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Publication Date

2023

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UNIVERSITY OF CALIFORNIA
SANTA CRUZ

**THE SONIFICATION OF FABRICS
INSPIRED BY THE FABRIC PLEATS OF ISSEY MIYAKE**

A dissertation submitted in partial satisfaction
of the requirements for the degree of

DOCTOR OF MUSICAL ARTS

in

COMPOSITION

by

Jinwei Sun

June 2023

The Dissertation of Jinwei Sun is
approved:

Professor Hi Kyung Kim, co-chair

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Abstract

THE SONIFICATION OF FABRICS INSPIRED BY THE FABRIC PLEATS OF ISSEY MIYAKE

Jinwei Sun

Since well before the twenty-first century, composers such as Chou Wen-chung, Witold Lutoslawski, and Toru Takemitsu have extended non-musical elements into their music. While these composers have used painting techniques for inspiration such as brushing, writing, and color theory, there is still room for further exploration for translating fabric into musical practice. My contribution to this tradition is inspired by the Japanese fashion designer Issey Miyake, whose groundbreaking methods of creating fabric pleats with synthetic fibers into my musical language. In this dissertation, I present four approaches to integrating fabric pleats as a metaphor for musical composition. Inspired by the flowing movements of the fabric pleat, I created three new techniques for a percussion trio: the *timbral arpeggio*, *pitch sculpture*, and *rhythmic chips* illustrating a timbral wave, rhythmic idea, and harmony, respectively. I further developed the three concepts in the *Stamp*, written for pipa, percussion and string quartet. Another piece, *Pleats • Play* (for gayageum, violin, and cello), demonstrates how I translate the process of making synthetic fiber as the fiber is liquefied, extruded, extended, solidified, and spooled. A fourth piece, harkening back to Miyake's original idea, *Hidden • Apparent*, interprets a unique way to assemble clothes. *Hidden • Apparent*, a composition for 25-string Gayageum, I create an 'instructed improvisation' to manifest the freedom of how to combine the pieces in Miyake's designs. The process made me realize how much

inspiration non-musical sounds can bring to music to provide broader, more inclusive musical content.

Acknowledgements

First and foremost, I would like to earnestly acknowledge the sincere efforts and valuable time given by my advisor Professor Hi Kyung Kim, who also taught and guided me over the past five years. I want to thank her for her generosity and selflessness. Also, I would like to express my special thanks to my advisor Professor Lei Liang at the University of California, San Diego, who always encourages and inspires me. Their motivation contributed tremendously to the successful completion of the project.

Additionally, I would like to thank Professor Ben Leeds Carson, Anatole Leikin and Professor David Evan Jones, who helped me in my dissertation study and Qualifying Exam by advising and supporting me. I would like to express my gratitude to Ryan Lambe, my colleague, for engaging in discussions and assisting me with the editing process.

Last but not least, I would like to thank everyone, my colleagues, friends, and family. Without their help and support, I could not have completed my doctoral study satisfactorily.

I. Composition:

Percussion Trio

Timbral Arpeggio

Pitch Sculpture

Rhythmic Chips

Hidden • Apparent (25-string gayageum)

Pleats • Play (25-string gayageum, violin, and cello)

Stamp (pipa, percussion, and string quartet)

Jinwei Sun

Percussion Trio

Timbral Arpeggio

Rhythmic Chips

Pitch Sculpture

Fall 2021

INSTRUMENTATION

Percussion I

crotale(C8), marimba, snare drum, timpani(29" 26"), triangle

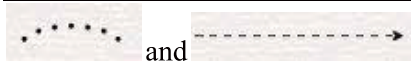

Percussion II

bongos, congas, cowbells (small, large), gong, large cymbal, small cymbal, temple blocks, chime

Percussion III

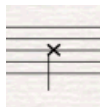
cowbells(small, large), small mymbal, triangle, vibraphone,
A set(from low to high): temple blocks, woodblocks, cowbell


PERFORMANCE NOTE

 and  Indicating the phrase, no performance purpose

Positions: Center=c. Edge=e. Normal=n.  Gradually to the pointed position


Percussion I


 Indicating crotale

 For timpani: with crotale on it

 Indicating triangle

Percussion II

 Glissando back and force on the cymbal the edge while bowing.

 Use fingernails to hold



For gong: sliding on the edge

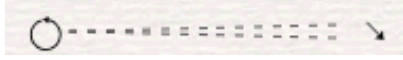


Circle on the edge with

tremolo



Indicate small cowbell



Gradually getting faster and wider while circling on the edge, finish with sliding down.

Percussion III

from low to high: temple blocks, woodblocks, cowbell



For vibraphone: hit the small cowbell



Indicating triangle

Percussion Trio

(2021)

Timbral Arpeggio

♩=56

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Percussion I
Crotales
Timpani

Percussion II
Large Cymbal
Chimes

Percussion III
Triangle
Vibraphone
Cowbell

5
Triangle
with crotales on
Gong
arco
sliding from center to edge
slow → fast
arco

9
sliding
Small Cymbal
Chimes
slow

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14

fast → slow

f *mp* *sf* *p* *fp* *mp*

19

Temple Blocks

p *mp* *f* *pp* *f* *mf* *f*

23

circling on the edge

slow → fast → slow

p *pp* *f* *ff* *pp*

27

ff p mf p ff

p f ff

arco p f ff mp f

Cello

31

p f

arco p f mp f

ff f

Cello

34

gliss. p f p f pp f ppp

f mp < mf

Gong center

fast slow

mp f

Cello

Rhythmic Chips

♩=80

37

Snare Drum

Triangle

Bongos, Congas

Cowbells

Temple Blocks, Wood Blocks, Cowbells

42

47

51

51

fp *f* *pp* *fp* *f* *p* *f* *p* *f*

Cowbells

Small Cymbal

58

rit. $\text{♩} = 94$

58

pp *f* *p* *f* *mf* *p* *f*

pp *fp* *p* *f* *pp* *f*

pp *f* *p* *p* *p*

mf *pp* *f*

Temple blocks, Wood blocks, Cowbells

63

accel.

63

ppp

ppp

ppp

ppp \triangleleft *fp*

67 $\text{♩} = 94$

ff *p < sf* *ff* *p < sf* *ff* *p < sf* *fp* *sf*

71

fp *pp* *ff* *< f pp* *f* *< f pp* *ppp* *< f pp*

cymbals Temple blocks, Wood blocks, Cowbell

75

ff *pp* *f* *pp* *ff* *pp* *ff* *pp*

79

p < f *ff* *p* *< ff* *p* *pp* *f* *p* *ff* *p < f*

84

f *p* *f* *pp* *mf*

<f *pp* *f* *pp* *f* *p* *pp* *mf*

p *f* *p* *mf* *mf*

88

p

p *f* *p*

p *p* *f*

92

♩ = 80

f

f *pp*

Large Cymbal

Gong center

<f *pp*

97

ppp

ppp

pp

f

ppp

Pitch Sculpture

102

$\text{♩} = 56$

Triangle

Marimba

Large Cymbal

Temple Blocks

Cowbells

Vibraphone

normal

edge

pp

f

p

pp

mf

p

pp

edge

pp

106

normal

e.

n.

e.

n.

ppp

pp

pp

f

f

f

normal

edge

normal

e.

fp

f

110

mf

f

ppp

Temple blocks

mp

f

pp

mf

pp

f

pp

114

f

mf

ppp

Cowbells

Cymbals

f

f

p

f

motor on

ppp

f

c.

n.

119

f

p

f

p

f

p

f

p

c.

n.

p

f

p

123

fp f f

pp pp ff p f ff

f pp ff f ff

129

f

Cowbells Cymbal

pp f

pp f pp mf pp

133

p mf pp pp

Large Cymbal Chimes

mp fp f p f

f p f ppp pppp f

139

arco

Small Cymbal

arco

pp *f* *mp* *p* *pp* *<f* *fp* *f*

arco

p

143

blow slowly until the sound dies away

f

slide slowly until the sound dies away

f

motor on

p *mp* *pp*

fast-slow

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Hidden • Apparent

for solo 25-string gayageum

Spring 2022

PERFORMANCE NOTE

25-string Gayageum preparation instruction

1, remove the frets of the lowest two strings and make them cross over on the same fret.



2, soft cotton sticker/ ribbon on the highest strings, in the middle position

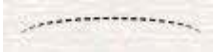


3, paper clip on the lowest G string



4, Sweep the strings



5,  indicates the phrase.

6, _____ palm glissando, waving line for regular glissando

Hidden • Apparent

for 25-string Gayaguem

(2022)

♩=42 *espress.*

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Musical notation for measures 1-4. The piece is in 4/4 time with a key signature of three flats. Measure 1 starts with a mezzo-piano (*mp*) dynamic. Measure 2 features a piano-piano (*pp*) dynamic. Measure 3 is marked piano (*p*). Measure 4 includes a triplet of sixteenth notes and ends with a mezzo-piano (*mp*) dynamic.

Musical notation for measures 5-7. Measure 5 has a mezzo-forte (*mf*) dynamic. Measure 6 is piano-piano (*pp*). Measure 7 features a triplet of sixteenth notes and is marked *legato*. The bass line in measure 6 is marked mezzo-piano (*mp*) and in measure 7 is marked piano-piano (*pp*).

Musical notation for measures 8-11. Measure 8 is marked forte (*f*). Measure 9 is piano (*p*). Measure 10 features a piano-piano (*ppp*) dynamic. Measure 11 is marked forte (*f*) and piano-piano (*pp*).

Use different techniques on repeating motions between A&G
Free rhythm, but follow dynamic

Musical notation for measures 12-15. Measure 12 is marked piano-piano (*pp*). Measure 13 is marked piano (*p*). Measure 14 is marked forte (*f*). Measure 15 features a mezzo-forte (*mf*) dynamic. Annotations include "ends section with finger nail click" and "pluck on the left side of the bridge".

Musical notation for measures 16-19. Measure 16 is marked piano (*p*). Measure 17 is marked piano-piano (*pp*). Measure 18 is marked piano (*p*). Measure 19 is marked piano-piano (*pp*).

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20

f *p* *f* *pp* *f* *ff* glissando with palm

pp *ppp* *mf* *f* *ppp*

24

p *ppp* *pppp* rit.

p glissando with palm regular glissando

28

♩=108

pppp *pppp* *pppp*

31

rit.

f 3 *p*

35

♩=120 dolce

mf *p* *f* *mp* 3

39

Thumb

f *mp* *f* *p*

42

f *mf* sweep on the left side *p*

45

pp *fp* *f* *f*

48

f *mp*

51

p *f* *mp*

54

two strings cross over

f *f* *f*

56 *rit.* $\text{♩} = 42$

ppp ff f

58

pp f ff mp mf

62

mf

66 *rit.* 3

p mf ppp

69 $\text{♩} = 88-98$

ff fff ppp legato

71 *rit.*

pppp ppp

73 *accel.*

pppp ppp pp

75

mf *f*

77 *rit.*

ff *f* *sf*

79 *a tempo*

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

81

fff *ppp*

83

ppp *pp*

85

ff *f* *ff*

88 $\text{♩} = 42$

mf *p* *mf*

sf

93

pp *f* *f* *f*

97

f *p* *p* *f* *p < mf > f*

2③②1

3

3

2③②1

102

mf *p* *pp* *pp* *pp*

107

p *p* *p* *p*

111

pp *pp* *pp* *pp* *pp*

glissando with palm *ppp*

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
Pleats • Play

for 25-string Gayageum, Violin, and Cello




Spring 2022

PERFORMANCE NOTE

Gayageum:

	Two-finger pizzicato(bartok pizz.)		Thumb pizzicato
Sul pont.	Sul ponticello, playing near the Hyeonchim		Lower string/ upper string
Sul tasto	Middle position(close to the bridge) Anjok		Fingering
ord.	Normal position		Glissando on the left side of the bridge
	Flick once		Strong vibrato
	Double flick	Palm Glissando	Glissando with palm only
	Gentle vibrato		

Strings:

	Bartok Pizzicato
sul pont.	Bow near the bridge
sul tasto	Bow near the fingerboard
	Left-hand Pizzicato
	Gradually to the following position

Pleats • Play

for 25-string Gayageum, Violin, and Cello

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♩ = 88

Gayageum
sul pont. *f* sul tasto *p*

Violin
Bartok pizz. *sf* *p* sul tasto *pp*

Violoncello
Bartok pizz. *sf* *p* sul pont. *mf*

Gayageum
f *f* sul pont. *f* ord. touch *f*

Vln.
III IV *mf* Bartok pizz. *f* arco

Vc.
sul tasto *p* sul pont. Bartok pizz. *f* pizz. *p* III IV *mf* pizz.

Gayageum
f *p* *f*

Gayageum
vibration alters between two strings
10 *f* *p* *f*

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14

Gayageum

mf

Vln.

pizz. ϕ

arco

(within one bow)

wide vibrato

mf

Vc.

Bartok pizz. ϕ

arco

(G#5)

(A4)

f *ppp* *pp* *f*

18

Gayageum

f

Vln.

sul tasto

(within one bow)

ord. pizz.

ppp *f*

Vc.

(within one bow)

(G4)

pizz. Bartok pizz. ϕ

p *f* *sf*

22

Gayageum

p *sf* *p* *f* *p* *mf*

Vln.

arco

p *sf* *p*

L.H. pizz.

p *sf* *p*

25

Gayageum

Vln.

Vc.

p *f* *p* *f* *p* *mf*

arco sul pont. ord.

f *p*

f *p* sul pont.

28

Gayageum

Vln.

Vc.

f *p* *mf*

L.H. pizz. + + + + + 5

ord. 5 +

mf *p*

31

Gayageum

Vln.

Vc.

f *p*

Bartok pizz. pizz. arco

f *p*

Bartok pizz. pizz. arco

f *p*

34

Gayageum *f* *mf* *f* *mf*

Vln. Bartok pizz. *f* arco (D7) sul tasto *pp* 3

Vc. Bartok pizz. *f* arco sul tasto *pp* 3

37 (left side)

Gayageum *f* *mf* ④ ③ ②

Vln. sul pont. *mf* *p* ord. + 3 *pp*

Vc. sul pont. *mf* *p* ord. *pp*

40 (Left Side)

Gayageum *pp* ④ ③ ②

Vln. ord. *mf* sul tasto *pp*

Vc. ord. *mf* (G#6) sul tasto *pp*

43

Gayageum

p
mf

Vln.

Vc.

ord.

mp

ord.

mf

sul tasto

pp

46

Gayageum

palm glissando

gliss.

gliss.

gliss.

espress.

mf

p

50

Gayageum

f

p

mf

sul pont.

ord.

5 4 3 2

53

Gayageum

sul pont.

ord.

pp

56

Gayageum

left side

f

on the left side of the bridge

on the right side of the bridge

*mm. 58-68, improvisation with instructions technique, rhythm, pitch, determining by player

on the left side of the bridge

on the right side of the bridge

59

Gayageum

62

Gayageum

to the left side of the bridge

f

65

Gayageum

p

68

Gayageum

to normal position

ff

f

to normal position

Vln.

col legno battuto

pp

f

Vc.

ord.

Bartok pizz.

Bartok pizz.

70

Gayageum

Vln.

Vc.

f *p*

arco *f*

arco 3 *f* 3 3 *p* pizz.

72

Gayageum

Vln.

Vc.

vibration alters between two strings

f *pp* *f*

pizz. 3 *p* 3 *f* Bartok pizz. *pp* *f* Bartok pizz.

f 3 *pp* *f*

75

Gayageum

sul tasto → ord. → sul pont.

6 4 3 2

p *f* *p* *mf*

ord.

79

Gayageum

Vln.

Vc.

glisando starts when vibration die away

mf *p* *pp*

arco 3 *mf* sul tasto *pp* (within one bow) ord. 3 *f* Bartok pizz.

arco 3 *mf* sul tasto *pp* (within one bow) sul pont. (A5) (E5) *p*

82

Gayageum *f* *p* *ff* *p*

Vln. arco sul tasto *p* harmonic glissando

Vc. Bartok pizz.

85

Gayageum *f*

Vln. wide vibrato (A6) *p* *poco a poco cresc.* *f*

Vc. arco harmonic glissando (A5) (E5) (C#6) *p* *poco a poco cresc.*

88

Gayageum *p* *f* *p* *f*

Vln. *pp* *ppp* harmonic glissando

Vc. *f* *pp* harmonic glissando IV

91

Gayageum

mf *f*

Vln.

Vc. C6

94

Gayageum

f *mp*

palm glissando *gliss.* *gliss.*

Vln. *p*

Vc. (C#6) *mp* harmonic glissando *pp* (F#5)

97

Gayageum

pp *f*

mf

Vln. *f*

Vc. (B4) (E4)

100

Gayageum

f

Vln.

harmonic glissando

ppp

Vc.

harmonic glissando

103

Gayageum

f

Vln.

Vc.

harmonic glissando

106

Gayageum

f

Vln.

p

Vc.

(A5)

pp

espress.

mp

109

Gayageum *f* *p* *f*

Vln. *ppp* harmonic glissando

Vc.

112

Gayageum *sf* *f*

Vln. *f*

Vc. *f*

114

Gayageum *pp* *sf*

Vln. *pizz.* *sf* arco sul pont. *f* *p*

Vc. *pizz.* *sf* arco sul pont. *f* *p*

117 → ord.

Vln. *f*

Vc. ord. *f* sul pont. *p* 5 5 5 5

120

Vln. *p* 5 5 5

Vc. 5 5 5

121

Vln. 5 5 5

Vc. 5 5 5

122

Gayageum *mf* *f* *p* *f*

Vln. ord. *f* 5 5 5

Vc. ord. *f* 5 5 5

123

Gayageum

p

Vln.

f

Vc.

f *p* 5 5 5

124

Gayageum

poco a poco cresc.

Vln.

poco a poco cresc.

Vc.

poco a poco cresc.

5 5 5

125

Gayageum

5 5 5

Vln.

5 5 5

Vc.

5 5 5

126

Gayageum

Vln.

Vc.

mf

f

pizz.

127

Gayageum

Vln.

Vc.

f

mf

f

p

Bartok pizz.

128

Gayageum

Vln.

Vc.

pizz.

Bartok pizz.

129

Gayageum

Vln.

f

5

130

Gayageum

vibrato alters between two strings

f

p

f

Vln.

5

5

5

5

6

6

6

6

Vc.

arco

p < *mf*

p

f

132

Gayageum

ff

Vln.

+

5

3

5

pizz.

ff

arco

pp

Vc.

f

gliss.

ff

Bartok pizz.

134

Gayageum

Vln.

Vc.

arco

ppp

pp

ppp

harmonic glissando

harmonic glissando

f

138

Vln.

Vc.

ff

mf

pp

142

Vln.

espress.

sul tasto

ord.

sul tasto

ord.

ppp

f

p

pp

(within one bow)

146

Gayageum

Vln.

Vc.

f

ff

f

pp

pp

A5 E5

150

Gayageum

sul pont.

f

ord.

ppp

f

Vln.

pp

ff

sul tasto 5

ppp

Vc.

pp

ff

sul pont.

f

153

Gayageum

mf

Vln.

f

p

Vc.

p

ord. +

154

Gayageum

ff

Vln.

ord.

sul pont.

fp

f

p

ff

Bartok pizz.

Vc.

sul pont. (within one bow)

f

ff

Bartok pizz.

156

Gayageum

p 3 *ff*

Vln. arco sul tasto *pp* 3 *ord.* *ff*

Vc. arco sul tasto *pp* 3 *ord.* *ff*

158

Vln. *ppp* sul pont.

Vc. *ppp* sul pont.

161

Gayageum *f*

Vln. *ff*

Vc. *ff*

164

Gayageum

Vln.

Vc.

espress.

p

f

3

166

Vln.

Vc.

f

pp

mf

p

mf

wide vibrato

3

169

Vln.

Vc.

pp

f

gliss.

gliss.

gliss.

gliss.

3

3

3

171

Gayageum

Vln.

Vc.

p *f* *ff*

174

Gayageum

Vln.

Vc.

ff

178

Gayageum

Vln.

Vc.

on the left side of the bridge
notes determining by the play

f *sf* *sf*

ff *sf*

sf

181

Gayageum

Vln.

Vc.

184

Gayageum

Vln.

Vc.

f

mf

p

mf

p

p

3

3

sul pont.

sul pont.

187

Gayageum

Vln.

Vc.

on the left side of the bridge

f

sul tasto

(B7) (within one bow)

ord. pizz.

pp

ppp

sf

sul tasto

(B6) (within one bow)

ord. pizz.

pp

ppp

sf

Jinwei Sun

Stamp

for Pipa, Percussion, String Quartet

Spring 2023

Performance Note

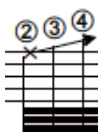
Pipa



hitting strings on the noted pitch 打音



bending strings with left hand 左手拉弦



Pluck the strings at the very top of the instrument (numbers refer to strings numbers) 在琴的最顶部拨弦



woodblock sound 摘



Pluck strings with the thumb (Sounds like Bartok pizzicato) 提

◦ harmonics, 自然泛音



circular finger movement 轮指



twist strings with the left hand 绞弦(1/2 和3/4 分别绞在一起)

△ highest pitch 最高的音



harmonic glissando 虚按的滑音



regular glissando 实按的滑音



Left hand nail under the string, right hand playing 煞

Percussion



with hand



hard mallet



circular motion

Strings



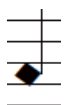
hitting strings on the noted pitch



pizzicato behind the bridge



Bartok pizzicato



artificial harmonic



circular bowing

sul. p sul ponticello

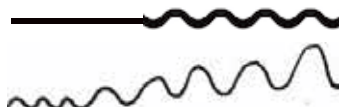
sul. t sul tasto



gradually getting to heavy bow pressure



gradually reduce bow pressure



vibration level

Stamp

for Pipa, Percussion, String Quartet

Jinwei Sun
2023 Spring

Tempo: ♩=96

Pipa: *f*

Percussion:

Violin I: behind the bridge (open strings), *pizz.*, *sf*, *legno tratto*, hit string with left hand on the written rightster

Violin II: behind the bridge (open strings), *pizz.*, *sf*, *legno tratto*

Viola: behind the bridge (open strings), *pizz.*, *sf*

Violoncello: behind the bridge (open strings), *pizz.*, *sf*, *p*, *sf*, *p*

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5

Pipa *mf*

Vibraphone

Perc. *f*

Vln. I behind the bridge *pizz.* *p*

Vln. II behind the bridge (open strings) *pizz.* *f* *p* *sf*

Vla. behind the bridge (open strings) *pizz.* *f* *p* *legno tratto* *pp*

Vc. *legno tratto* *pp*

9

Pipa

Ratchet

Perc.

Vln. I *f* *mp*

Vln. II *sf* *sf* *p*

Vla. behind the bridge (open strings) *pizz.* *f* *f* *mp* *sf*

Vc. behind the bridge (open strings) *pizz.* *sf* *sf* *mp* *sf* *p*

12

open strings(在琴的最顶部, 拨弦)(remain flexible)

Pipa

Vibraphone

Perc.

Vln. I

Vln. II

Vla.

Vc.

pp *f* *sf*

敲击琴板

15

Pipa

Perc.

Vln. I

Vln. II

Vla.

Vc.

f *p* *f* *mp*

Temple Blocks

normal position
barré pizz.

open strings(在琴的最顶部, 按弦)(remain flexible) ord.

17

Pipa

Perc.

Vln. I

Vln. II

Vla.

Vc.

f *p*

f *mf* *ppp*

legno jeté
mf *sf*

legno jeté
f *sf*

legno jeté
f *sf*



19

Pipa

Perc.

Vln. I

Vln. II

Vla.

Vc.

f *mp*

f *ff* *pp* *f*

bartok pizz.
sf

legno jeté

bartok pizz.
sf

legno jeté
mp

bartok pizz.
sf

legno jeté

bartok pizz.
sf

legno jeté

p *sf*

p *sf*

22

open strings (在琴的最顶部, 拨弦)(remain flexible) ord.

Pipa

Perc.

Vln. I

Vln. II

Vla.

Vc.

behind the bridge *pizz.*

behind the bridge *pizz.*

behind the bridge *pizz.*

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



24

Pipa

Perc.

Vln. I

Vln. II

Vla.

Vc.

pp *mf* *ppp* *mf*

legno jeté *mf* *f*

behind the bridge *pizz.*

pizz. *legno jeté* *p* *bartók pizz.* *sf*

26

Pipa *f* *ff*

Ratchet *pp* *f*

Vln. I *pizz.*
behind the bridge (open strings)

Vln. II *sf* *sf* *sf*
behind the bridge (open strings)

Vla. *f* *p* *f* *legno tratto*
behind the bridge (open strings) *pizz.*

Vc. *sf* *sf*
behind the bridge (open strings) *pizz.*

29 扫拂

Pipa *p* *fp* 下

Perc. *p* *Vibraphone*

Vln. I *sf* *barok pizz.*

Vln. II

Vla. *arco* *fp* *legno tratto*

Vc. *pp* *mf* *f* 5

31 上

Pipa *f* *ff*

Perc. *f* *pp*

Vln. I *legno tratto* *p*

Vln. II *normal* *p*

Vla. *mf* *p*

Vc. *crini* *pp* *legno tratto* *p*



33 Highest possible

Pipa *sfp*

Perc. *f*

Vln. I *mf*

Vln. II *mp*

Vla. *ff*

Vc. *normal* *ff* *p*

35 *rall.*

Pipa *mf* *f*

Perc. *p* *f*

Vln. I *sul ponticello* *sf* *rall.* *normal* *pp*

Vln. II *6* *6* *sf* *sul ponticello*

Vla. *sf* *sul ponticello*

Vc. *sf* *sul ponticello*

56

38 *p* *mf* 虚按

Pipa

Perc. *pp*

Vln. I *bow slowly* *f* *p* *fp*

Vln. II *p < mf >* *p* *sul tasto*

Vla.

Vc. *pp*

42

Pipa *f* *mp* *sf* *ff*

Vln. I *ff*

Vln. II *sf* *f*

Vla. *f* *ff*

Vc. *ff*

normal

legno tratto



45

Vln. I *f* *p* *mf*

Vln. II *p*

Vla. *f* *p* *pp*

Vc. *f* *p*

crini

legno tratto

legno tratto

harmonic glissando

49

Pipa *pp* *f* *p* *mf* *f* *pp* *f* *accel.*

Perc. Cowbells *pp* *f* *accel.*

Vln. I *pp*

Vln. II *pp*

Vc. *pp*

52

Pipa *pp* *f* *p* *ff* *p*

Perc. *ppp* *f* *pp* *f* *pp*

55

$\text{♩} = 120$

Pipa *ppp* *f*

Perc. *f*

58

Pipa *ppp*

60 扫拂

Pipa *f* *fp*

62 扫拂 *f* *p* *f* *ppp* *ff*

69 *ppp* *ff* *p*

73 *ff* *pp*

77 *p* *ff* *ppp* *ff* *ppp*

86 *ff* *p* *f* 3

Perc. Temple Blocks *mf* *sf* 3 *p* *f*

92 board 扶手 Cowbells Temple Blocks *f*

95 *pp* Cymbal center *p* *f* *p* *f* Bass Drum *f*

98

Pipa

Perc. Temple Blocks

Vln. I

Vln. II

Vla.

Vc.

f

f *p*

pizz. *sf* *bartok pizz.*

pizz. *sf* *bartok pizz.*

pizz. *sf* *bartok pizz.*

pizz. *sf* *bartok pizz.*

pizz. *sf* *bartok pizz.*

pizz. *sf* *bartok pizz.*



100

Pipa

Perc. Cymbal

pp

ppp



102

Perc. Temple Blocks

f *pp* *f* *p*



105

Pipa

Perc.

ff *pp* *f* *pp* *ff*

109

Perc. *p* *f* *p*

Vln. I *sf* *bartok pizz.*

Vln. II *sf* *bartok pizz.*

Vla. *sf* *bartok pizz.*

Vc. *sf* *bartok pizz.*



112

Pipa *f*

Perc. *f p f pp mp mf*

Vln. I *f sf*

Vln. II *f sf*

Vla. *f sf*

Vc. *f sf*

♩=96

115

Pipa *f*

Perc. *p* Cowbells

Vln. I ♩=96

Vln. II ♩=96

Vla. ♩=96

Vc. ♩=96



119

Pipa *p*

Perc.

Vln. I *mf*

Vln. II *mf*

Vla. *mf*

Vc. *mf* arco *pp*

123

Pipa *f* *ff* *fp*

Perc. Temple Blocks *ff* *fp*

Vln. I *arco* *f* *legno jeté*

Vln. II *arco* *f* *legno jeté*

Vla. *arco* *f*

Vc. *f*

126

Pipa *f* 3

Perc. *sf* 3 *legno jeté*

Vla. *sf* 3 *legno jeté*

Vc. *ff*

128

Pipa *pp*

Vln. I *normal* 5 *ppp* *normal*

Vln. II *ppp* *normal*

Vla. *ppp* *normal*

Vc. *pp*

131

Pipa *sfp* *mf*

Perc. [Cowbells] *p*

Vln. I *sfp*

Vln. II *sfp*

Vla. *legno jéré* *sf* *p*

Vc. *sf*



134

Pipa *p* *f* *ff*

Perc. *f* *fp* *f*

Vln. I *ff* *sul ponticello*

Vln. II *ff* *sul ponticello*

Vla. *ff* *sul ponticello*

Vc. *ff* *sul ponticello*

137 $\text{♩} = 66$

Pipa

Perc.

Vln. I *normal* 8^{va} *pp* *sf*

Vln. II *normal* *pp* *sf*

Vla. *normal* *pp* *sf*

Vc. *normal* *pp* *sf*



141

Pipa

Vln. I *legno tratto* *pp* *legno jeté* *f* *legno tratto*

Vln. II *legno tratto* *pp* *crini*

Vla. *legno tratto* *pp* *crini* III II

Vc. *legno tratto* *pp* *legno jeté* *pizz.*

144

Pipa

Vln. I

Vln. II

Vla.

Vc.

legno jeté

p

mf

legno tratto

fp

crini

f

legno tratto

crini

f

legno tratto

crini

pp

legno jeté

crini

f

≡ X

crini III IV



rit. 146

Pipa

Vln. I

Vln. II

Vla.

Vc.

rit.

legno tratto

pp

III IV 5

legno tratto

6

legno tratto

3

legno tratto

pp

149 crini

Vln. I

Vln. II

Vla.

Vc.

legno jeté

f *p* *f* *p*

legno jeté

f *f* *p* *3*

crini

normal

normal



151 46

Pipa

Vln. I

Vln. II

Vla.

Vc.

legno tratto

pp *mf* *pp*

legno tratto

pp *f* *pp* *f* *p*

crini

mf *pp* *f* *pp*

legno tratto

mf

legno tratto

pp *mf*

crini

mf *6* *6* *6* *6* *5* *5* *5* *5*

154

Pipa: *pp*

Vln. I: *mf* (III), *pp* (IV), *legno tratto*

Vln. II: *mf* (*legno tratto*), *p* (5)

Vla.: *pp*, *f* (*crini*)

Vc.: *pp* (*legno tratto*), *f* (*crini*), *ff*



157

Pipa: *f*, *rit.*, *pp*, *f*, *p*, *-66*

Vln. I: *f* (*col legno jeté*), *rit.*, *-66*

Vln. II: *f* (*col legno jeté*), *f*

Vla.: *f* (*col legno jeté*)

Vc.: *f* (*col legno jeté*)

160

Pipa

Perc.

Vln. I

Vln. II

Vla.

Vc.

f

pp

Temple Blocks

pp

normal 3

pp

normal 3

pp

ff

ff



162

Pipa

Perc.

Vln. I

Vln. II

Vla.

Vc.

pp

normal 5

pp

normal 3

pp

164

Pipa

Perc.

Vln. I

Vln. II

Vla.

Vc.

ff

ff

ff

ff

ff

ff

166

Pipa

Perc.

Vln. I

Vln. II

Vla.

Vc.

ppp

Cymbal

arco

ff

sf

ff

sf

ff

sf

ff

sf

169 扫
Pipa *ff*
Perc. Ratchet

173
Pipa *ff*
Perc. Temple Blocks
Vc. *ppp* *legno jete* *f* *pp*

176
Pipa *f* 3
Perc. *fp* *mf* *sf* 3
Vc. *bartok pizz.* *f*

179
Pipa *p* *f* 3 *ff* 3 *fff* 3
Perc. *sf* 3 *sf* 3 *fff*
Vln. I *sf* 3 *fff*
Vln. II *sf* 3 *fff*
Vla. *sf* 3 *fff*
Vc. *sf* 3 *fff*

II. Essay: The Sonification of Fabrics Inspired by the Fabric Pleats of Issey Miyake

This dissertation explores translating visual-kinesthetic images into sound. Inspired by the Japanese fashion designer Issey Miyake, who specialized in technology-driven design, this project transforms Miyake Pleats into music. Miyake applied a new material to synthetic fiber to create fabric pleats. The four compositions presented here feature different instrumentation and elaborate the central creative concept of the fabric pleats: *Percussion Trio*, *Hidden • Apparent* (25-string *gayageum* solo), *Pleats • Play* (25-string *gayageum*, violin, and cello), and *Stamp* (*pipa*, percussion, and string quartet). Chart 1 briefly explains some of the aspects of Miyake Pleats and how I demonstrate those aspects in my music.

Created by Miyake in the 1980s, “Miyake Pleats” was a new method of pleating that showcased the beauty and flexibility of the polyester fabric. Miyake became a fashion icon because this technique remains unique. After researching Miyake’s material creation methods, I found possible connections to my music. By exploring ways of translating aspects of fabric to sound, I expand the possibilities for composers to integrate non-musical aspects into their compositions.

Issey Miyake's Fabric Pleats	Sun's Musical Pleats
Layers of the Fabric created by the pleats	Layers of the music(timbre, rhythm)
Segments of fabric in fashion design are often regarded as effectively two-dimensional, like a canvas, a skin, or the surface of a mass. But the pleated fabric yields overtly three-dimensional characteristics—not just in terms of its thickness or curvature, but in terms of its movements in three-dimensional space	Players are given flexibility to decide what they want to play with a detailed description.
The synthetic fiber is a unique fiber created by the Issey Miyake team. The process of producing synthetic fibers includes them being liquefied, extruded, extended, solidified, and spooled.	Playing technique of the gayageum includes bending the pitch bending and employing different techniques of repeating notes.
Waves show when people wear the pleated cloth. The shape will change according to people's movements.	<i>Timbral arpeggio:</i> A timbral wave through different instruments will be presented in different sizes. The size refers to instrumentation and the length of the passage. Timbre is used as a medium to create an arpeggio-like musical passage.
Fabric overlaps; Each pleat creates a small space and overlaps with other pleats next to it.	<i>Pitch sculpture:</i> A pitch sculpture uses long, sustained tones, along with gradually accumulating notes in other instruments, to approximate the identity of what otherwise might be the timbre of a single sound source. In this way, a collection of varied instrumental sounds developing over the course of a section can model our essential experience of timbre

Chart 1: shows the idea of Issey Miyake's fabric pleats and Sun's musical pleats.

Since the twenty-first century, composers have extended the way of integrating non-musical elements into their music. The topics range between various subjects, such as art, architecture, and painting. Composers like Witold Lutoslawski, Toru Takemitsu, and Chou Wen-Chung made non-musical experiences integral to the motivations of their works. Inspired by these composers, I look for non-musical elements to translate into my own music as well. Miyake said in an interview, “An unfixed flow from the outside to the inside outlines the body in various geometric forms, designing the body like an abstract expression.”¹ I feel the music in his words. This expression of flow well describes the time art in music.



Figure 1: An image of Issey Miyake's design.²

¹“Issey Miyake: Design for Feel.” n.d. K2 Studios.
<https://catalogue.k2communications.com/films/issey-miyake-design-feel/>.
²Kitamura, Midori. *Pleats Please Issey Miyake*. Köln: Taschen, 2012, 171.

Through my investigation of Miyake Pleats, I assimilated aspects of fabric pleats and applied them in four compositions. I identified commonalities and connections between the historical innovations and aesthetics of fabric pleats and musical composition.

Historical Background of Miyake and his *PLEATS PLEASE* collection

The 1970s to 1990s were a time of fashion revolution in Japan. During this time, the Western fashion industry considered Issey Miyake, Yohji Yamamoto, and Rei Kawakubo founders of avant-garde fashion. They were sometimes called “The Japanese Avant-Garde Trio.”³ Fashion journalist Dana Wood writes, “They brought a new type of creativity; they brought something Europe didn’t have. There was a bit of a shock effect, but it probably helped the Europeans wake up to a new value.”⁴ Among those designers, Miyake created a new synthetic fiber of white chips (Figure 3) instead of traditional threads. The synthetic fiber forms light, three-dimensional shapes in the cloth. These shapes are the hallmark of Miyake Pleats.

Miyake is one of the fashion industry’s most influential designers from Asia and has won plaudits from around the world for his work. Miyake was born on April 22, 1938. After he graduated from Tama Art University in Tokyo in 1964,⁵ where he majored in graphic design, he enrolled in the *Chambre Syndicale de la couture Parisienne* school in Paris to study fashion design. He started his career working with

³Syakirah, Azra. “The Japanese Avant-Garde Trio.” *Nihongo Master Podcast*. Podcast audio, Dec. 9th, 2020. <https://podcast.nihongomaster.com/episodes/ep-21-the-japanese-avant-garde-trio>

⁴Wood, Dana. "Miyake's Lust for Life." *Women's Wear Daily*, December 18, 1996, 16.

⁵Kawamura, Yuniya, *The Japanese Revolution in Paris Fashion*, 3.

Guy Laroche and Hubert de Givenchy.⁶ Unlike other Japanese designers, Miyake's time in Paris did not make him prosperous. But he was fascinated by French culture, seeking a possible collaboration with Japanese traditions. In 1970, he returned to Japan and founded the Miyake Design Studio. During that time, Japan's weaving factories were in decline, which encouraged Miyake to innovate and develop his unique new material with pleats.



Figure 2: Fortuny's Delphos gown.⁷

⁶English, Bonnie. *Japanese fashion designers: the work and influence of Issey Miyake, Yohji Yamamoto, and Rei Kawakubo*. Oxford, 2011.

⁷Richard. Photographs by Neil (1993).

In the fashion industry, the pleat is not a new idea. Spanish designer Mariano Fortuny, born in 1871, pioneered work with pleats. A classical Greek statue, the Charioteer of Delphi (Figure 2),⁸ inspired Fortuny's well-known pleats design called the Delphos gown.⁹ The dress was made in 1907 by Fortuny and his wife, Henriette Negrin, also a fashion designer. Noted French writer Marcel Proust¹⁰ evaluated Fortuny's dress as "faithfully antique but markedly original."¹¹ Unlike Miyake's polyester, this dress was made of silk and needed attentive care. However, the artistic and aesthetic qualities of Fortuny are highly valued. After Fortuny, Miyake started a new era of pleats fiber.

The Museum of Decorative Arts director in Paris, David Cameo, praised the most successful initiative of Miyake's design as "innovation."¹² From the loincloth of the pharaohs to the moving dresses of Isadora Duncan, from the iconic sun pleated dress of Marilyn Monroe to the surprisingly masculine kilt of the Scots, from the beginning of time to the twenty-first century, pleating has always had a connection to genius.¹³ Miyake is not the only one who applied pleats in his design. However, he is the only one who made the pleats through his innovative synthetic fibers, honoured as the "Miyake Pleats."

⁸Fortuny, "History." 30 Mar. 2021, <https://fortuny.com/history/>.

⁹Ibid.

¹⁰Valentin Louis Georges Eugène Marcel Proust was a French novelist, critic, and essayist. He is considered by critics and writers to be one of the most influential authors of the 20th century.

¹¹Fortuny, "History."

¹²School of Fashion, "Issey Miyake Continues to Play with Sculptural Design." *Fashion School Daily*, 28 July 2016,

<https://fashionschooldaily.com/issey-miyake-continues-to-play-with-sculptural-design/36261/>.

¹³Kitamura, *Issey Miyake, Pleats Please*, 21.

Miyake experimented with various materials, such as Japanese rice paper, white cotton, knitted cotton, and linen, to create multiple textured effects. His familiarity with these materials paved the way for further innovations, including his innovative pleating technique. He aimed to design clothes that suit every woman's needs and all kinds of styles.¹⁴ Five years after Miyake started exploring heated pleating garments, *The PLEATS PLEASE ISSEY MIYAKE* collection was launched in 1994.¹⁵

Miyake used the fiber's thermoplasticity to create synthetic fibers.¹⁶ The process of creating synthetic fibers was called fusion spinning, in which the raw white chips (Figure 3) were liquefied with heat, extruded through a cap, extended, solidified, and spooled into thread.¹⁷ The machine performs these complicated steps very quickly. Thus, the temporary pleats became permanent because of the heat treatment system the Miyake team developed. I draw inspiration from these complicated, multi-step processes for my musical composition. I transfer this technique of rebuilding a cell (white chips) to alter the quality of the whole to a musical motive.

¹⁴

¹⁵Inc., Issey Miyake. "Pleats Please Issey Miyake: Brands." *ISSEY MIYAKE INC.*, <https://www.isseymiyake.com/en/brands/pleatsplease>.

¹⁶Kitamura, *Pleats Please: Issey Miyake*, 60.

¹⁷Ibid, 99.



Figure 3: White chips.

By incinerating old ideas, he chose the path of transformation and instead soaked, washed, crumpled, burned, welded, weathered, eroded, shrunk, twisted, and pleated fabrics to explore new dimensions and another way of expressing time.¹⁸ For Miyake, to pleat is to diminish, reduce, and withdraw into a slim column, while to unfold is to increase, grow, and gain momentum and volume. The repeated process of pleating and unfolding is like breathing and relaxing.¹⁹ When the fabric is pleated and folded, it generates compressions akin to inhaling, while the release or relaxation of the pleats represents a form of exhaling. Thus, folding and unfolding can no longer be seen simply as a system of tension and release but as a system of enveloping versus

¹⁸Ibid, 18.

¹⁹Ibid, 22.

developing and of convolution and evolution. This idea leads me to continue my research on transforming the fabric pleat into musical pleats.

In the following sections, I describe the compositional process of my four compositions: *Percussion Trio*, *Pleats*, *Play*, *Hidden*, *Apparent*, and *Stamp*.

The Concepts of *Percussion Trio*

My intention for this piece is to translate the visual aspects of the fabric pleats to make a permanent sonic image of the pleats' temporary movement. I created three methods of transforming the fabric pleats into musical pleats that I explore in the *Percussion Trio*: *timbral arpeggio*, *pitch sculpture*, and *rhythmic chips*. The *timbral arpeggio* attends to the most significant sweeping movement of the pleats, while the *pitch sculpture* and the *rhythmic chips* focus on the pleats' most diminutive traits.

Timbral Arpeggio

Timbral arpeggio is an exchange of timbres, starting with one or multiple instruments or sounds, that creates a timbral wave and emphasizes a flowing motion. Each *timbral arpeggio* includes a tonic timbre, which is the beginning of the timbral wave or a dominant sound of the phrase. I use "timbral tonic" to discuss a tonic function based on timbre rather than harmony.

I drew the idea of a *timbral arpeggio* from the pleated fabric's unique movements created by a mass of pleats. When thousands of tiny pleats are in an area of fabric, the combined compression and release motions create many possibilities to

shape the whole piece of clothing. Author Kitamura Midori describes the effect of the large pleats,

As I walk, the ultra-lightweight, and multi-pleated mass moves me more than I move it. With each step, it develops according to its own rules, taking on a ballooning shape and transforming the outline of my silhouette. It springs up and down and around me, giving my walk an unexpected beat. When I jump, the garment defies gravity and undresses me for a split second, creating a stir.²⁰

The movements create a three-dimensional motion, which I transferred into musical content using what I call a *timbral arpeggio*.

Transferring the unexpected motions of the massive pleats, I map the movement of Miyake pleats onto musical timbres in *Percussion Trio*. The extraordinary movements of the heat-set polyester pleats inspired me to seek the possibilities of connecting with timbral waves in the music.²¹ The flowing expansion of a tonic chord in a musical arpeggio inspired my *timbral arpeggio*. The tonic chord refers to the beginning sound as a signal to start (Example 1). The timbral tonic launches the energy that begins each phrase, bringing a feeling of being wrapped to the entire phrase. The wrapping feeling results from the sense of continuity, connectivity, and causality between adjacent sounds. In Example 1, the symmetrical dynamics at the beginning and the end phrase are similar to the image shown below (Figure 4). Starting with the *forte* sound in Example 1, the cymbals play the sixteenth notes, *tremolo*, and pass the movement to the crotale. The crotale then plays the

²⁰Ibid, 18.

²¹Lou. In *The Study of Dress History*, 23.

sixteenth note, which then passes to the timpani playing the eighth notes. This process suggests the compressing and releasing motions of the fabric pleats.



Figure 4: An image of fabric pleats describes the first phrase.²²

²²Kitamura, *Pleats Please: Issey Miyake*, 183.

♩ = 56

Jinwei Sun

Percussion I
Crotales
Timpans

Percussion II
Large Cymbal
Chimes

Percussion III
Triangle
Vibraphone


motor on

Cowbell

© Jinwei Sun 2021

Example 1: *Percussion Trio*, mm. 1–4.

The beginning sound is indicated by the red mark.

A starting sound launches the flow motions in each phrase, creating the timbral waves. Since Miyake made his pleats from extremely light materials, they respond to variabilities in the people who wear them or in the environment. Different sizes of *timbral arpeggio* show this characteristic in the music. The size refers to the density of timbral changes and the length of the phrase (a  indicates the phrase). Meanwhile, the *timbral arpeggio* imitates the smooth motion of the musical arpeggio, creating an ongoing passage with various inner timbral waves. An example demonstrates how a *timbral arpeggio* works.

As seen in Example 2 below, the first two beats of the first measure are the engine to launch the first *timbral arpeggio*. The players must inhale when they count the quarter rest and help them express the first sounding note on *forte*, imitating the stepping motion of humans. The timbral wave gradually reduces the richness of the sound until only the cymbal's sound is left at a soft volume. This *diminuendo* of the timbral richness metaphorically shows the movement of Miyake's pleats twirling as they lose momentum.

Example 2: *Percussion Trio*, mm. 1–3.
 The first *timbral arpeggio* builds at the beginning of the piece.

Mm. 13–20 offer another example of a longer *timbral arpeggio* (Example 3).

A short grace note creates new starting tension on the *mezzo forte* from the starting vibraphone sound. The long, sustained sound of the main character (i.e., timbral tonic) and the short articulation in the middle of the phrase imitate the unexpected beat and the inner movement of the pleats.

Example 3a: *Percussion Trio*, mm. 8–15. Another *timbral arpeggio*.

Example 3b: *Percussion Trio*, mm.16–20. Another *timbral arpeggio*.

This notion of timbral waves, passing through different instruments, has a kinship in the work of other composers, whose precedent has helped shape my approach. This notion of timbral waves, passing through different instruments, has a kinship in the work of other composers, whose precedent has helped shape my approach. In Finnish composer Magnus Lindberg’s *Clarinet Concerto*, the solo

clarinet plays the primarily timbral role in this phrase, and the orchestra is the waves tailing the solo instrument. For instance, in mm. 67–82 (Example 4), the sequential passage in the clarinet part leads to a massive wave by the rest of the orchestra. The composer alters the winds and strings to respond to the music of the clarinet section and gradually adds the density of the orchestra to reach the final unison in m. 80.

This idea of tailing after the main character applies to my *Percussion Trio* in Example 3. In mm. 16–20, the long sustained vibraphone sound is fundamental. The short motive alternates between percussion I and II. Similar to the long and lyric passage through the timbral arpeggio, the following section discusses building harmony through *pitch sculpture*.

67

Fl. 1 2

Ob. 1 2

C. Ang.

Cl. in B \flat 1 2

Bass Cl. in B \flat

Bsn. 1 2

Perc. 1 2

Solo Cl.

VI. I div. tutti div. in 2 *poco f*

VI. II div.

Vla div. arco *f* senza vibr. *p*

Vc div. pizz. *f* arco sul pont. *f* senza vibr. *p*

Db.

2 Suspended Cymbals (with brushes)

Example 4: *Percussion Trio*, mm. 67–70.
Magnus Lindberg's *Clarinet Concerto*. (red indicates the solo clarinet, and yellow indicates the tailing passages)

Pitch Sculpture

Pitch sculpture is a process of widening different chords combined with a sturdy timbral pedal tone. In 1998, Miyake captured a sense of how pleats move in his installation piece— *Making Things* (Figure 5). The beauty of this installation inspired me to create a technique I call “pitch sculpture.” Miyake begins with flat fabric before adding pleats. I start by creating a principal timbre using long, sustained tones before gradually adding pitches at various points throughout the section. When designer Miyake presented his clothes, he used an installation to show the unique movement of “Miyake Pleats.” In her monograph, *The Study of Dress History*, historian Lou Taylor demonstrates the importance of the pleats’ live movement:

When a black, grey, and white pleated Miyake dress was shown on a static mannequin in the Metropolitan Museum’s *East/West* exhibition in New York in 1989, it was transformed in its stillness into a beautiful but stratified stone sculpture, and its *raison d’être* was entirely lost. However, when Miyake showed his own clothes at his *Making Things* exhibition at the Centre Cartier, Paris, in 1998, he created a sensational moving setting for his latest garments. Perhaps in the early 21st century, this would more properly be called “installation art” rather than a display. Miyake here made certain that the concertina-like flexibility so central to his woven fabrics took center stage. In a vast, empty, glass-walled space, he suspended his garment from the ceiling on long wires. As visitors entered the hall, their body movements triggered electric pulses. These caused the garments to drop from the ceiling at high speed, like dozens of merry bungee jumpers, making the pleats and ruffles contract and extend as they would on the human body. The impact was funny, witty, and clever, revealing the subtle delicacies of Miyake’s fashion fabrics.²³

²³Lou, In *The Study of Dress History*, 27.



Figure 5: Issey Miyake's Making Things.²⁴

The waves shown in the live installation imitate the action of people wearing the clothes. I sculpt the pitch blocks in different sizes to create a similarly live-moving installation in my music. The pitch blocks appear in the middle of the long sustained tones, imitating the space formed by the pleats (Figure 6). In Miyake's pleats, the fabric pleats overlap and create tiny holes. Those spaces and pleats connect in a chain, tying up the fabric. In my music, the long tones imitate the fabric, while the pitch blocks imitate the pleats and spaces on the fabric. The image shows that the fabric pleats are not evenly distributed because of the tiny and massive spaces between the pleats.

²⁴Issey Miyake, Making Things, *Fondation Cartier pour l'art contemporain*.

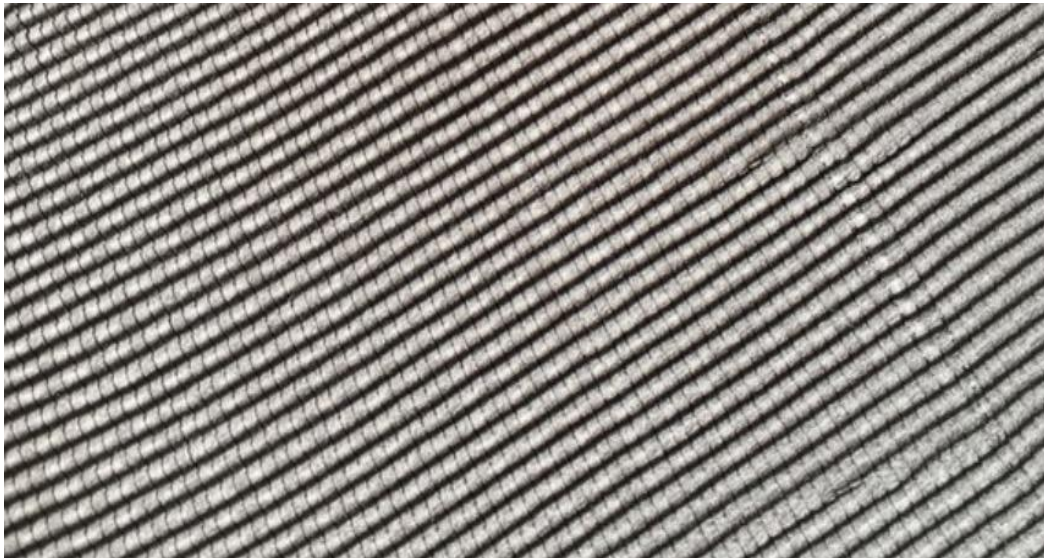


Figure 6: images of fabric pleats by bkkvintage²⁵

I use two techniques to show the fabric and the attached pleats and spaces in my music. First, I use uneven sustained tones to show the different sizes of the small

²⁵Stock Photos & Vectors pleats please Issey Miyake, *Shutterstock*, <https://www.shutterstock.com/zh/search/pleats+please+issey+miyake>

pleats. Example 5 demonstrates the relationship between different size pleats. Two pitched percussion instruments—vibraphone and marimba—sustain long tones between which we hear the pitch blocks (chords).

The image displays a musical score for a Percussion Trio, spanning measures 117 to 124. The score is organized into three systems, each containing three staves. The top staff of each system is in treble clef, the middle in alto clef, and the bottom in bass clef. The music is written in 4/4 time. The first system (measures 117-120) features a complex rhythmic pattern with various dynamics including *f*, *mf*, and *pp*. The second system (measures 121-122) includes a section labeled 'Cymbals' and continues with dynamic markings like *f* and *pp*. The third system (measures 123-124) concludes the passage with dynamics such as *f* and *mf*. Four specific long extended notes are highlighted with red circles: one in the first staff of the first system, one in the first staff of the second system, one in the first staff of the third system, and one in the second staff of the third system. The score also includes various musical notations such as slurs, accents, and dynamic markings.

Example 5: *Percussion Trio*, mm. 117-124. Long extended notes in circles.

Second (Example 6), the pitch blocks sonify the live movement of pleats when worn. The massive pleats create a shape that is temporary, while the pitched block is meant to imitate the temporary shape. As a result, I set the pitch blocks in different places of the phrase with different sized of intervals. Using these two techniques, I exemplify the importance of live movement to sonic pleats. While pitch sculpture emphasizes comprehensive motion, *rhythmic chips* focus on the small-scale aspects of the pleats.

Example 6: *Percussion Trio*, mm. 125–130. Pitch blocks in circles.

Reference to Witold Lutoslawski’s *Livre*

My concept of pitch blocks is similar to mid-twentieth century Polish composer Witold Lutoslawski’s twelve-tone technique in his *Livre Pour Orchestre*. In *Livre*, Lutoslawski creates twelve-note aggregations in each movement, which serve as a chain to connect each movement. They also focus on a differing interval-class in each of the four movements. Lutoslawski uses a way of spreading chromatic notes to

build the twelve-note chords throughout the entire piece. In this process, Lutoslawski creates the bundled sounds under his micro-rhythmic technique and further bundles these sounds into a large format—the sound mass. The sound mass shifts the twelve-tone chords to create an overall macro rhythm. The macro rhythm then builds a simple sound shape with complex content. Lutoslawski’s goal is to structurally connect these unique and unrelated materials through the twelve-tone chords. The compositional outcome for *Livre* is to spread the twelve-tone aggregations.

My pitch blocks are similar to Lutoslawski’s twelve-tone aggregations. However, the pitch blocks in *Percussion Trio* connect with a sustained tone to imitate the fabric, and the pitch blocks are unpredictable each time they appear. Lutoslawski uses twelve-tone aggregations in wider ranges and in heavier textures than the pitch blocks I use. By contrast, I use pitch blocks in relatively short, delicate passages. Additionally, I use contrasting dynamics between sustained long tones and pitch blocks, while Lutoslawski uses tutti dynamic changes with his twelve-tone aggregates. My goal for the pitch blocks in *Percussion Trio* is to replicate the live motion of Miyake Pleats, relying on uncertainty, contrast, and delicacy to do so.

Rhythmic Chips

I apply the term “rhythmic chips” to depict the compressing and releasing motions of the fabric pleats. In fabric pleats, there are small bumps where the fabric overlaps, creating a small space between other pleats. The raw materials for the thread of pleated fabric are white chips ground into a fine powder, making the fabric

silky to the touch (Figure 3). The white chips are liquefied with heat, extruded through a cap, extended, and solidified into thread.²⁶ To translate this process into music, I create small rhythmic patterns I call *rhythmic chips*. The rhythmic idea is the core of each section, which includes motivic materials from other sections (i.e., *timbral arpeggio* and *pitch sculpture*). These short phrases continually shift and gradually expand. In *rhythmic chips*, the ideas focus on short phrases and create minute tensions, imitating the pleated fabric's component material (i.e., white chips). The *rhythmic chips* section connects the *timbral arpeggio* and the *pitch sculpture* sections because it is located in the middle and includes motivic ideas from the surrounding sections. The *rhythmic chips* section is distinguished from the other two sections, having only unpitched percussion; it acts as a singular, large bump.

Because I conceptualize the *rhythmic chips* on a small scale, each phrase includes different layers. For instance, in mm. 38 and 39 (Example 7), the first phrase contains two layers. The short notes in the bottom line create tension imitating the bump of the pleat.

²⁶Kitamura, *Pleats Please: Issey Miyake*, 99.

Rhythmic Chips

The musical score is for a percussion ensemble. It begins with a tempo marking of quarter note = 104. The score is divided into three measures. The first measure (mm. 38-40) features a Snare Drum part with a single note on the downbeat marked *f*. The Triangle part is silent. The Bongos/Congas part has a sequence of notes: a quarter note on the downbeat (*p*), a quarter note on the second beat (*fp*), a quarter note on the third beat (*ppp*), a quarter note on the fourth beat (*f*), and a quarter note on the first beat of the next measure (*p*). The Cowbells part has a sequence of notes: a quarter note on the downbeat (*p*), a quarter note on the second beat (*fp*), a quarter note on the third beat (*pp*), and a quarter note on the fourth beat (*f*). The second measure (mm. 41-42) features a Snare Drum part with a single note on the downbeat marked *f*. The Triangle part is silent. The Bongos/Congas part has a sequence of notes: a quarter note on the downbeat (*p*), a quarter note on the second beat (*fp*), a quarter note on the third beat (*pp*), a quarter note on the fourth beat (*f*), and a quarter note on the first beat of the next measure (*p*). The Cowbells part has a sequence of notes: a quarter note on the downbeat (*p*), a quarter note on the second beat (*fp*), a quarter note on the third beat (*pp*), and a quarter note on the fourth beat (*f*). The third measure (mm. 43-44) features a Snare Drum part with a single note on the downbeat marked *f*. The Triangle part is silent. The Bongos/Congas part has a sequence of notes: a quarter note on the downbeat (*p*), a quarter note on the second beat (*fp*), a quarter note on the third beat (*pp*), a quarter note on the fourth beat (*f*), and a quarter note on the first beat of the next measure (*p*). The Cowbells part has a sequence of notes: a quarter note on the downbeat (*p*), a quarter note on the second beat (*fp*), a quarter note on the third beat (*pp*), and a quarter note on the fourth beat (*f*).

Example 7: *Percussion Trio*, mm. 38–42, first three phrases of *rhythmic chips*.

In m. 40, the tension of the second phrase came from the downbeat and spread to three layers of different lengths. Although there is only one voice in the third phrase, mm. 41 and 42, the timbre difference created by the higher cowbell demonstrates the hump and gives accents on different pulses. To expand the rhythmic patterns, not only the sound spreads out but also rests are stretched between each phrase, depicting the compression and release motion of pleated fabrics.

The longest rhythmic pattern is in mm. 69–79 (Example 8). Although there are only two layers, the fast passages gradually add tension through uneven accents and the sudden timbral changes create unpredictability.

♩=104 5

The musical score is divided into two systems. The first system features a top staff with a melodic line of eighth notes, marked with accents and dynamics *fp*. The bottom staff shows a rhythmic pattern of eighth notes. The second system continues the melodic line in the top staff and the rhythmic pattern in the bottom staff, with dynamics *f* and *fp*.

Example 8: *Percussion Trio*, mm. 69–72, *rhythmic chips*.

Conclusion of *Percussion Trio*

Overall, the percussion trio starts the trial of the three concepts inspired by the fabric pleats, and presents these three concepts individually in each section. *Timbre arpeggio* focuses on the timbral exchanges between various instrumental sounds, creating a unique sounding process on a large scope. The *rhythmic chips* emphasize developing the micro rhythmic idea by imitating the function of white chips in fabric pleats. The *pitch sculpture* concentrates on building up pitches, presenting how pleats emboss the flat fabric into a tridimensional image.

In another elaboration of the three concepts discussed above, the next piece will demonstrate the three concepts in a different instrumental settings: *gayageum* (Korean 25-string zither), violin, and cello. *Percussion Trio* is the beginning of the

journey, which primarily focuses on the salient features of the fabric pleats. The following piece will focus on the technique of making fabric pleats.

Two Works for Gayageum

Gayageum is one of the most important instruments in Korean traditional music. King Gasil of the Gaya Kingdom invented the gayageum, basing his design on the Chinese guzheng.²⁷ There are many types of gayageums. The traditional Jeongak gayageum, sanjo gayageum, and modified 18-string and 25-string gayageum (see picture below) are commonly used today.²⁸

Hidden • Apparent uses a 25-string gayageum. Unlike traditional gayageum, the 25-string gayageum uses polyester synthetic strings and is tuned heptatonically.²⁹ Although it is contended by some scholars that the 25-string instrument is well-suited for contemporary compositions, given its functional harmony and extended range, my research aims to explore and enhance the timbre possibilities of this instrument.

²⁷Yi, *Contemporary Gayageum Notation for Performers and Composers*. 37.

²⁸Ibid, 41.

²⁹Ibid, 54.



Figure 7: picture of 25-string gayageum front and back.³⁰

Hidden • Apparent (solo 25-String Gayageum)

Compositional Idea

In traditional gayageum music, there are two significant aspects of playing techniques: embellishments and left-hand vibrato. As demonstrated by Example 9, a piece of traditional *Sanjo* music, the detailed markings indicate embellishments and left-hand vibrato.

³⁰Ibid, 62.

진 양 조 (Jin Yang Jo)

♩ = 25 - 35 (♩ = 76 - 104)
 우주 (우조)

싸랭 당 두동 동 두동 -

다살 웃칭 계면조

다 홏따 홏따 땅 따 - - 응 동 동 땅 정 도땅 땅

찌살 지 - 지 지 지 지 잇지 지 지 지 히 지 지

지 - - 첫칭 지 지 칭 첫칭 지 지 지 - - 지 - -

Example 9: Short Gayageum Sanjo, *Jin Yang Jo*.

I began with the original twelve-string gayageum to understand the beauty of embellishments. Because of the position of the touchpoint and the fingerings, the embellishments can produce various timbral changes. This piece was written for master gayageum player Song JunMing, who played in the recording.

The Preparations on the Gayageum

Inspired by Issey Miyake and based on the 25-string gayageum, I experimented with preparations on the gayageum. Miyake once said, “the balance between creativity and tradition is important. Being avant-garde but losing the original beauty is unworthy.”³¹ While keeping the traditional sound of the 25-string gayageum, I create different timbres through preparations on the chosen strings (Chart 2).


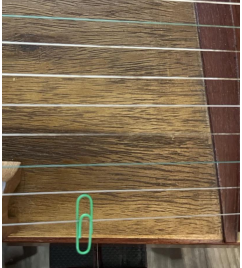

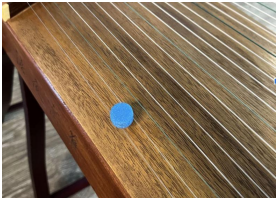
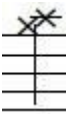
		<p>Cross strings (two strings on one bridge) create a noisy and expressive sound. This technique is for Tutti and expressive passages.</p>
		<p>The paper clip creates a medium-low Bell sound that resonates longer.</p>
		<p>Muted sound on Ab and G creates a shorter and softer sound than <i>pizzicato</i>.</p>

Chart 2: preparations on 25-string gayageum.

At the beginning of *Hidden • Apparent*, I created a two-layer timbre by combining the muted Ab with other regular Ab notes. Emerging from that passage, in m. 9, the player improvises a phrase of repeated muted Ab and G sounds. In the

³¹Kitamura, *Pleats Please: Issey Miyake*, 56.

improvised phrase, the player determines the pace and technique of repeated notes, bringing their personal engagement to the music. Miyake's unique approach to consumer freedom inspired me to incorporate similar levels of creative freedom for performers in this piece. Miyake's approach to fashion was atypical in giving consumers a choice to combine different pieces. Inspired by Japanese origami, he provided combinable materials, allowing those who wore his clothes a rare sense of autonomy in creating their own combinations. I want to provide players with a similar sense of autonomy.

This piece calls for traditional techniques. In traditional gayageum playing, each performer determines their own combinations of techniques and fingerings. For example, some players use fingering (5, 4, 3, 2), and Song, who plays in the recording, applies fingerings (1, 2, 3, 4) on repeated notes. The repeated notes create subtle timbral changes, with dynamic markings indicating a wave of sound (Example 10).

52

*Use different techniques on repeating motions between A&G
Free rhythm, but follow dynamic

56

ends section with finger nail click

60

pluck on the left side of the bridge

Example 10: *Hidden • Apparent*, mm. 52–62.

Another sound exploration is buzzing. In contrast to the muted sound, the low G is inlaid with a paper clip to create a buzzing effect by extending the string's vibration to help build up the tension. Following a lyric section, the climax appears in m. 70, combining all three prepared sounds. The ending section explores possibilities in the melody to further emphasize the embellishments.

Reference to Limited Improvisation in Michio Mamiya's *Serenade III*

"GERM" and Chou Wen-chung's *Eternal Pine*

The idea of improvisation with limitations is widely used in many compositions. Consider, for example, the beginning of Japanese composer Michio Mamiya's *Serenade III "GERM"* (Example 11). All five instruments play an improvised passage with detailed instructions by Mamiya, creating the effect of a sound mass. Because of the instructions, performers can focus on the interaction between other players, maximizing the quality of performance and providing a lush timbral experience to the audience.

Another example of applying improvisations with instruments can be found in Chinese American composer Chou Wen-chung's gayageum piece, *Eternal Pine*. The pitches are indicated with specific strings following dynamic instructions. In this piece, the *Changgu* (Korean hourglass drum) plays an important structural role. The flexibility to form the phrases with the gayageum is built into the time durations indicated throughout *Changgu*.

Michio MAMIYA
間宮芳生 曲
(2001)

I

※1 □, ■ — intense noise by excessive bow pressure, until □
Each player ought to find your own way to make the harsh noise.

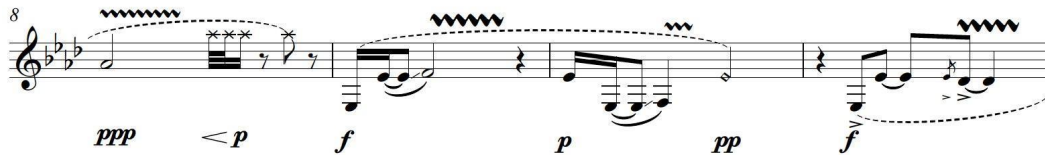
Example 11: The beginning of Michio Mamiya’s *Serenade III “GERM”*

Left-hand Vibrato

Another important technique for gayageum is left-hand vibrato. The delicate movements evoke the instrument’s beautiful sound. Traditionally, left-hand vibrato is widely used when the gayageum plays alone. Example 12 from Chou Wen-chung’s *Eternal Pine* indicates the different left-hand vibratos with waving lines. Chou’s intention for the technique is evident in the solo section that comes after an introduction. Intensive passages emphasize the vibratos through different dynamic

levels. It is clear that the left-hand vibratos not only can be played multiple ways, but are also effective at different dynamic levels.

I use left-hand vibrato many times, indicating specific instructions: strong or light (Example 13). The players determine many small motions within the strong and light vibrato on the left hand. The performer can use different vibratos through the improvised section to present this sound.



Example 13: *Hidden • Apparent*, mm. 8–11.

Conclusion of *Hidden • Apparent*

The solo piece is the preparation for the gayageum trio. The two pieces focus on different aspects of the pleats idea. Miyake's innovation on pleated fabrics inspired me to explore some new possibilities, both sonically and in terms of performance practice. He brought Japanese origami, the concept of pleating on paper, to fashion, and created multi-dimensional clothes with pleats. He offered maximum flexibility for dressing different body shapes through the feature of compression and release of pleated fabric.

In traditional instrumental performance practice, players generally appreciate flexibility. To balance flexibility with my compositional philosophy, I gradually relinquished control rather than granting freedom outright. I reduce the instructions step by step. At the same time, I demonstrate my understanding of the gayageum by asking the performer to perform most parts of the piece as written. The short

improvisation sections allow me to dialogue with individual performers. The written section allows the performer to learn about my understanding of gayageum.

In this piece, I explore the timbral possibilities on the 25-string gayageum described through embellishments and left-hand vibrato. The process provides a foundation for the next piece—gayageum trio (*Pleats • Play*).

Pleats • Play (25-String Gayageum, Violin, and Cello)

I composed this piece in honor of Issey Miyake’s *PLEATS, PLEASE* collection. In *PLEATS, PLEASE*, Miyake starts with synthetic fabric. The main idea in *Pleats • Play* is to translate the process of producing synthetic fabric into music. There are five steps to making synthetic fabric; the white chips become liquified, extruded, extended, solidified, and spooled. In *Pleats • Play*, I combine the five step process with the same three concepts from the *Percussion Trio*. The *Percussion Trio*’s, the three concepts —*timbre arpeggio*, *rhythmic chips*, and *pitch sculpture*—are further developed with the five steps from the synthetic fiber into a mix-usage. Overall, I designed *Pleats • Play* as three main sections with inserted solo passages, ending with the climax. Chart 3 shows how I connect my concepts with the five steps of synthetic fabric. I will further demonstrate how they connect to each other in musical content. First, e a piece that serves as a study model is *November Steps*.

Concepts from percussion trio	Suggested relative technique of synthetic fiber
<i>timbral arpeggio</i>	liquefied, spooled

<i>rhythmic chips</i>	extended, liquefied, extruded
<i>pitch sculpture</i>	extruded, solidified

Chart 3: concepts from *Percussion Trio* translated to the techniques of the synthetic fiber.

Reference to Takemitsu's *November Steps*

To prepare for writing music for Western and Eastern traditional instruments, I studied Japanese composer Toru Takemitsu's *November Steps*. This piece was composed using traditional Japanese instruments with a Western orchestra. The way in which instruments from two different regions are combined contributes to the composition's great success. Instead of finding a way to blend the distinguished sound of all the instruments, Takemitsu emphasizes the difference between the two instruments through juxtaposition. He has a unique design of the layout of the orchestra. Two identical setups are placed on the left and right sides of the stage, each playing different textures. This balances the traditional instrumental solo and orchestra well. The different textures of the left and right strings reduces the feeling of fusion while pointing out that Eastern and Western cultures do not necessarily need to fuse to coexist well. In addition, he includes large-scale solo sections. Each solo instrument relates to the others in the whole orchestra, suggesting the concept of *Yin* and *Yang*³² in Asian culture. His compositional ideas have given me a different perspective on how to write for non-Western instruments. In *Pleats• Play*, I applied

³²*Yin Yang* is a Chinese philosophical concept that describes opposite but interconnected forces.

his idea of letting the difference stand out in my music but also tried to blend the 25-string gayageum with strings.

The Techniques of Making Synthetic Fiber were Transferred to Music

The raw white chips (Figure 3) are the materials to start with to produce the synthetic fibre. In *Pleats • Play*, a short and fulminant sound starts the music. This first note is a significant cell throughout the entire piece. The strong energy of a *sforzando* unison, G-note in a low register played by the gayageum, violin, and cello launches immense energy throughout the entire piece (Example 14). Each instrument adds to the resonance with an open G string. I employ a muffling sign to execute the short sound that reduces the natural vibration and saves energy for gradual expression. Bundling the three instruments, the violin and cello play *pizzicato*, imitating the gayageum’s plucking sound. The G-notes transfer to different registers and are expressed fully with different but similar techniques.

Jinwei Sun

Example 14: *Pleats • Play*, mm. 1–3.

I gradually reveal the beauty of various plucking techniques particular to the gayageum. At the same time, strings play different types of *pizzicato*, including *Bartók pizzicato*, fingernail *pizzicato*, and regular *pizzicato*, to support each other. To imitate the liquefied motion from the five steps of synthetic fabric making, these short G-notes gradually get longer in terms of the note's time value or using continuous notes.

The liquefaction process continues for about twenty measures until the strings play a long sustained G in mm. 14–16 (Example 15), the first *arco* sound in the piece.

Example 15: *Pleats • Play*, mm. 14–17.

At the start of the section, a short, single-note gradually extends to a wide, elongated phrase. The idea continues with successive shortening and extending notes (Example 16a, 16b). In this process, the analogue to the synthetic fiber production process is mainly extended notes. Overall, the *timbre arpeggio* impacts much of this piece, serving as the energy that launches the beginning section.

Example 16a: *Pleats • Play*, mm. 18–21.

Example 16b: *Pleats • Play*, mm. 28–30.

A following short melodic section in mm. 70–82 demonstrates the technique of spooling synthetic fiber through three types of migrating pitches on the gayageum: pitch bending, glissando, and pitch bending with vibrato. In traditional gayageum playing, pitch-bending is the most crucial technique in the left hand, which produces all the notes except on the open strings. Meanwhile, vibrato is also achieved through the left hand. Thus, the left hand carries the most beautiful sound of the gayageum.

Starting from m. 85, the gayageum bends a perfect fourth on the same G string from the beginning (Example 17). A perfect fourth is the maximum interval to bend on the gayageum, but it varies on different strings. I use an “X-note” head in the score to indicate the maximum interval the string can bend. Combined with the regular glissando on the right hand, it creates a continuous flowing passage.

Example 17: *Pleats • Play*, mm. 85–87.

Adding another timbral layer to this flowing passage, the gayageum vibrates and bends simultaneously, producing a “wa-wa” sound (Example 18). The wavy line on the top of the notes indicates that the left hand vibrates, and the line between the two notes indicates pitch-bending.

Example 18: *Pleats • Play*, mm. 88–90.

Reference to Chou Wen-chung's *Eternal Pine*

In the *Ode to the Eternal Pine* (誦松), Chou Wen-chung combined the glissando with vibrato, which inspired this idea.³³ Instead of string accompaniment, he had the gayageum play alone (Example 19).

Based on Chou's idea, I used pitch-bending along with vibrato and glissando. These three types of migrating pitches are altered and extended throughout the section. The beginning focuses on pitch-bending, and gradually the focus becomes glissandi, extending the maximum interval size from a fourth to an octave. As depicted in Example 20, the end of the section, m. 95, uses a palm glissando covering all strings.

³³ Chou Wen-chung, *Eternal Pine*, Edition Peters.

Ode to the Eternal Pine 侗松 늘 푸른 소나무 송시

molto espressivo, senza misura — very expressive and free, as if chanting
Rhythmic notation is given as a guiding sample only.

43 Gayageum:

Dynamics should be guided by impression, duration and pressure on the strings.

47

50 *rall. poco a poco*

Meditation, Part II
Largamente più lento

53 *brush brush poco lunga

Example 19: *Eternal Pine, Ode to the Eternal Pine (侗松)*, mm. 43–55.

94

Gayageum

Vln.

Vc.

Example 20: *Pleats • Play*, mm. 94–96.

Although the gayageum mainly reflects the concept of spooling, the strings primarily express the motion of liquefying. To support the gayageum, strings stay in a lower dynamic with mostly harmonics and glissandi. Strings start with melodic harmonics and gradually extend to a harmonic glissando (Example 21) to further achieve the liquefied effect. At the same time, the regular glissandi alternate between harmonic glissando and melodies.

The image displays a musical score for measures 106 and 109. The score is arranged in two systems, each with three staves: Gayageum, Violin (Vln.), and Violoncello (Vc.).

System 1 (Measures 106-108):

- Gayageum:** Measure 106 features a melodic line starting with a wavy line above it, followed by a series of notes. A dynamic marking of *f* is present.
- Vln.:** Measure 106 features a melodic line starting with a wavy line above it, followed by a series of notes. A dynamic marking of *p* is present.
- Vc.:** Measure 106 features a melodic line starting with a wavy line above it, followed by a series of notes. A dynamic marking of *pp* is present.

System 2 (Measures 109-110):

- Gayageum:** Measure 109 features a melodic line starting with a wavy line above it, followed by a series of notes. A dynamic marking of *f* is present. Measure 110 features a melodic line starting with a wavy line above it, followed by a series of notes. A dynamic marking of *p* is present.
- Vln.:** Measure 109 features a melodic line starting with a wavy line above it, followed by a series of notes. A dynamic marking of *ppp* is present. Measure 110 features a melodic line starting with a wavy line above it, followed by a series of notes. A dynamic marking of *ppp* is present.
- Vc.:** Measure 109 features a melodic line starting with a wavy line above it, followed by a series of notes. A dynamic marking of *ppp* is present. Measure 110 features a melodic line starting with a wavy line above it, followed by a series of notes. A dynamic marking of *ppp* is present.

Example 21: *Pleats • Play*, mm. 106–109.

The pitch-bending section with harmonic glissando leads the music to the first chord of the piece (Example 22). This chord will play a significant role in the

following sections. From this chord, the music enters into a continuously repeated passage of quintuplets in m. 119.

The musical score consists of two systems. The first system (mm. 114-116) includes Gayageum, Violin (Vln.), and Violoncello (Vc.).

- Gayageum:** Starts at m. 114 with a series of quintuplets. Dynamics range from *pp* to *sf*.
- Vln.:** Starts at m. 114 with a *pizz.* (pizzicato) chord marked *sf*. At m. 116, it switches to *arco sul pont.* (arco sul ponticello) with a *f* dynamic, then *p* in m. 117.
- Vc.:** Starts at m. 114 with a *pizz.* chord marked *sf*. At m. 116, it switches to *arco sul pont.* with a *f* dynamic, then *p* in m. 117.

The second system (mm. 117-119) includes Vln. and Vc.

- Vln.:** Continues with *arco sul pont.* chords marked *f* in m. 117, with an *ord.* (ordine) marking above.
- Vc.:** Continues with *arco sul pont.* chords marked *f* in m. 117, with an *ord.* marking above. From m. 118, it plays a quintuplet passage marked *p* with a *5* (quintuplet) marking.

Example 22: *Pleats • Play*, mm. 114–119.

The quintuplets are based on the *timbre arpeggio*. An arpeggio usually alternates between intervals of a major and minor third. For instance, in the chord C-E-G, C to E is four half steps apart, and E to G is three half steps apart. Together, they form a minor third and a major third. The derivative quintuplets, by analogy, continue to pass to the violin in different registers to form a *timbral arpeggio*. In the

section that starts with a minor third in the cello, every four notes connect to fill in all the notes within the minor third. Altering with a major third, the fourth group forms a major third and fills in with half steps. Each major third results in a half-step leftover since each group only presents four notes. As depicted in Figure 8 below, filling in the second (Eb to G) and fourth (Bb to D) intervals with only four steps requires one note to be extruded.



Figure 8: Major 3rd and minor 3rd interval demonstration.

The gayageum presents the extruded notes in mm. 122 and 128 (Example 23); the strings also carry those notes sometimes, shown here in m 122 (Example 24). With the presentation of the extruded notes added gradually, chords appear more frequently. From a single note at the beginning to this point, pitches are gradually sculpted into chords, which become the primary material of the climax.

Example 23: *Pleats • Play*, m. 122.

The image shows a musical score for three instruments: Gayageum, Violin (Vln.), and Violoncello (Vc.). The Gayageum part is written in a single system with a treble clef on the upper staff and a bass clef on the lower staff. It features a melodic line with several slurs and a final five-fingered chord marked with a '5'. The Violin part is in a single system with a treble clef, showing a melodic line with a triplet of eighth notes. The Violoncello part is in a single system with a bass clef, starting with a dynamic marking of *mf*, followed by a *pizz.* (pizzicato) section with a dynamic marking of *f*. The key signature has one flat (B-flat), and the time signature is 4/4.

Example 24: *Pleats • Play*, m. 126.

The climax starts at m. 156. Glissandi in the strings, at that point, fully express the extruded chords. In this process, the shortened and liquefied ideas from the beginning conclude the piece with the idea from the middle sections.

The Solo Sections

There are solo parts between each major section. A gayageum solo first appears between the beginning and the pitched bending sections (Example 25). Traditional instruments players usually have personal understanding of how to fingerings in certain sections. This long section lasts about a minute and thirty seconds. I inserted an improvisation section with instructions into the gayageum solo to give the performer an opportunity to add their personal expression and understanding to the music. Then, the solo cello section is divided into two short phrases to connect the pitch-bending section (Example 26 and Example 27) and connect to the climax.

*mm. 58-68, improvisation with instructions
technique, rhythm, pitch, determining by player

56 left side
on the left side of the bridge

Gayageum

f

on the right side of the bridge

59

Gayageum

62

Gayageum

to the left side of the bridge

f

65

Gayageum

p

Example 25: *Pleats • Play*, gayageum solo, mm. 62–67.

Example 26: *Pleats • Play*, cello solo, mm. 106–111.

The score for Example 26 consists of two systems. The first system (measures 106-108) features the Gayageum with a melodic line starting at measure 106 marked *f* and ending with a wavy line. The Violin (Vln.) part starts at measure 106 with a *p* dynamic and a wavy line. The Cello (Vc.) part starts at measure 106 with a *pp* dynamic and a wavy line, then moves to a *mp* dynamic and an *espress.* marking at measure 108. The second system (measures 109-111) features the Gayageum with a melodic line starting at measure 109 marked *f*, then *p*, and ending with a wavy line. The Violin (Vln.) part starts at measure 109 with a *ppp* dynamic and a wavy line, then moves to a *p* dynamic and a wavy line. The Cello (Vc.) part starts at measure 109 with a *ppp* dynamic and a wavy line, then moves to a *p* dynamic and a wavy line. The Gayageum part has a *harmonic glissando* marking above the staff in measure 110.

Example 26: *Pleats • Play*, cello solo, mm. 106–111.

Example 27: *Pleats • Play*, cello solo, mm. 162–166.

The score for Example 27 consists of two systems. The first system (measures 162-164) features the Gayageum with a melodic line starting at measure 162 marked *f* and ending with a wavy line. The Violin (Vln.) part starts at measure 162 with a *p* dynamic and a wavy line. The Cello (Vc.) part starts at measure 162 with a *p* dynamic and a wavy line, then moves to an *espress.* marking at measure 164. The second system (measures 165-166) features the Violin (Vln.) part starting at measure 165 with a *f* dynamic and a wavy line. The Cello (Vc.) part starts at measure 165 with a *f* dynamic and a wavy line, then moves to a *p* dynamic and a wavy line.

Example 27: *Pleats • Play*, cello solo, mm. 162–166.

Beginning in m. 138, the solo violin appears between the quintuplets section emphasizing the highest register of the piece (Example 28).

Except for the solo gayageum section punctuated between two major sections (the beginning section and middle section), the violin and cello solos happen within the section, which emphasizes the structural function of the solo gayageum section.

The image displays two staves of musical notation. The top staff is for Violin (Vln.) and the bottom for Cello (Vc.).
 - **Measure 138:** Vln. starts with a *ff* dynamic. A bracket labeled "heavy bow pressure" spans from measure 138 to 141. A triplet of eighth notes is marked with a "3".
 - **Measure 142:** Vln. begins with *ppp* dynamics, marked "espress." and "sul tasto".
 - **Measure 143:** Vln. has a dynamic of *f*.
 - **Measure 144:** Vln. has a dynamic of *p*.
 - **Measure 145:** Vln. has a dynamic of *pp*, marked "(within one bow)".
 - **Measure 146:** Vln. has a dynamic of *pp*, marked "tr" (tremolo).
 - **Measure 147:** Vln. has a dynamic of *pp*, marked "ord." (ordinario).
 - **Measure 148:** Vln. has a dynamic of *pp*, marked "sul tasto".
 - **Measure 149:** Vln. has a dynamic of *pp*, marked "ord.".

Example 28: *Pleats • Play*, violin solo, mm. 138–145.

Conclusion of *Pleats • Play*

Starting with a single-note *pizzicato* at the beginning, each main part begins with a central timbre, moves to a second primary timbre, and returns to *pizzicato* (Example 29). The whole piece creates a *timbral arpeggio* that forms an overarching large wave, echoing the shape of the pleated fibers at the moment of movement.

Like Lutoslawski's *Livre*, the fragmentary interludes become brief solo passages for different instruments in this piece, appearing differently each time. Unlike in *Livre*, where each section has a climax, *Pleats • Play* sets up a climax at the end of the work. The purpose of the whole work is to sculpt the climax and to express it fully at the end.

Example 29: *Pleats • Play*, mm. 188–189.

Compared to the usage of the three concepts in the *Percussion trio*, those three concepts (*timbral arpeggio*, *pitch sculpture*, *rhythmic chips*) are mixed with the technique of making synthetic fibers (liquefaction, extrusion, extension, solidification, spooling). I make mixed use of those three concepts (timbral arpeggio, pitch sculpture, rhythmic chips) in this work, to correspond to the related techniques of making synthetic fibers hybridizing the application of the concepts to musical content. They do not appear as in individually like the *Percussion trio*; instead, two or three of them appear at the same time. Elaborating and connecting those ideas gives

me an opportunity to examine my musical thinking. For example, I now consider whether the idea of *rhythmic chips* should stand individually or if there is a way to combine two or three different techniques.

To continue examining the idea from the fabric pleat, in the next piece, the Chinese instrument—the *pipa* (Chinese four-string fretted lute) combines with Western instruments to connect more deeply to the musical structure and the concepts discovered in the previous pieces.

Stamp, for Pipa (Chinese lute), Percussion, String Quartet

Qin (221–207 BCE) and Han (206–220 CE) were a period of significant expansion of Chinese instruments. Liu xi was the first scholar who mentioned *pipa* in his book 释名, 释乐器 (*shiming, shiyueqing*).³⁴ During this period, portable instruments—including the lute family, *ruan*, *pipa*, *qinhanzi*, and *hulei*—became widely used.³⁵ The *pipa* is one of the most significant instruments still often performed today.

³⁴韩淑德, 张之年。《中国琵琶史稿》。成都: 四川人民出版社, 1985年。第三页。The book is about names (how things are named) and ancient Chinese instruments.

³⁵ Lee, Shen, *Chinese Musical instruments*, 18.



Figure 9: “Zhi Xiang” pipa.³⁶

The pipa was initially attested during the Han dynasty and named “Zhi Xiang” pipa (Figure 9) but was widely used in the Qin dynasty. The pipa was an upper-class instrument reserved only for the privileged, and it is the master instrument in the *qin* group.³⁷ In the Tang dynasty, pipa was introduced to other Asian countries, such as Japan (called *biwa*), Korea (called *bipa*), and Vietnam (called *đàn tỳ bà*).³⁸

³⁶ Gao, *An Exploration of the Pipa with a View Towards Expanded Integration into Western Musical Compositions*, 3.

³⁷ Lee, Shen, *Chinese Musical Instruments*, 115.

³⁸ Gao, *An Exploration of the Pipa with a View Towards Expanded Integration into Western Musical Compositions*, 6.

During the Ming (1368–1644) and Qing (1636–1912) dynasties, the pipa gradually standardized into a structure largely similar to the modern pipa (Figure 10).

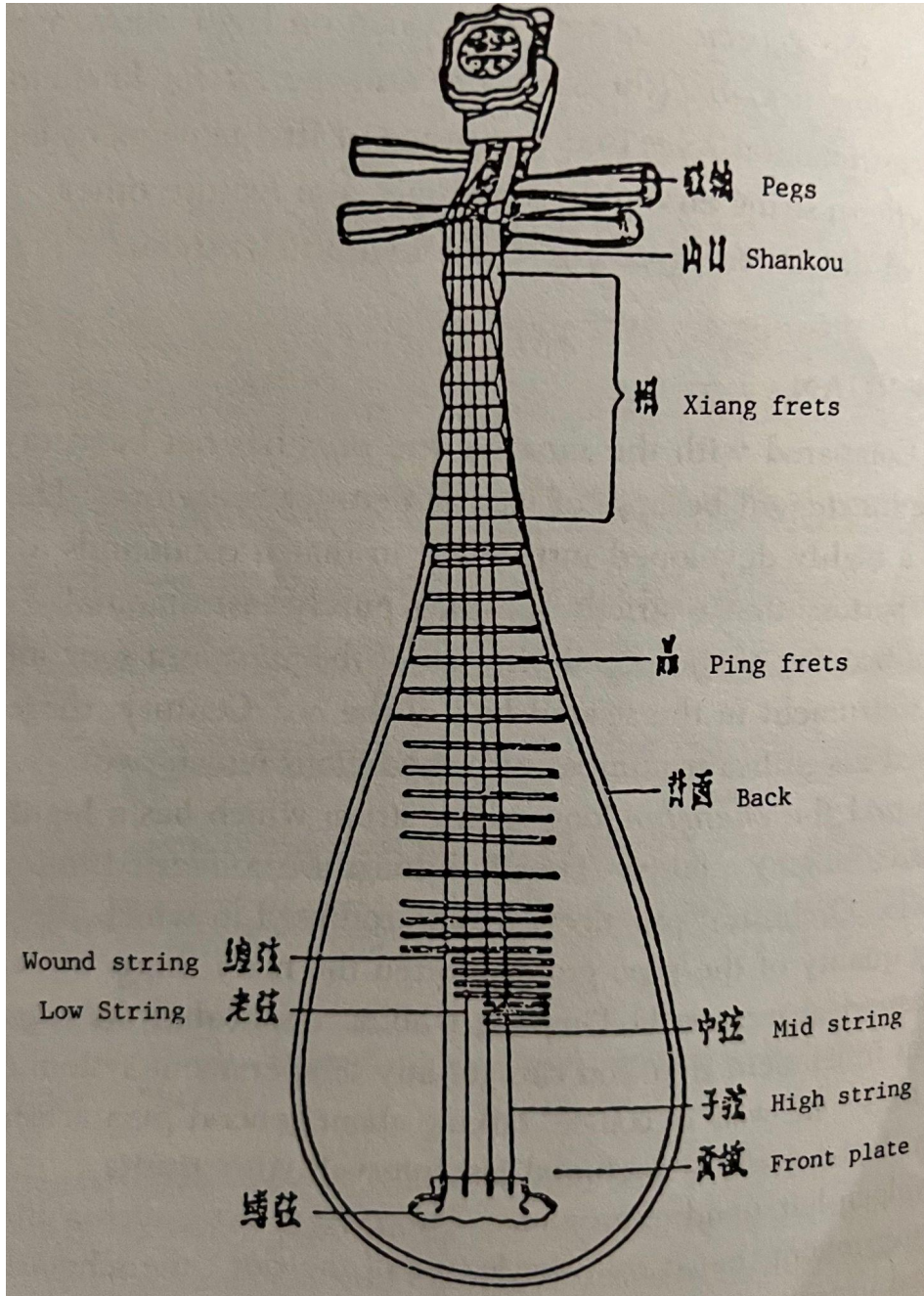
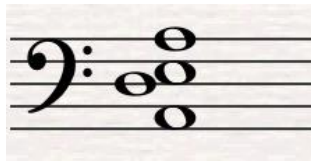


Figure10: the structure of modern pipa.³⁹

³⁹ Lee, Shen, *Chinese Musical instruments*, 116.

The Chinese characters “pi (琵琶)” and “pa (琶)” describe how the instrument is played. “Pi(琵琶)” is a right-hand pluck outward, and “pa(琶)” is a right-hand pluck inward. The modern pipa maintains the traditional playing technique, but a more effective sound was developed over the years. This sound included extended techniques like cross-strings and woodblock sounds that imitate other instruments, natural or animal sounds. The standard tuning of the modern pipa is A-D-E-A; for ease, I translated the tuning to the Western staff notation shown below (Example 30).



Example 30: the standard tuning of the modern pipa.

Stamp

This piece, composed for pipa, percussion, and string quartet, is the concluding work of the pleats project. The concepts created in the *Percussion Trio* (*timbral arpeggio*, *pitch sculpture*, and *rhythmic chips*) are the primary compositional device. While I used each concept separately in the *Percussion Trio*, in *Stamp*, I blended the three concepts. Before I describe the piece, I will first explain the timbre characters of the pipa.

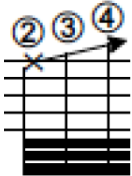





The Timbral Effect on Pipa

The pipa includes three parts: the head, the neck, and the body. The head section consists of the head, tuning pegs, and peg holes. The neck and head are

usually made of wood; its pegs can be made of different materials such as ivory, bull’s horn, or wood. The neck section consists of the *xiang* frets (相), the *shankou* (山口), and the *qinzhen* (琴枕). Popular materials for *xiang* frets include wood, ivory, bull’s horn, and jade. The body includes frets, the soundboard, the back of the instrument, the bridge (*fushou*), and the strings. The bridge (*fushou*), usually bamboo, holds the strings. Unlike traditional pipa strings, which are made of sheep gut and silk, modern strings are usually made of nylon or steel.

In *Stamp*, I explore the timbral possibilities of the pipa. One of China's most important pipa educators and performers is Master Lin Shicheng. Lin and his students constitute one of several important strands of pipa pedagogy. Each of these pedagogical strands interprets the pipa repertoire differently. He was the first to extend the range of the instrument by adding frets from twenty-four to thirty, expanding the higher register of the modern pipa. With the development of the modern pipa, other pipa players further extend the timbral possibilities of the instrument. Below are the specific playing techniques I used in this piece, including traditional techniques and my own interpretations. Though many of these techniques are traditional, I offer performers instructions on how to combine them. I developed the first two techniques to discover further timbral effects. The subsequent techniques are traditional (Chart 4).

symbol	Technique explanation	effects
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	<p>Pluck the strings at the very top of the instrument (numbers refer to string numbers).</p>	<p>This creates a light, gentle, percussive sound.</p>
	<p>Gradually widen the bending range.</p>	<p>This is a variation of the bending strings technique.</p>
	<p>“打,” In Chinese, called <i>da</i>, means hitting the string with the left hand.</p>	<p>This is a similar effect to hitting guitar frets.</p>
	<p>摘 woodblock sound</p>	<p>This is a substitute for woodblock sound, combined with non-pitched percussion instruments.</p>
	<p>左手拉弦, Bend strings with the left hand</p>	<p>This is a gentle sound waving effect.</p>
	<p>提, Pluck strings with the thumb, similar to <i>Bartók pizzicato</i>.</p>	<p>This is very effective when an accented sound is needed.</p>



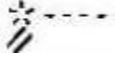

	<p>轮指 is a circular finger movement with five fingers, a typical right-hand technique for pipa.</p>	<p>This is very effective in melodic passages.</p>
	<p>This is a circular finger movement with four fingers</p>	<p>Use a substitute fingering if there are only four attacks.</p>
	<p>Create a circular finger movement by sweeping the string</p>	<p>This creates an accented sound at the beginning of the circular finger movement.</p>
	<p>绞弦, Twist strings with the left hand (only two strings twist together, 1/2 or 3/4).</p>	<p>This creates a buzzed sound with wide dynamic ranges.</p>

Chart 4: the timbral effects on pipa that used in this *Stamp*.

Composition Ideas

This piece combines Western and Eastern instruments. Instead of highlighting the contrasts, like Toru Takemitsu's *November Steps*, I blend the sounds of Western and Eastern instruments through their unique timbres. *Šu*, a sheng concerto by Korean composer Unsuk Chin, was created with the intention of blending the sheng instrument with Western orchestra. In Example 31, the sheng is heard blending with the strings in a similar high register at the beginning of the piece. However, Chin's method of incorporating the sheng with Western orchestral instruments is not limited to using the same register. Example 32 presents an alternative approach of blending the sheng with the orchestra by utilizing its higher range and layering diverse timbres.

The image displays a musical score for measures 39 to 43. The score is arranged in a system with multiple staves. At the top, the Sheng part is written on a single staff. Below it, the string section is divided into four groups: Violins I & II (1-4 and 9-12), Violas (1-4 and 9-12), and Cellos/Double Basses (1-5 and 6-10). The Sheng part features a melodic line with various ornaments and a 'vibrato' marking at the end. The string parts provide harmonic support, with some sections marked 'gliss' and 'unis'. The notation includes notes, rests, and dynamic markings.

Example 31: Unsuk Chin's *Šu*, mm. 39–43.

Example 32: Unsuk Chin's *Šu*, mm. 141–146.

I structured *Stamp* to engage deeply with the three concepts: *timbral arpeggio*, *pitch sculpture*, and *rhythmic chips*. Instead of individual applications, I overlap two of three concepts.

Rhythmic chips occur mm. 1–28. I interpret the compress-release motion of the pleats through syncopation. The piece begins with the string quartet playing *pizzicato* behind the bridge (see Example 33) while the pipa plucks the strings in the head area (Example 34), emphasizing syncopated rhythm. Simultaneously, the

musical texture creates various layers using *pizzicato* chords on the off-beat, further reinforcing the syncopation (see Example 33, m. 11 in the violin II, viola, and cello parts).

Example 33: *Stamp*, mm. 9–11.

open strings (在琴的最顶部, 拨弦)(remain flexible)

Example 34: *Stamp*, m. 14, pipa section.

I use *pitch sculpture* beginning at m. 20 (Example 35); the texture and dynamic changes emphasize E, A#, and B through to m. 54. From mm. 20–28, the

rhythmic chips and *pitch sculpture* overlap. The *rhythmic chips* on *pizzicato* remain while the A# enters and gradually spreads to E and Bb, dominating the section until m. 54. In m. 30, there is an example of pitch spreading (Example 36), in which the pitch material spreads across the instruments from E in the percussion and proceeds to the E, A#, and B.

The musical score for Example 35, mm. 19-22, is presented in a multi-staff format. The instruments and their parts are as follows:

- Pipa:** The upper staff shows a melodic line with a fermata over a chord in the second measure. The lower staff shows a rhythmic accompaniment with dynamics *f* and *p*.
- Perc.** The percussion part features a series of chords with dynamics *mf*, *f*, *pp*, *mf*, and *f*.
- Vln. I:** The first violin part includes a melodic line with a fermata and dynamics *sf*. It also features a section labeled "barok pizz." and another section labeled "behind the bridge pizz." with a sawtooth-like rhythmic pattern.
- Vln. II:** The second violin part includes a section labeled "legno jeté" and a section labeled "behind the bridge pizz." with a sawtooth-like rhythmic pattern.
- Vla.:** The viola part includes a section labeled "barok pizz." and a section labeled "behind the bridge pizz." with a sawtooth-like rhythmic pattern.
- Vc.:** The cello part includes a section labeled "barok pizz." and a section labeled "behind the bridge pizz." with a sawtooth-like rhythmic pattern.

Example 35: *Stamp*, mm. 19–22.

30 下-----中-----上

Pipa *f/p*

Perc. *f*

Vln. I

Vln. II

Vla.

Vc. *mf* *f* *pp* *crini*

Example 36: *Stamp*, mm. 30–31.

As the previous section focused on rhythmic chips overlapping with *pitch sculpture*, the next section in m. 38 focuses on the *timbral arpeggio*. The strings play prolonged circular bowing (Example 37). Together with the circular bowing, layered small timbral phrases create the *timbral arpeggio* (see the circle and square in Example 37).

The image shows a musical score for Example 37, measures 38-41. The score is in 4/4 time with a tempo of quarter note = 56. The instruments are Pipa, Percussion, Violin I, Violin II, Viola, and Violoncello. The Pipa part starts with a *p* dynamic and a *mf* dynamic, with a callout box showing a wavy line and a graph labeled '虚按' (ghosting). The Percussion part has a *pp* dynamic. The Violin I part has 'bow slowly' and dynamic markings *f* and *fp*. The Violin II part has a circled chord with *p < mf >* and 'sul tasto' marking. The Viola part has a *pp* dynamic. The Violoncello part has a *pp* dynamic.

Example 37: *Stamp*, mm. 38–41.

Subsequently, the music gradually flows through the string quartet to a pipa solo section (with some percussion), presenting a *timbral arpeggio*. Most of the time, a *timbral arpeggio* section contains more than one instrument. However, in mm. 49–92, the pipa is the primary instrument. I experimented with the pipa’s various timbral effects to create a long *timbral arpeggio* phrase. Although the pipa is primarily considered a melodic instrument, I intentionally reduce the melodic gestures to emphasize the subtle timbral changes of the pipa. For example, in mm. 58–61 (see Example 38), a long tone in two notes creates three similar yet different timbres using three techniques: sweeping the string, circular motions, and double plucking inside out. Sweeping the string is the basic two-fingered plucking technique

for the pipa. Circular motions involve reiterating four- or five-fingered continuous strikes to produce a *legato* sound. Double plucking inside out is similar to sweeping the string but involves two strikes in the same direction before switching, producing a more accented attack. I use each of these three playing techniques to draw out long tones.

52
Pipa *pp* *f* *pp* *f* *pp*
Perc. *pp* *ff* *p* *ff* *pp*

55 $\text{♩} = 120$
Pipa *ppp* *f*
Perc. *f*

58 *ppp*

60 扫拂 *f* *fp*

Example 38: *Stamp*, mm. 52–61.

The solo pipa section connects to the solo percussion section in mm. 93–108. Mm. 109–115 transition to the next section but do not represent any of the three concepts.

Using additional compositional materials is another aspect I experience in this piece in which using non-conceptualized ideas connects the three concepts. Although I wrote *Stamp* to explore the three aspects of pleats as a metaphor for sound, I also elaborate on and connect these aspects through additional compositional materials. Mm. 116–122 (Example 39), exploring the timbral ideas from the piece's beginning (Example 40) in the pipa section, connects the idea of pleats to the beginning of the music but also develops the musical motive.

Example 39: *Stamp*, mm. 116–119.

Example 40: *Stamp*, m. 1, pipa section.

Until this point, *Stamp* explores the three concepts in longer sections, but they only overlap in shorter sections. Each section demonstrates one concept at a time. The

following music utilizes a different way of elaborating the three concepts by combining all three simultaneously.

From mm. 122 to 169, the music demonstrates all three concepts in a long section. In Example 43, the arrows indicate the timbral changes from sustained strings to pipa and percussion back to strings. At the same time, the square shows the compression and release motion of the *rhythmic chips*. The strings play the pitch material from the previous section, the intervals of fourth and fifth, then gradually enter a chord progression from mm. 137 to 158 (Example 42). The entire ensemble creates a bundled sound leading to a flowing texture when all three concepts occur simultaneously.

The texture of the chord progression in the strings section references American composer John Corigliano's *Symphony No. 1* (Example 41). Corigliano uses a weighted textural section in the string to open the music. I utilized his idea in the strings section in m. 137 but added bow pressure to emphasize the progression of releasing the tension of the chords. In addition to the string writing, Corigliano's chimes section inspired the release and compression motion for the rhythmic concepts in my piece.

Example 41: John Corigliano's *Symphony No. I*, Beginning.

138 $\text{♩} = 66$

Pipa

Perc.

Vln. I *normal* *pp* *sf*

Vln. II *normal* *pp* *sf*

Vla. *normal* *pp* *sf*

Vc. *normal* *pp* *sf*



142

Pipa *ppp* *fp* X

Perc.

Vln. I *legno tratto* III IV *pp* *legno jeté* III IV *f* *legno tratto* V V *p* *legno jeté*

Vln. II *legno tratto* *pp* *crini* *fp* *legno tratto* *crini*

Vla. *legno tratto* I II *pp* *crini* III II *legno tratto* *crini*

Vc. *legno tratto* *pp* *legno jeté* *pizz.* *legno tratto* *pp* *legno jeté*

Example 42: *Stamp*, mm. 138–145.

The music of *Stamp* ends with a non-conceptualized phrase like a cadence to release all the tension created by the timbre, pitch, and rhythm (Example 44). The glissando in pipa releases the tension from the timbre. The punctuated pauses release the tension of the rhythm. And the pitch material interval of a second resolves from fifth to fourth to third and ends on a second.

124

Pipa *f* *ff* *fp*

Perc. Temple Blocks *ff* *fp*

Vln. I arco *f*

Vln. II arco *f*

Vla. arco *f*

Vc. *f*

legno joto

legno joto

127

Pipa *f* *ff*

Perc. *f* *ff*

Vla. *f* *ff*

Vc. *f* *ff*

♩ = 66

♩ = 66

legno joto

Example 43: *Stamp*, mm. 124–128.

170

Pipa *ff* *ppp* *ff*

Perc. Ratchet

176

Pipa *p* *f* *sf*

Perc. Temple Block *ppp* *fp* *mf* *sf* *3* *3*

Vc. *f* *pp* *f*

legno jéte barkok pizz.

179

Pipa *p* *f* *sf* *fff*

Perc. *sf* *sf* *fff*

Vln. I *sf* *sf* *fff*

Vln. II *sf* *sf* *fff*

Vla. *sf* *sf* *fff*

Vc. *sf* *sf* *fff*

Example 44: *Stamp*, mm. 170–183.

Conclusion of *Stamp*

Both traditional and contemporary repertoire support studying and understanding the pipa. In the traditional repertoire, each piece was performed differently according to who is the teacher, and teachers taught music through oral tradition. This may be why the traditional repertoire usually uses number notation, which gives the teacher and students flexibility to overlay their own personal interpretation. Unlike the traditional repertoire, the contemporary repertoire mostly

uses Western staff notation, which gives precise indication for the pipa and allows it to collaborate with Western instruments.

Stamp is the concluding work of the pleats project. Although the main idea uses musical language to demonstrate the fabric pleats, the most valuable outcome was the three concepts I created from the *Percussion Trio*. I develop these three concepts further in *Stamp*. I use the word “stamp” to refer to the permanent pleats on fabrics and a stamp on my musical language, in which the three concepts become a personal compositional tool.

My intention with the three concepts is to expand the possibilities of my compositional practice, rather than being limited by them. In *Stamp*, the three concepts overlap, in contrast to *Percussion Trio*. They are more deeply connected to each other and are utilized as a compositional tool in my subsequent works.

Conclusion

Miyake’s approach to design was unconventional, but it remained a traditional reflection of Japanese culture. His designs reveal ideas inspired by traditional Japanese origami, showing various pleating and creating a diversiform to a two-dimensional plane. In his showroom, the shape of the clothes are often hard to determine by sight when they are graphic displays. The clothes are always lying on the table, perhaps showing the original format of the fabric or metaphorical origami paper. However, the unique shape of the pleats is revealed when the cloth is displayed vertically in three dimensions.

Miyake's contribution to the Japanese fashion industry is reflected in his breaking and blending of boundaries: West and East, modern and traditional, non-fashion and fashion. Inspired by Issey Miyake, I translated his ideas in three ways:

1. *Percussion Trio* and *Stamp* elaborate on the visual effect of the Miyake Pleats by creating three concepts: *timbral arpeggio*, *pitch sculpture*, and *rhythmic chips*.
2. *Hidden • Apparent* translates how flexible design allows personal interpretation of an original idea through the instructed improvisation.
3. *Pleats • Play* demonstrates the process of making synthetic fiber by translating the five manufacturing steps into music.

Based on the visual effects of the fabric pleats, I establish the *timbral arpeggio*, *pitch sculpture*, and *rhythmic chips* in *Percussion Trio* and further develop them in *Stamp*. In my work, I use a *timbral arpeggio* to embody the pleats' flowing movements. Each phrase starts with a primary sound (tonic timbre), which has a similar effect to the tonic note in a musical arpeggio. With the *pitch sculpture* concept, I aim to represent the spaces created by pleating in fabrics. Miyake's designs are friendly to any age and body shape because of the qualities of pleated fabric. Miyake said: "Fashion design is not art. I do not think it should be considered art, or I, an artist. I am not making clothes to have them displayed in a museum."⁴⁰ Similarly,

⁴⁰Tsurumoto, Shozo, ed. Issey Miyake Bodyworks. Tokyo: Shogakkan, 1983.

the small spaces created among the pleats through movement inspired me to create *pitch sculpture*. The *pitch sculpture* focuses on the harmonic process in this specific section. The *rhythmic chips* describe motions of compression and release in the pleats by creating rhythmic layers in my compositions. *Percussion Trio* connects the *timbral arpeggio* and *pitch sculpture*, featuring non-pitched percussion instruments. In *Stamp*, the *rhythmic chips* occur in different instruments but describe the same compression and release.

In *Pleats • Play*, which features a gayageum with strings, I further develop these three concepts in combination with the processes of making synthetic fibers. I translate these processes (liquefied, extruded, extended, solidified, and spooled) to the two most important techniques of the 25-string gayageum: left-hand vibrato and the timbral changing when repeated motion occurs in the right hand. To prepare the 25-string gayageum, I wrote the solo piece *Hidden • Apparent*. The solo piece features a few improvisations, referring to the wearers' freedom given by Miyake.

I first studied Korean and Chinese traditional music to study gayageum and pipa. To my mind, there is music beauty to discover through traditional music and culture. Miyake drew on the influence of traditional Japanese origins to successfully establish a whole collection.

In the pleats of Miyake, there are still many ideas to explore, such as the use of color and the presentation of runway fashion shows. But the question remains if they can translate into music. As a composer, my quest for musical ideas is inclusive of diverse sources. I remain attentive to various forms of art and aesthetics as they

possess the potential to be translated into musical elements. However, this tendency to rely solely on attractive ideas may serve as a limiting factor. Instead, I am interested in exploring sources of inspiration that have remained unnoticed. While my current compositions have explored pleats as a metaphor for sound, I maintain an ongoing search for inspiration.

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