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Standard Deviation

For 8 Voices and 2 Sine tones

(2008)

Standard Deviation

A composition as part of a portfolio submitted for the degree of Doctor of Philosophy

By

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Performance Notes

Duration: c.21 minutes

• This comma represents a 3 second silence (breath) between each bar.



Wide vibrato



Narrow vibrato

non vib. Sing with no vibrato throughout, unless marked otherwise.

• Closed mouth

◦ Half open mouth

◦ → • Quick continuous transition from half open to closed mouth.

Text

i knEE

a ARm

u bOOt

di DIvide

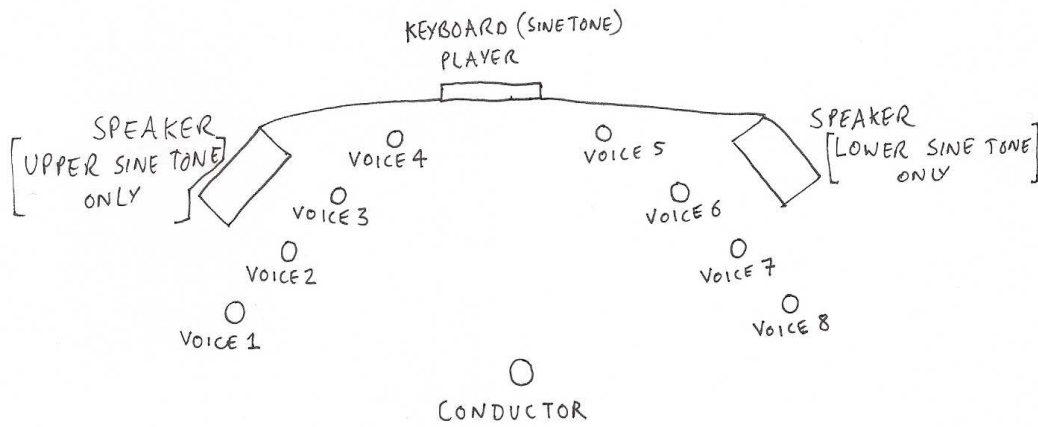
ru ROOf

The sine tones are produced through a midi keyboard connected to a laptop and played live by a performer. All of the performers should be positioned in the performance space according to the diagram on the opposite page.

Nicholas Peters, April 2008

Programme Text

Standard Deviation presents an interaction within a small pitch range between eight voices and two sine tones. The singers only ever have their mouths half open or fully closed, which combines with the different phonetic sounds to explore subtle alterations to the shape and size of the cavity in the mouth.



A U D I E N C E

Standard Deviation

Nicholas Peters

$\text{♩} = 58$

The musical score is arranged in eight staves, each with a different clef and time signature. The time signatures are 19/16, 9/16, 7/16, 11/16, and 9/16, which are repeated in a sequence. The notes are marked with various dynamics and articulations:

- Voice 1:** Treble clef, 19/16, 9/16, 7/16, 11/16, 9/16. Dynamics: *pp* non vib., *ppp* < *pp*.
- Voice 2:** Treble clef, 19/16, 9/16, 7/16, 11/16, 9/16. Dynamics: *pp* narrow vib., non vib.
- Voice 3:** Treble clef, 19/16, 9/16, 7/16, 11/16, 9/16. Dynamics: *pp* non vib., *ppp*, *pp*, *ppp*.
- Voice 4:** Treble clef, 19/16, 9/16, 7/16, 11/16, 9/16. Dynamics: *ppp* non vib., *pp*.
- Voice 5:** Treble clef, 19/16, 9/16, 7/16, 11/16, 9/16. Dynamics: *ppp* non vib., wide vib., *pp*, *ppp* < *pp* narrow vib.
- Voice 6:** Treble clef, 19/16, 9/16, 7/16, 11/16, 9/16. Dynamics: *pp* narrow vib., wide vib., non vib.
- Voice 7:** Bass clef, 19/16, 9/16, 7/16, 11/16, 9/16. Dynamics: *pp* non vib.
- Voice 8:** Bass clef, 19/16, 9/16, 7/16, 11/16, 9/16. Dynamics: *pp* non vib., narrow vib.
- Sine Tones:** Treble clef, 19/16, 9/16, 7/16, 11/16, 9/16. Dynamics: *pp*.

5

Voice 1 *pp* 4:3 i u a u *ppp* *pp*

Voice 2 *pp* i u a u

Voice 3 *pp* narrow vib. 4:3 i u a u

Voice 4 *ppp* *pp* narrow vib. wide vib. i u a u

Voice 5 *ppp* *pp* *ppp* *pp* *ppp* *pp* i u a u

Voice 6 *pp* i u a u

Voice 7 *pp* wide vib. i u a u

Voice 8 *pp* 4:3 i u a u

Sine Tones

Detailed description: This page contains a musical score for eight voices and sine tones. The score is written in 9/16 time and consists of 16 measures. The key signature has one sharp (F#). The lyrics for all voices are 'i u a u'. The score includes various performance markings such as dynamics (*pp*, *ppp*), vibrato types (narrow vib., wide vib.), and a 4:3 ratio marking. The vocal lines are arranged in a descending order of pitch from Voice 1 to Voice 8. The Sine Tones part at the bottom provides a harmonic accompaniment for the vocal lines.

This musical score is for eight voices and sine tones. The lyrics are 'i ru i u'. The score is divided into eight staves, each with a different time signature: 11/16, 7/16, 10/16, 9/16, 8/16, 11/16, 7/16, and 11/16. The dynamics range from *pp* (pianissimo) to *ppp* (pianississimo). The first staff (Voice 1) includes a *pp* dynamic, a 4:3 ratio, and a *wide vib.* marking. The second staff (Voice 2) has a *pp* dynamic. The third staff (Voice 3) has a *pp* dynamic and a *wide vib.* marking. The fourth staff (Voice 4) has a *ppp* dynamic, a 3:2 ratio, and a *pp* dynamic. The fifth staff (Voice 5) has a *ppp* dynamic and a *pp* dynamic. The sixth staff (Voice 6) has a *pp* dynamic, a *ppp* dynamic, and a *pp* dynamic. The seventh staff (Voice 7) has a *pp* dynamic. The eighth staff (Voice 8) has a *pp* dynamic, a 3:2 ratio, a 4:3 ratio, and a *ppp* dynamic. The Sine Tones staff is at the bottom.

13 *pp* di ru i a

13 *pp* di ru i a *wide vib.*

13 *pp* di ru i a *ppp*

13 *pp* di ru i a *ppp* *pp* *4:3*

13 *pp* di ru i a *ppp*

13 *pp* di ru i a

13 *pp* di ru i a

13 *ppp* di ru i a *pp* *3:2*

Sine Tones

17

Voice 1 *pp* u di ru di

Voice 2 *pp* u di ru di

Voice 3 *pp* *4:3* u di ru di *ppp*

Voice 4 *ppp* *pp* *ppp* *pp* *ppp* u di ru di *pp*

Voice 5 *ppp* *pp* u di ru di *pp*

Voice 6 *pp* u di ru di

Voice 7 *pp* narrow vib. u di ru di

Voice 8 *pp* *ppp* *pp* u di ru di

Sine Tones

21

Voice 1 *ppp* *pp* u i a i

Voice 2 *pp* u i a i

Voice 3 *pp* u i a i

Voice 4 *pp* *ppp* *pp* *ppp* u i a i

Voice 5 *pp* *ppp* *pp* *ppp* u i a i

Voice 6 *pp* u i a i

Voice 7 *pp* u i a i

Voice 8 *pp* u i a i

Sine Tones

25 *pp* u di i ru

Voice 1

Voice 2 *pp* u di i ru

Voice 3 *pp* u di *ppp* i ru

Voice 4 *ppp* *pp* u di *ppp* i ru

Voice 5 *pp* u di *ppp* i ru *pp*

Voice 6 *pp* u di i ru

Voice 7 *pp* u di i ru

Voice 8 *pp* u di *ppp* i ru

Sine Tones

33

pp , , , ppp — pp ,

Voice 1 di u di u

pp , , , ,

Voice 2 di u di u

pp 4:3 4:3

Voice 3 di u di u

ppp — pp , ppp — pp , , ,

Voice 4 di u di u

pp 4:3 4:3

Voice 5 di u di u

pp , , , ,

Voice 6 di u di u

pp 4:3 4:3

Voice 7 di u di u

ppp — pp , ppp — pp , , ,

Voice 8 di u di u

Sine Tones

37

Voice 1 *pp* 4:3
i ru di a

Voice 2 *pp*
i ru di a

Voice 3 *pp* *ppp*
i ru di a

Voice 4 *ppp* *pp* 4:3
i ru di a

Voice 5 *ppp* *pp* *ppp* *pp*
i ru di a

Voice 6 *pp*
i ru di a

Voice 7 *pp*
i ru di a

Voice 8 *pp* 3:2 4:3
i ru di a

Sine Tones

41

Voice 1 *pp* *4:3* *ppp* *pp*
i a ru u

Voice 2 *pp*
i a ru u

Voice 3 *pp* *4:3*
i a ru u

Voice 4 *ppp* *pp* *ppp* *pp*
i a ru u

Voice 5 *ppp* *pp* *ppp* *pp*
i a ru u

Voice 6 *pp* *ppp* *pp*
i a ru u

Voice 7 *pp*
i a ru u

Voice 8 *pp* *4:3* *4:3*
i a ru u

Sine Tones

45

Voice 1 *pp* i di ru di

Voice 2 *pp* i di ru di

Voice 3 *pp* i di ru di *ppp*

Voice 4 *ppp* i di ru di *pp* *ppp* *pp*

Voice 5 *ppp* i di ru di

Voice 6 *pp* i di ru di

Voice 7 *pp* i di ru di

Voice 8 *pp* i di ru di *ppp* *pp*

Sine Tones

Detailed description of the musical score: The score is for eight voices and sine tones. It begins at measure 45. The time signature is 7/16. The key signature has one flat (B-flat). The lyrics are 'i di ru di'. The dynamics are very soft, ranging from *pp* to *ppp*. The voices have various rhythmic patterns, including triplets and sextuplets. The sine tones part at the bottom provides a harmonic accompaniment.

49 *pp* 4:3

Voice 1
i u ru a

Voice 2
pp
i u ru a

Voice 3
pp
i u ru a

Voice 4
ppp *pp* *ppp* *pp*
i u ru a

Voice 5
ppp *pp* *ppp* *pp*
i u ru a

Voice 6
pp
i u ru a

Voice 7
pp
i u ru a

Voice 8
pp 4:3
i u ru a

Sine Tones

53

Voice 1 *ppp* *pp* u ru di a

Voice 2 *pp* u ru di a

Voice 3 *pp* *4:3* u ru *ppp* di a

Voice 4 *pp* *ppp* *pp* u ru di a

Voice 5 *pp* *ppp* *pp* u ru di a

Voice 6 *pp* u ru di a

Voice 7 *pp* u ru di a

Voice 8 *pp* u ru di a

Sine Tones

57

Voice 1 *ppp* *pp* *4:3* u i di a

Voice 2 *pp* u i di a

Voice 3 *pp* *4:3* u i di a

Voice 4 *pp* *ppp* *pp* u i di a

Voice 5 *ppp* *pp* *ppp* *pp* *ppp* *pp* u i di a

Voice 6 *pp* u i di a

Voice 7 *pp* u i di a

Voice 8 *pp* *ppp* *4:3* *ppp* *pp* u i di a

Sine Tones

61

Voice 1 *pp* ru di i a

Voice 2 *pp* ru di i a

Voice 3 *pp* ru di i a

Voice 4 *ppp* *pp* *ppp* *pp* ru di i a

Voice 5 *ppp* *pp* *ppp* *pp* ru di i a

Voice 6 *pp* ru di i a

Voice 7 *pp* ru di i a

Voice 8 *pp* *ppp* *pp* ru di i a

Sine Tones

The musical score is written for eight voices and sine tones. It begins at measure 61. The time signature is 18/16. The key signature has one sharp (F#). The lyrics are 'ru di i a'. The score includes various dynamics such as *pp*, *ppp*, and *pp*, and includes musical notations like wavy lines, slurs, and specific rhythmic markings (e.g., 3:2, 4:3). The voices are arranged in a descending order of pitch from Voice 1 to Voice 8. The sine tones are at the bottom of the page.

65

Voice 1 *ppp* *pp* *ppp* *pp*
u di i ru

Voice 2 *pp* *ppp* *pp* *pp*
u di i ru

Voice 3 *pp* *ppp* *pp* *pp*
u di i ru

Voice 4 *pp* *ppp* *pp* *pp*
u di i ru

Voice 5 *pp* *ppp* *ppp* *pp*
u di i ru

Voice 6 *pp* *ppp* *ppp* *pp*
u di i ru

Voice 7 *pp* *ppp* *pp* *pp*
u di i ru

Voice 8 *pp* *ppp* *pp* *pp*
u di i ru

Sine Tones

Detailed description of the musical score: The score is for eight voices and sine tones. It is in 10/16 time and one sharp (F#). The lyrics are 'u di i ru'. The score is divided into four systems of two staves each. The first system (Voices 1-2) starts at measure 65. The second system (Voices 3-4) starts at measure 71. The third system (Voices 5-6) starts at measure 77. The fourth system (Voices 7-8) starts at measure 83. The Sine Tones part starts at measure 89. The score includes various dynamics: *ppp* (pianississimo) and *pp* (pianissimo). It also includes articulation such as accents, slurs, and vibrato. Performance instructions include '4:3' ratios and 'trill' markings. The lyrics 'u di i ru' are written below the notes in each staff.

69 *pp* , , , , ,

Voice 1 *pp* di a ru di

Voice 2 *pp* di a ru di

Voice 3 *pp* *ppp* *pp* *ppp* di a ru di

Voice 4 *pp* *ppp* *pp* *pp* di a ru di

Voice 5 *pp* *ppp* *pp* *ppp* *pp* di a ru di

Voice 6 *pp* di a ru di

Voice 7 *pp* di a ru di

Voice 8 *ppp* *pp* di a ru di

Sine Tones

The musical score is written for eight voices and sine tones. It begins at measure 69. The time signature is 12/16. The key signature has one flat. The lyrics are 'di a ru di'. The score includes various dynamics such as *pp*, *ppp*, and accents. There are also some performance markings like '4:3' and wavy lines indicating vibrato or tremolo.

73

Voice 1 *pp* *ppp* *pp*
i di u di

Voice 2 *pp*
i di u di

Voice 3 *ppp* *pp* *ppp*
i di u di

Voice 4 *ppp* *pp*
i di u di

Voice 5 *ppp* *pp*
i di u di

Voice 6 *pp*
i di u di

Voice 7 *pp*
i di u di

Voice 8 *pp* *ppp* *pp*
i di u di

Sine Tones

77

Voice 1 *pp* a ru u i *ppp* *pp*

Voice 2 *pp* a ru u i

Voice 3 *ppp* a ru u i *pp* *ppp*

Voice 4 *pp* a ru u i *ppp* *pp* *ppp*

Voice 5 *pp* a ru u i *ppp* *pp* *ppp*

Voice 6 *pp* a ru u i

Voice 7 *pp* a ru u i

Voice 8 *pp* a ru u i

Sine Tones

85

Voice 1 *pp* a u ru i

Voice 2 *pp* a u ru i

Voice 3 *pp* a u ru i

Voice 4 *pp* *ppp* *pp* *ppp* a u ru i

Voice 5 *ppp* *pp* *ppp* a u ru i

Voice 6 *pp* a u ru i

Voice 7 *pp* a u ru i

Voice 8 *pp* a u ru i

Sine Tones

Detailed description of the musical score: The score is for a multi-voice setting. It begins at measure 85. The time signature is 7/16. The key signature has one flat (B-flat). The vocal parts are arranged in a choir-like fashion. Voice 1 and 2 are in the soprano range, Voice 3 in alto, Voice 4 in tenor, Voice 5 in tenor, Voice 6 in alto, Voice 7 in bass, and Voice 8 in bass. The Sine Tones part is in the bass clef. The lyrics 'a u ru i' are repeated across the vocal parts. Dynamics include *pp*, *ppp*, and *pp*. There are various musical notations such as slurs, ties, and wavy lines. The Sine Tones part consists of a series of notes in the bass clef.

89

Voice 1 *pp* ru di a ru

Voice 2 *pp* ru di a ru

Voice 3 *pp* ru di a ru *ppp* *pp*

Voice 4 *ppp* ru di a ru *pp* *ppp*

Voice 5 *pp* ru di a ru

Voice 6 *pp* ru di a ru

Voice 7 *pp* ru di a ru

Voice 8 *pp* ru di a ru *ppp* *pp* 4:3

Sine Tones

16 16 16 16 16 16 16 16 16 16

93

Voice 1 *pp* di ru a ru

Voice 2 *pp* di ru a ru

Voice 3 *ppp* di ru a ru

Voice 4 *pp* di ru a ru

Voice 5 *pp* di ru a ru

Voice 6 *pp* di ru a ru

Voice 7 *pp* di ru a ru

Voice 8 *pp* di ru a ru

Sine Tones

97

Voice 1 *pp* 4:3 i a u a

Voice 2 *pp* i a u a

Voice 3 *pp* *ppp* *pp* 4:3 i a u a

Voice 4 *ppp* *pp* 4:3 *ppp* *pp* *ppp* *pp* 4:3 i a u a

Voice 5 *ppp* *ppp* *pp* *ppp* *pp* *ppp* *pp* i a u a

Voice 6 *pp* i a u a

Voice 7 *pp* i a u a

Voice 8 *pp* 4:3 i a u a

Sine Tones

Detailed description: This page of a musical score, numbered 97, features eight vocal staves and a Sine Tones staff. The music is written in 7/16 time, with a key signature of one flat. The vocal lines are for Voice 1 through Voice 8, each with lyrics 'i a u a'. The score includes various dynamic markings such as *pp* (pianissimo), *ppp* (pianississimo), and *pp* (piano), along with accents and slurs. Time signature changes from 7/16 to 11/16 and back to 7/16 are indicated. A 4:3 ratio is noted above several notes. The Sine Tones staff at the bottom provides a harmonic accompaniment for the vocal lines.