

*Gabriel Mălăncioiu*

# *Shùdi*

*for flute and live-electronics*

This score is protected by GEMA and UCMR-ADA.  
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## Program note

Shùdi is the name of a flute used in Ancient China. The connections of this piece with an archaic musical culture are suggested by the extreme limitation of the pitches used in some sections as well as by the usage of the natural sounds from the harmonic series. The bridge to our times is realized by the electronic component, used to enhance some psychoacoustical effects. One of the main idea of using electronics in that piece is to achieve an effect called “binaural beat”, known for centuries by the ancient buddhist monks and rediscovered in our times by scientific researchers. Binaural beats are apparent sounds, the perception of which arises in the brain for specific physical stimuli. The effect on the brainwaves depends on the difference in frequencies of each tone, for example, if 400 Hz was played in one ear and 410 in the other, then the binaural beat would have a frequency of 10 Hz.

The boxed numbers which appear under the flute part are the electronic events generated using a Max Msp patch. Each event will be released by pressing the Space bar.

1	binaural beat using the following frequency shift: left - 5 Hz, right +5 Hz
2	stop event 1
3	binaural beat using the following frequency shift: left +10 Hz, right -10 Hz
4	stop event 3
5	cloud of sounds follow the given melodic contour
6	stop event 5
7	add a tremolo effect, with a little delay
8	stop event 7
9	create sound waves and add distorsion, imposing the tempo on the flute player
10	fade out event 9

The contrasting, darker side of the piece is enhanced by the electronic events 5 and 9

# Installation instructions

**1. - getting Max/MSP**

You can find MaxMSP from the website.

Go to: <http://www.cycling74.com/downloads> and download Max/MSP Runtime for Windows

**2. - install Max/MSP**

after you have downloaded the application, click on the installer and follow the on-screen instructions.

**3. - copy the max patch to your computer**

COPY the folder called "Shudi Patch Folder" onto your hard drive.

DO NOT attempt to run the patch off of the CD. You must run the patch from your own hard drive.

**4. - start MaxMSP Runtime (or Max MSP)**

**5. - load the patch**

go to FILE/OPEN in MaxMSP Runtime and OPEN "shudi.maxpat"

located in the "Shudi Patch Folder" folder.

Two speakers and a microphone are required.

# Shùdi

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♩=50

○ - breathy, diffuse tone quality  
● - normal

4/4

Flute

harmonics

multiphonic sound

1 2 3 4  
2 3 4 5

*p*

*p*

*p*

*p*

*p*

*mf*

*p*

5

harmonics

*p*

*mp*

*p*

1

accel.

1 2 3 4  
2 3 4 5

1 2 3 4  
2 5

1 3 4 5  
2 3 4 5

♩=50

*mf* *p*

2

5

*mf* *p*

1 2 3 4  
2 3 4 5

♩=60

*mp* *p* *mp*

3

5

*mp* *p* *mp*

1 2 3 4  
5

*mp* *p*

3

5

*mp* *p*

1 2 3 4  
5

1 2 3 4  
2 3 4 5

♩=50

*f* *p*

4

3

2/4 4/4

*mp* *f* *mp*

*mp* *f* *mp*

4

5

1 3 4  
2 3 4 5

accel.

As fast as possible

cover the embouchure hole completely with the mouth, and blow as forcefully as possible directly into the instrument

fff  
↑  
5

fff p f p ff

trm whistle jet

frull. frull. frull. trm

ff p mf f

frull. frull. pp possibile

$\frac{2}{4} = 50 \frac{4}{4}$

1 2 3 4  
2 3 4 5

5



bisbigliando (timbral variations)

3/4

1 2 3 4  
2 3 4 5

1 2 3 4  
2 5

1 2 3 4 5  
2 3 4 5

1 2 3 4  
2 5

1 3  
2 5

1 2 3 4  
2 3 4 5

1 2 3 4  
2

1 3  
5

4/4

4/4

8

4/4 electronic's tempo ♩=60

forceful ingrasive sound

IN IN

f

<ff

f

fff

9

whistle jet

IN IN

p

ff

mf

f

tr gliss.

whistle jet

*p* *ff*

frull.

*mf* *f* *f* *ff*

IN *tr* *b*

*fff*

Detailed description: This musical staff begins with a 'whistle jet' marking. It features a dynamic range from *p* to *ff*. The notation includes a 'frull.' (trill) marking, followed by notes with 'IN' and 'tr b' markings. The dynamics increase through *mf*, *f*, and *f* to *ff*. A large slur covers the final notes, which are marked *fff*.

IN IN IN

*mf*

*tr* *b*

whistle jet

*p* *f*

10

Detailed description: This staff starts with three 'IN' markings. The dynamic is *mf*. It includes 'tr b' markings. The staff concludes with a 'whistle jet' marking and a dynamic range from *p* to *f*. A box containing the number '10' is positioned below the staff.

$\text{♩} = 50$

*p*

Detailed description: This staff begins with a tempo marking of  $\text{♩} = 50$ . It features a dynamic of *p* and includes various articulation marks such as slurs and accents.

Detailed description: This staff continues the musical notation with various notes, slurs, and articulation marks.

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The first staff of music features a treble clef and a key signature of one flat. It begins with a melodic phrase of eighth notes. A large slur covers a complex passage of sixteenth-note chords, which then transitions into a descending melodic line. The staff concludes with a few more notes and a double bar line.

The second staff continues the piece with a similar melodic and harmonic structure. It includes a section with a descending melodic line and a final phrase that ends with a double bar line.

The third staff shows a continuation of the musical themes, featuring a long slur over a series of chords and a final melodic flourish.

The fourth and final staff on the page contains a long, continuous slur over a series of chords, followed by a final melodic phrase and a double bar line.