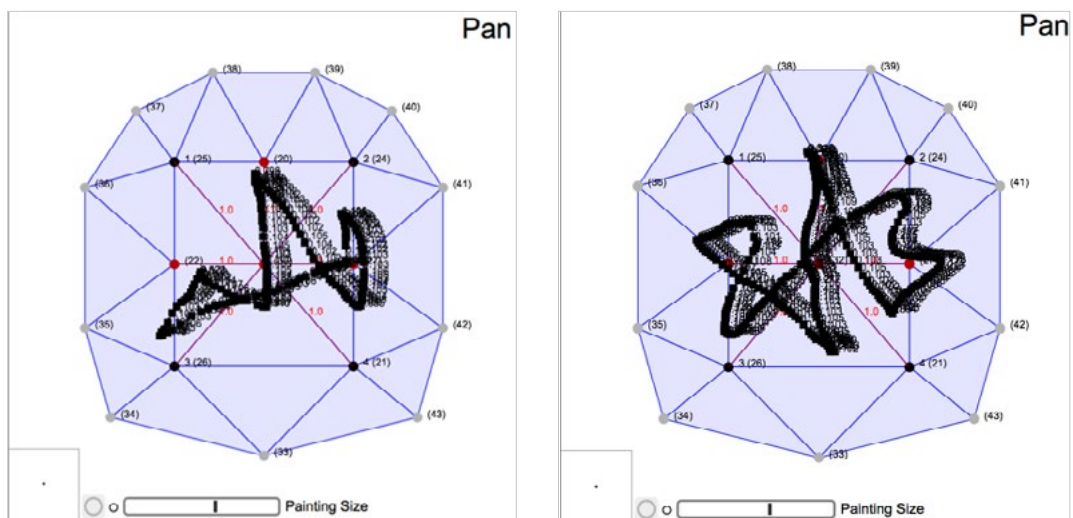
## 5.2 The “Spatial Shadow” in *A Thousand Mountains, A Million Streams*

In *A Thousand Mountains, A Million Streams*, the “spatial shadow” also assumes rich forms. As elaborated earlier, the work’s creative philosophy is intertwined with the ink-wash techniques of modern Chinese landscape painter Huang Binhong, extending the cross-media translation of visual art into sound that defines Liang’s “shadow” technique system.

To further illuminate the sonic spatial conception of this work, it is instructive to revisit his electroacoustic piece *Hearing Landscapes* (also inspired by Huang’s paintings). In this work, he collaborated with researchers to conduct XRF scans of Huang’s artworks, using digital technology to extract the forms of the characters *shan* (山, mountain) and *shui* (水, water) from Huang’s calligraphic works. This process created visual markers to trace the trajectory of his brush movements—laying the technical foundation for translating calligraphic spatial dynamics into sonic form. Therefore, in designing the acoustic space for *A Thousand Mountains, A Million Streams*, Liang revisited these electroacoustic methods, aiming to translate the essential qualities of Huang’s calligraphic brushwork into sound.

Applying the conceptual mapping framework established in this study, we can understand this process as a cross-media mapping operation: the physical paths of calligraphic strokes serve as the source domain. At the same time, the spatial trajectories of sound in the orchestral field constitute the target domain. This technique advances the “spatial shadow” beyond conventional orchestral positioning, anchoring it in the kinetic logic of calligraphic stroke patterns.

Figure 6 Huang Binhong's *shan* (mountain, left) and *shui* (water, right), displayed via MIAP software (Zachary Seldess, Qualcomm Institute, UC San Diego).



Source: Provided by the composer

Huang's calligraphic practice employed two fundamental brushstroke types: *gou* (勾, hooking) and *le* (勒, pulling). As illustrated in his Taiji diagram (Figure 7, as the red blocks show), *gou* refers to rightward-curving strokes, while *le* refers to leftward-curving strokes. Together, these opposing yet complementary movements form the basis of his brushwork, with their interaction generating the dynamic energy captured in the Taiji symbol's S-curve. This calligraphic principle—of paired, opposing movements that together create a unified spatial field—provides the conceptual model for Liang's "spatial shadow" technique.

Figure 7 *Taiji Picture (Taiji tu 太极图, 1942)*. Ink on paper; dimensions unknown; Collection unknown



Source: In *Modern Ink: The Art of Huang Binhong* (The Mozhai Foundation & University of Hawai'i Press, 2023)

In Example 13, Liang translates Huang's calligraphic process into sound using a string ensemble. He assigns a group of instruments (Violin II, Violin I, Viola, Cello) to generate sonic movement from the left rear to the left front and from the right rear to the right front within the acoustic field (as indicated by the arrows). This spatial trajectory maps directly onto the calligraphic logic of *gou* and *le*: the left-to-right and right-to-left movements of the brush become front-to-back and back-to-front movements of sound. Each instrumental part emulates Huang's brushwork through uniform rhythmic patterns and cohesive pitch structures, converting the fluidity of calligraphic motion into perceptible spatial sound movement.

**Example 13** Sonic Spatial Movement Pattern Prototype of *shui* (水, Water) in *A Thousand Mountains, A Million Streams*, mm. 56–58

Drawing inspiration from the qualities of Huang's brushwork, the composer develops spatial transformations of sound, such as "clockwise" and "counterclockwise" motions within the piece. These directional trajectories constitute the core mapping operations of the "spatial shadow": just as *gou* and *le* form complementary brushstroke pairs, clockwise and counterclockwise sonic movements form complementary spatial trajectories, each functioning as the other's shadow through directional inversion.

For instance, Example 14 shows that in the first section of "Mountains in Darkness and Piercing Light" (mm. 1–73), the composer organizes the strings into a layered structure: Violin I, then Violin II/Viola, and finally Cello. Following the path of the solid arrows, a sound-phase progression from front to back and left to right creates a clockwise movement in the sonic space. This clockwise trajectory maps onto the calligraphic logic of *gou*—the rightward-curving stroke—with each successive instrumental entry functioning as a spatial shadow of the preceding voice through temporal displacement and spatial repositioning.

In Example 15, building on the clockwise framework, a counterclockwise spatial layout is derived. The composer deploys a voice ordering of Violin II, Violin I/Cello, and finally Viola, producing a sonic shift from back to front and left to right in accordance with the solid arrows' direction. This counterclockwise trajectory maps onto the complementary logic of *le*—the leftward-curving stroke—with the reversed directional flow constituting the spatial shadow of the clockwise motion.

In both clockwise and counterclockwise motions, the subsequent instrumental parts function as the “shadow” counterparts to the preceding voices. This shadow relationship operates through a consistent mapping principle: each successive entry is temporally displaced from and spatially oriented relative to its predecessor, yet maintains parametric continuity through shared pitch material and rhythmic patterning—precisely the dual condition of the shadow as both attached to and transformed from its source.

Within this spatial framework, the “timbral shadow” operates as an additional mapping dimension. The second voice group layers another instrument's timbre to enrich the sonic palette. In Example 14, the viola doubles Violin II with a reduced dynamic; its timbre serves as the timbral shadow of the violin's brighter tone. In Example 15, the cello layers the timbre of Violin I, its deep register shadowing the violin's higher pitch. This timbral layering extends the mapping principle into the domain of sound color: dynamic reduction and registral displacement become the operations through which timbral shadows emerge from their sources, just as spatial displacement and temporal offset generate spatial shadows. Together, spatial motion and timbral layering unite to translate calligraphic logic into sound through multiple, simultaneous mapping operations.

### Example 14 Imitating the Sound-Space of *shui* (water)–Clockwise

The diagram for Example 14 illustrates a clockwise imitating sound-space. It features a network of instrument groups: Vln.Ia and Vln.Ib (labeled 1), Vln.IIa and Vln.IIb (labeled 2), Vla.I and Vla.II (labeled 2), Vc.I and Vc.II (labeled 3), and Cb.I and Cb.II. Below the network is a musical score with staves for Vln.Ia, Vln.Ib, Vln.IIa, Vln.IIb, Vla.I, Vla.II, Vc.I, and Vc.II. Red dashed circles highlight musical phrases in the score, with arrows indicating a clockwise flow from the Vln.Ia/Ib group to the Vln.IIa/Ib group, then to the Vla.I/II group, and finally to the Vc.I/II group.

### Example 15 Imitating the Sound-Space of *shui* (water)–Counterclockwise

The diagram for Example 15 illustrates a counterclockwise imitating sound-space. It features a network of instrument groups: Vln.Ia and Vln.Ib (labeled 2), Vln.IIa and Vln.IIb (labeled 1), Vla.I and Vla.II (labeled 3), Vc.I and Vc.II (labeled 2), and Cb.I and Cb.II. Below the network is a musical score with staves for Vln.Ia, Vln.Ib, Vln.IIa, Vln.IIb, Vla.I, Vla.II, Vc.I, and Vc.II. Red dashed circles highlight musical phrases in the score, with arrows indicating a counterclockwise flow from the Vln.IIa/Ib group to the Vln.Ia/Ib group, then to the Vc.I/II group, and finally to the Vla.I/II group.

As this study has demonstrated, Liang's "shadow" technique operates through a consistent mapping logic: visual and sonic sources—whether the spatial symmetry of the character shan, the

calligraphic strokes of Huang Binhong, or the overtone series of a fundamental pitch—serve as source domains that generate target domains (melodic shadows, harmonic shadows, spatial shadows, timbral shadows) through systematic operations of dependent transformation. These operations preserve parametric continuity with the source while introducing displacement, inversion, or distortion—precisely the dual condition of the shadow as both attached to and transformed from its entity.

## 6. Conclusion

Lei Liang's "shadow" technique in sound draws on traditional Chinese folk music, particularly the vibrato of Mongolian long song *Nogula*. Visually, he draws inspiration from Chinese ink-wash painting, especially the brushwork of Huang Binhong—including circular strokes, *shunbi* (smooth brush), and *nibi* (reverse brush)—which shapes his approach to spatial and sonic design. Works such as *Verge*, *Hearing Landscapes*, and *A Thousand Mountains, A Million Streams* integrate both folk-song materials and brushwork concepts, while also incorporating elements of Chinese culture, such as the *guqin* and literati music traditions. He uses the sounds, motions, and ideas from traditional Chinese music on Western instruments and in electronic music. Using ideas from different cultures and art forms, he creates music that appears similar but is really different in the East and the West. Through his unique background, he changes how musical signs are used and what they mean, helping Chinese folk and traditional music grow across cultures.

Liang's approach is not merely about transferring instruments, copying melodies, or juxtaposing disparate materials. Instead, while retaining key features, structure, and affect of genres such as long song and *Chao'er*, he recontextualizes them through what Homi K. Bhabha terms the "third space"—a hybrid domain where cultural materials encounter and transform one another. Through the distinct sonorities of Western and Chinese instruments, he shapes a blended musical language that maintains recognizable

cultural identities while remaining accessible to Western listening habits. On Western instruments, he reconstitutes the distinctive sonorities of long song and *Chao'er*. Through transmedial translational strategies—the mapping operations central to his shadow technique—he cultivates an “Oriental” rebirth of their sonic characteristics.

As the prominent poet Wai-lim Yip remarks of his work, “Lei Liang’s works attempt to leap from the fragments of life amid the decay of cultural-historical memory and the three-dimensional space of the stars... and to redeem each lost moment, which is to awaken all the forgotten histories” (Yip, 2017). Accordingly, his signature compositional device—the “shadow” technique—constitutes a dialectical treatment of “absence” and “presence” in sound: through the emergence of “shadow,” historical memory and forgotten sonic vocabularies are brought back into presence, allowing latent cultural meanings and historical memories to be reawakened. *The New York Times* once remarked, “For composer Lei Liang, technology brings a different kind of transcendence” (Fonseca, 2019). Percussionist Steven Schick also shared his unique experience of performing Liang’s works, describing it as a “dual challenge of technique and thought” (Steven, 2019). Similarly, composer Shulamit Ran has remarked, “for any artist, the path forward is never straight or smooth, and what I see Lei Liang doing is creating with transformative creativity” (Ran, 2020). Through the “shadows” of sound, Liang elevates historical memory from the realm of oblivion into the conscious experience of listening, achieving both the affirmation and reconstruction of cultural identity. His commitment to Eastern aesthetics, cross-media fusion and innovation, and ability to bridge ancient and modern musical languages collectively forge a profound connection between the past and the present.

Clearly, Liang’s ongoing refinement of his “melodic shadow” technique—alongside its systematic extensions into “harmonic shadow,” “spatial shadow,” and “timbral shadow”—has propelled the in-depth development of Eastern imagery in his

musical works, transcending the boundaries of single-discipline composition. This cross-disciplinary practice is not merely a technical experiment; it is a creative bridge that links the tactile texture of ink on paper, the vocal inflections of Mongolian long song *Nogula vibrato*, and the rhythmic vitality of *Hua'er* folk music to the structural logic of Western orchestral writing. In doing so, he redefines the role of traditional cultural symbols in contemporary music, proving that the fusion of visual art, folk heritage, and modern composition can generate a sonic landscape that is both culturally resonant and artistically original. By activating universal perceptual mechanisms through systematic mapping operations, and by grounding these operations in traditional Chinese aesthetic symbols, the "shadow" technique provides an effective pathway for intercultural musical understanding—one that is not merely asserted poetically but demonstrated analytically through replicable compositional and analytical procedures.

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