

# The SlowQin: An Interdisciplinary Approach to Reinventing the Guqin

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## ABSTRACT

This paper presents an ongoing process of examining and reinventing the Guqin, to forge a contemporary engagement with this unique traditional Chinese string instrument. The SlowQin (see figure 1) is both a hybrid resemblance of the Guqin and a fully functioning wireless interface to interact with computer software. It has been developed and performed with during the last eleven years. Instead of aiming for virtuosic perfection of playing the instrument, SlowQin emphasizes the openness for continuously rethinking and reinventing the Guqin's possibilities. Through a combination of conceptual work and practical production, Echo Ho's SlowQin project works as an experimental twist on Historically Informed Performance, with the motivation of conveying artistic gestures that tackle philosophical, ideological, and socio-political subjects embedded in our living environment in globalised conditions. In particular, this paper touches the history of the Guqin, gives an overview of the technical design concepts of the instrument, and discusses the aesthetical approaches of the SlowQin performances that have been realised so far.

## Author Keywords

NIME, Guqin, Historically Informed Performance, Conceptual Art, Augmented Field Recording, Sensors, Mapping starting to write the paper, which includes information on the CCS Concepts.

## CCS Concepts

•Applied computing → Sound and music computing; Performing arts;

## 1. INTRODUCTION

The SlowQin (Figure 1) is not merely an aesthetic object that resembles a Guqin adapted for electro-acoustic music creation and performance today. The rich organology of the Guqin provides many sources of inspiration for an open-ended design process in a reflective artistic development practice. The SlowQin's physical body was made of transparent plexiglass intended as a "vitrine" that reveals

the technical electronic elements which conjoin the mechanical body and the digital brain. A guiding idea for performing with the SlowQin is that it operates like a "Deep Time Machine" which poetically and metaphorically reflects the deep time research by Zielinski. [8] On the one hand, Ho considers it a cross-cultural challenge to rethink the Guqin in light of Western experimental music. On the other hand, she implements the use of experimental music as an interdisciplinary art practice derived from the ancient concept of Guqin's playing as a practical philosophy.

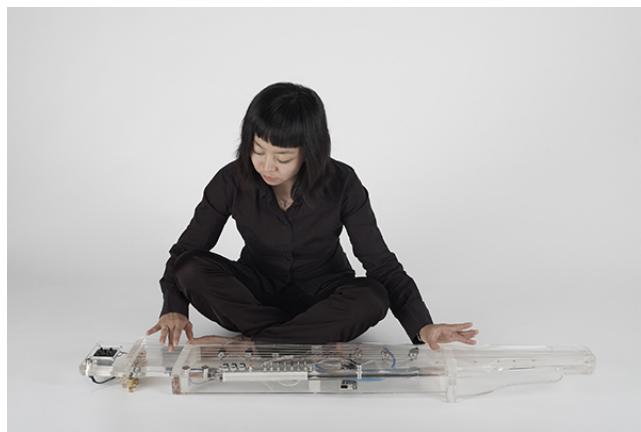


Figure 1: SlowQin in 2010 / Echo Ho

## 2. RELATED WORKS

In the past decade, there have been several contemporary approaches toward evolving the Guqin. In 2015, Jingyin He et al. presented "Physical Gesture acquisition system for Guqin Performance" at NIME, where they developed a wearable sensor system for the Guqin player's hand, enabling Guqin playing technique to become meaningful physical gesture control that interacts with a computer. [2]

In 2011, Eng Tat Khoo et al. reinterpreted the complex cultural phenomenon of the Guqin by transforming it into a digital interactive stage and performance. They made an elaborate dance performance aiming to translate the Guqin Hand gestures to full body gestures, by connecting a VST Guqin using interactive system consisting of laser light "strings" and various physical sensors. [4]

The SlowQin obviously shares the original musical-cultural context with these, but takes quite a different approach, which is inspired by the work of DJ sniff (Takuro Mizuta



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Lippit), among others.<sup>1</sup> After starting as a virtuoso turntable musician, he has been developing a practice based on new concepts, continually exploring and challenging the boundaries of sample-based musical practice by shaping “New open-ended and developmental tools”. Deconstruction and reconstruction of the sounds on vinyl reflect physical input from his finger movements, in real-time, and the archived sounds flow into a new becoming of unpredictable sonic flux.

### 3. THE SLOWQIN

The SlowQin project began in Summer 2007 in Beijing. In recorded historical documents, playing Guqin is called 操縵 (cao man), where man means plain silk; this is a homonym and synonym of “slow” that gives primacy to issues of human life and practical philosophy. The SlowQin was named according to this notion. The initial idea was building a hybrid Guqin to push the boundaries between acoustic and electronic musical improvisation. In 2009 the practice of classical Guqin music led Ho to study Guqin history, culture and philosophy more deeply. The elaborate traditional system of thought on the Guqin informed her idea of designing the SlowQin as an open system, primarily focusing on working with its function as an “interface” [3].

#### 3.1 Cultural Context

The Guqin is a fretless zither with usually seven strings. Playing the Guqin is not merely a musical practice, but also a sophisticated form of meditation with rich connotations; there is extensive literature on its symbolic significance within classical Chinese high culture [7, 1, 5]. Historically, it was tightly connected to the culture of literati scholars and its representatives as the political and intellectual elite in pre-modern China. The Guqin was also understood as a medium between human beings and nature. A person playing the Guqin next to a waterfall as an articulation of this practice of mediation was a central *topos* in traditional Chinese landscape painting. The surviving texts about the Guqin are mixtures of Daoist, Confucian and Buddhist philosophies. The main message of these texts is that the Guqin as a physical object should benefit and harmonize the world. Potential benefits of the qin are said to include: “Restore divine nature and restrain low passions (歸神杜淫 gu shen du yin; reference is to Shen Nongin Huainanzi 20) Body at rest and mind at peace (體精而心閑 ti jing er xin xian; Xi Kang). Control the universe (天下治 tianxia<sup>2</sup>; i.e., bring the world in line with the way it should naturally be; Fengsu Tong)”. Music of the Guqin as nature’s melody is also expressed in poems as “heavenly naturalness” - it captures life as nature does. Resembling and mediating nature in this way is the highest possible praise for art and music in ancient China.

#### 3.2 Technical Description

The body of the Guqin is generally made from two wooden boards of about 125cm x 20cm, cut and joined together so that there is a sound box inside running most of the length of the boards; the top board is carved into an arch, usually made from soft paulownia wood, the bottom is generally a harder wood such as catalpa. The bridge is made of hard wood; the strings are attached to it with a twisting-rope system. Traditionally, the strings were made of silk; after the 1950s they have been mainly replaced with steel-nylon strings, which sound louder and add a metallic plucking noise. The plucking position on the string will also affect the amplitude of the metallic noise. The seven strings are

<sup>1</sup><http://www.djsniff.com/>

<sup>2</sup><http://www.silkqin.com/10ideo.htm>

tuned to a pentatonic scale, where the open strings range from low (string 1) to high (string 7): C2, D2, F2, G2, A2, C3, and D3. The range for stopped strings is from C2 (string 1) to G5 (string 7, mark 2.6). The highest harmonic or flageolet sound is a D6 played on string 7 on marks 1 or 13 [6].

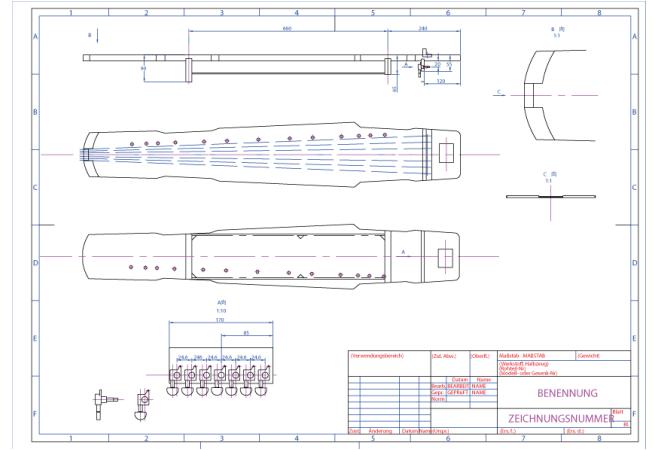


Figure 2: Design Schema of SlowQIn, Prof. Liang 2007

Acoustically, the SlowQin functions like a modern Guqin with synthetic silk strings. Its body (Figure 3) is made of plexiglass, and under its transparent shell, all electronics and wires are visible. It is fitted with a B Band piezo pickup under the bridge, and a wide range of sensors to provide a rich wireless connection to computer software. The sensors comprise 7 switches, 4 pushbuttons, 8 potentiometers, a light sensor, 2 pressure sensors, and a long slide potentiometer. The SlowQin’s sound goes into a laptop running EchoQin, a standalone SuperCollider app, which is the central brain of the instrument (contributed by Hannes Hoelzl and Dominik Hildebrand). It has facilities for real-time data and sound sampling and processing. This opens many possibilities for different behaviors of the control elements by reprogramming the computational side of the SlowQin, with multiple variants accumulating over time. While some of these control elements have found a permanent usage (e.g., master volume control), most of them do different things depending on which mode the instrument is in; new modes have been added to its repertoire as the SlowQin setups were evolved for specific performances. [See example table of mappings below] A second SuperCollider-based app, echoLooper, is used for processing live and stored audio samples.

### 4. SLOWQIN PERFORMANCES

The SlowQin project has progressed in 3 major phases, where performance ideas evolved in close collaboration with hard- and software prototyping. From 2007-12, it was mainly explored as a new electroacoustic instrument for improvisation contexts; from 2012 - 2016 it expanded to extended field recording, ambience<sup>3</sup>, and composition for an ensemble; since 2016 it moved toward storytelling practices and visuals. We discuss 3 specific performances as examples.

#### 4.1 Resembling Shanshui - Tune to Site (2012)

A serial performance that deploys the SlowQin as an augmented field recording instrument for researching and per-

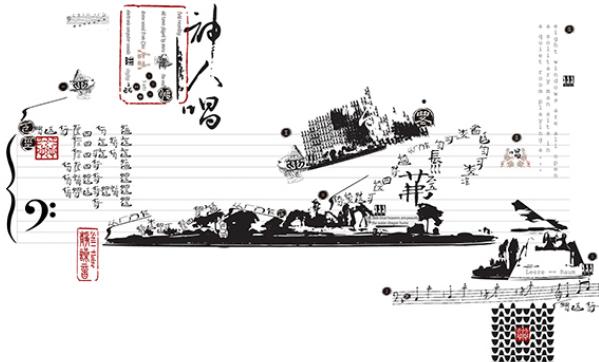
<sup>3</sup><http://www.sonicartresearch.co.uk/the-politics-ofambience/>



**Figure 3: Resembling Shanshui - Tuned to Site, Shanghai, 2012**

forming reactions on urbanization. I traveled to megacities such as Beijing and Shanghai and played the SlowQin on traffic islands in the middle of urban "nature" (Figure 3). This performance refers to the historical motif of the solitary Guqin figure alone in nature familiar in traditional Chinese painting, which depicts a Guqin player traveling with the instrument and playing in places of outstanding natural beauty. Substituting the environment of nature with the landscape of contemporary mega-cityscapes, skyscrapers become the new mountains, highways the new rivers, and the SlowQin becomes the new Guqin. Like the ancient Qin player, a SlowQin player aims to react or echo the "nature" of the site. On the one hand, she improvises with what "speaks" to her and her body emotionally. On the other hand, the SlowQin is listening to the site in a technical manner; the player can record multichannel sound, including the strings themselves, vibration (with a sensor), wind (via special pickup microphone) and the electromagnetic environment of the Hertzian space (via three axes of sensing coils). In this way, the SlowQin becomes a full interface for collecting environmental data including sound. The on-site performances thus become a practice of augmented field recording. Besides becoming music in the performance itself, all recordings also become material for later compositions and installations.

## 4.2 Still Noise (2013)



**Figure 4: Still Noise Graphic Notation, 2013**

"For living takes place each instant and that instant is

**Table 1: SlowQin control map for the 2013 Still Noise concerts:**

FIXED		
pot 8	main volume	
pot 1	qin processing volume	
Switch 1	mode knobs/pressure	
sw2	reverse live qin snd	
sw3	pentatonic shifts	
sw4	timeline of fieldrec	
sw5-6	little synths	
Switch 7	mode pushbuttons	
MODAL	SW7 up - LiveQin	SW1 down - Looper
pushbuttons	little synths	rec, undo, reverse, stop
	SW1 up - LiveQin	SW1 down - Looper
pot 7	Qin volume	Looper volume
pot 6	blippoQin volume	timeline track volume
pot 5-2	little synth params	fieldloop volume
pressure 1-2	pitch live loops	pitch field loops

always changing. The wisest thing to do is to open one's ears immediately and hear a sound suddenly before one's thinking has a chance to turn it into something logical, abstract or symbolical." John Cage (1952) [?]. In light of this idea, Ho created an experimental notation system - "Still Noise" (Figure 4) for Guqin, SlowQin, and electronics to be performed in public space. As an expanded on-site performance, the composition features modular structured improvisation, in which performers and audience explore an imaginative, elaborate sonic landscape simultaneously. Like an excursion through a landscape, each of the compositional ideas is represented as scenery-modules in the notation system. Every musician will explore and expand compositional ideas that link to each instrument. Responses between the performers will trigger new sonic events that merge immediately into the environment (Figure 5).<sup>4</sup>



**Figure 5: Still Noise - concert in the church garden of St. Mauritius, Cologne. Musicians: Wu Na - Guqin, Echo Ho - SlowQin, Trio Brachiale - Electronics 2013**

On a technical note, Table 1 gives an example of SlowQin modes, namely those for the 2013 Still Noise concerts.

## 4.3 Shamanistic Rave (2016-)

There is speculation in China about the Guqin having originally been developed by Wushi (shamans). Thus, the SlowQin is treated as a ritualistic object that enables alternate ways of storytelling. The player borrows the Guqin's pre-historical

<sup>4</sup><https://goechospace.com/video/still-noise-what-is-singing-live-concert>

shamanistic practice as a technique of intermediating between the human world and the spirit world. Integrating the SlowQin as a technological interface allows to transfer her ‘memories,’ at once autobiographical and collective, to weave into an ephemeral tapestry in sound and vision (Figures 5, 6). Creating apparently “magical” intensity in solo audiovisual performances is facilitated by complex layering: The visual layers mainly use pre-produced elements, and their flow is played live. and their flow is played live. Rhythmic layers come from an Ableton Live project that is controlled by sensor data from the SlowQin interface via the EchoQin app; acoustic string sound layers are played and processed live on the SlowQin; Polyphonic vocal layers (to achieve shaman-like ecstatic moments) are created by live-sampling, in effect accumulating passing events into an ongoing multi-layered present. In inspired moments, the layers seem to sparkle in the air as they form pentatonic clouds of ghostly and onomatopoetically distorted chant.



**Figure 6: Potential Spaces, Deep Time Machine: Echo Ho plays the SlowQin, Karlsruhe University of Arts and Design ZKM, 2017**



**Figure 7: Klingon Tea Ceremony: an Ephemeral installation and performance with Megumi Fukuda, 2015, Alexander Ochs Private, Berlin**

## 5. FUTURE WORK

Stepping into the 21st century, the investigation will make a shift transcending the actual body of the Guqin/SlowQin. Focusing on Guqin’s ancient playing techniques, which are holistic in their approach, my current Ph.D. project QINTRONIX will forge a trajectory to contemporary performance

practice showing the relevance of the ancient approach in today’s world of complex cultural and ecological environments. I plan to work on systems that will allow complex corporeal articulation of forming a sensorised body, that transpose practice and meaning of the phenomenal antique fingering and hand gesture tablature of the Guqin tradition, which were initially developed as a system of elaborate voice metaphors that reflect natural surroundings, such as plants, clouds or animals. Future research will investigate the use of advanced sensor technologies in the evolving setups. The aim here is to create bi-directional interactions between the performer and the specific environment, and particular choices of objects within them. Tactile object recognition and sensing of an object’s characteristics, like size, shape, temperature, weight, material via machine learning will be interesting to explore here.

## 6. ACKNOWLEDGMENTS

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