บทประพันธ์เพลงระดับมหาบัณฑิต: “คีตคณิตแห่งห้วงเสียงยูโทเปีย” สำหรับวงเชมเบอร์อองซอมเบลอ

Master Music Composition: “The Matrix Soundscape Utopia” for Chamber Ensembles

พิมพ์รพี ไตรชวโรจน์*[1] วีรชาติ เปรมานนท์[2]
Pimrapee Trichavaroj*[1] Weerachat Premananda[2]

บทคัดย่อ

“คีตคณิตแห่งห้วงเสียงยูโทเปีย” สำหรับวงเชมเบอร์อองซอมเบลอ เป็นบทเพลงนวัตกรรมทางดนตรีที่ได้รับแรงบันดาลใจจากแนวคิดที่ซับซ้อนจากนักประพันธ์เพลงในศตวรรษที่ 20 ที่ผู้ประพันธ์สนใจมาต่อยอด ในยุคนั้นได้มีนักประพันธ์สร้างสรรค์นวัตกรรมทางดนตรีเพื่อสร้างดนตรีโดยนำองค์ประกอบทางดนตรีมาใช้ผสมผสานกัน เช่น จังหวะ ระดับเสียง การประสานเสียง สีสันของเสียง คิดค้นเครื่องดนตรีใหม่ๆ โดยผู้ประพันธ์ได้คัดเลือกตัวเลขบางตัวขึ้นมาโดยตัวเลขจะถูกตีความใหม่โดยผู้ประพันธ์เป็นแนวคิดหลักในการประพันธ์ โดยแบ่งออกเป็น 4 ท่อน แต่ละท่อนจะใช้ตัวเลขของท่อนนั้นเป็นแนวคิดหลัก และ มีเอกลักษณ์เฉพาะตัวคือนวัตกรรมทางดนตรีที่นำมาต่อยอดที่แตกต่างกัน ใช้จำนวนเครื่องดนตรีต่างกันเพื่อให้สีสันที่แตกต่างกันโดยเลือกใช้ตามความเหมาะสมของแต่ละท่อน โดยบทประพันธ์นี้จะใช้สังคีตลักษณ์ซ้ำความเพื่อเชื่อมโยงบทประพันธ์ในแต่ละท่อนให้มีความเป็นอันหนึ่งอันเดียวกัน

คำสำคัญ: ยูโทเปีย / คีตคณิต / วงเชมเบอร์อองซอมเบลอ

* Corresponding author, email: primloveviolin@gmail.com

[1] นิสิตปริญญาโท หลักสูตรศิลปกรรมศาสตร์มหาบัณฑิต คณะศิลปกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

[1] Master’s Degree Candidate, Faculty of Fine and Applied Arts, Chulalongkorn University

[2] อาจารย์ที่ปรึกษา ศาสตราจารย์ คณะศิลปกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

[2] Advisor, Prof., Faculty of Fine and Applied Arts, Chulalongkorn University

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Abstract

The Matrix Soundscape Utopia for Chamber Ensembles is innovative music inspired by the sophisticated and logical concepts of the 20th Century composers. Numbers of 20th century compositions manipulated the music elements such as rhythm, pitch, harmonization, tone colors, and experiencing the new invented instruments to create new compositions. The composer came up with numbers that were selected and reinterpreted, whereby the composer's concept was represented as the main idea composition. The numbers were divided into four movements, each having the matrix movement as main idea. The character of each movement also expanded upon different musical angles as well as the number of instruments and created the tone color to create unique tone color of each movement. Cyclic form was utilized in creating the unity among movements.

Keywords: Utopia / Matrix / Chamber Ensembles

Introduction

"The Matrix Soundscape Utopia" for Chamber Ensembles is a composition that expands upon sophisticated musical innovations wherein certain numbers are selected and reinterpreted by the composer and used as main ideas. The composition is approximately 20 minutes. The term 'matrix' refers the numbers designated to each movement in the piece. The word 'utopia' in the title of the composition refers to a book called 'Utopia' by a British author Sir Thomas More. The book examines an imaginary world called Utopia which has an ideal society. The realistic description in the book is achieved by referring to actual persons, places, and historical events. Nevertheless, More's story is made up purely of his own imagination. Likewise, this musical composition also created from the composer's imagination and achieves realistic feelings by using common music composition techniques. The composition

uses cyclic form, and its structure is divided into four movements where each movement modifies elements of the previous one subtly in volume, creating unity between the movements.

Objectives of the composition

1. To study and gain understanding of musical innovations.
2. To compose new music by expanding upon those musical innovations.
3. To analyze the results of musical experiments performed using the innovations.
4. To provide audiences with more casual access to sophisticated musical concepts.
5. To expand musicians' skills in playing and studying principles of contemporary compositions.

Research method

1. Study information on musical innovations from several sources and further analyze them.
2. Plan the first theme, second theme, harmonization, rhythmic progress, and musical form.
3. Consult with the advisor.
4. Compose using cyclic form and characteristics of numbers.
5. Write the complete score and parts.
6. Print and present physical copy of the thesis.
7. Publishing the information on YouTube, as well as in print.

Explanation of the composition

1. First movement 5 "Raining"

The movement was composed for string quartet and piano, The movement was composer's interpretation of the rain in the fifth month of the year through using

elements of the number “5” such as the 5/4 time signature, 5 musical instruments, and quintal harmony. Aleatory music was used for some choice of the notes to represent the unpredictable nature of rain. To stay consistent with the theme of fives, the composition was deliberately made to be around five minutes and fifty-five seconds. Added tapping and time-keeping by the conductor will help to maintain the exactitude of the piece’s timing.

The composer the concept of aleatory music for the selection of note in certain parts to represent the unpredictable fall of raindrops. The 5x5 grid has been used in the process of choosing the notes and extended techniques by randomly select a number from 1 to 22 in order to decide the pitch. Each instrument will use its own clef, so the number 1 to 22 does not represent the same pitch for all instruments. The 5x5 grid was turned in all directions of which each direction represents one measure with 5 quarter notes or the 5/4 time signature. The purpose is that performers randomly choose a number from 1 to 5, and play the indicated extended technique. The method for choosing can be any method that could ensure that one number from 1 to 22 and one number from 1 to 5 are randomly chosen with the same probability, such as random number generator program or pulling lottery from one box that contained the number of 1 to 22 and the other of 1 to 5. The notes in this version of composition are the result of the randomizing done through the method. (Figure 1 and Figure 2)

Figure 1: 5x5 grid is used for randomization of pitch and extended techniques.

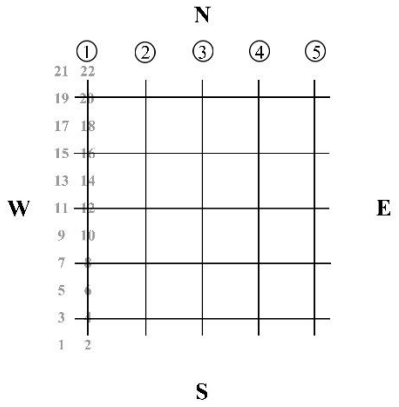
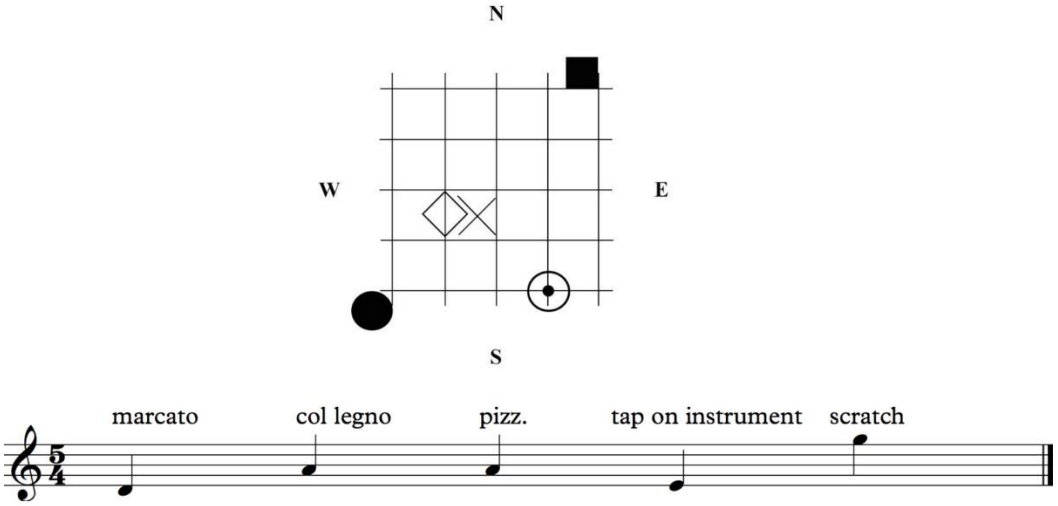
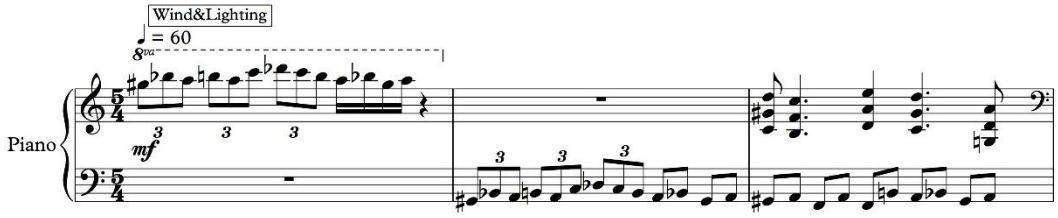


Figure 2: 5x5 grid that has been selected at random by the composer.



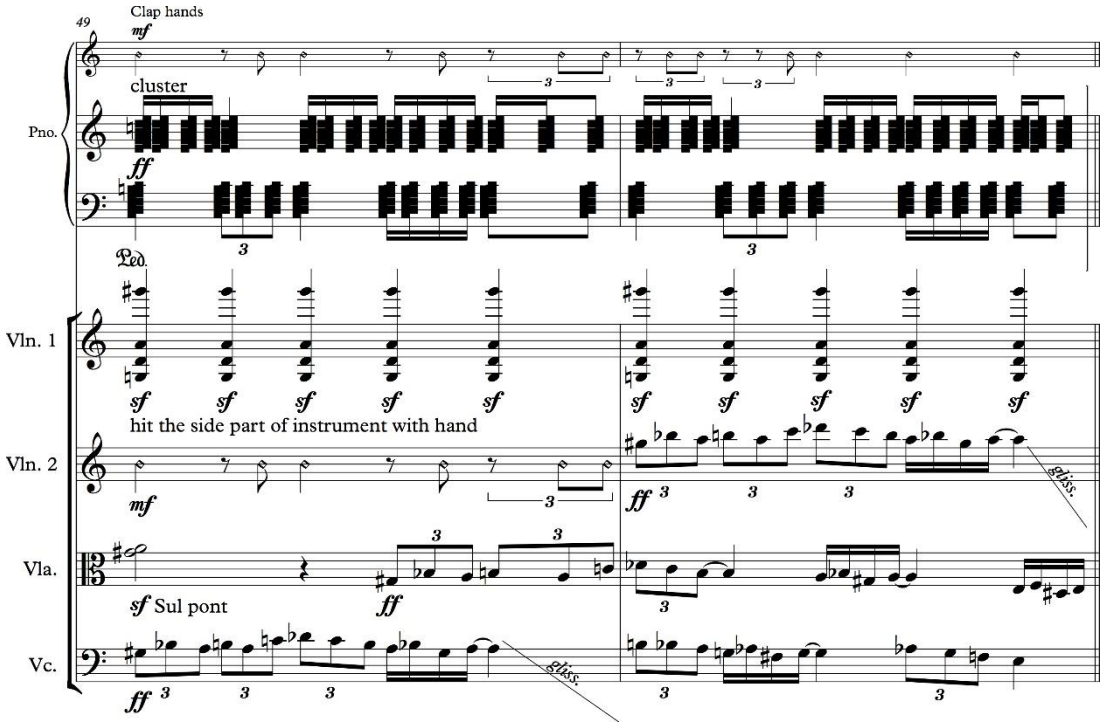
The composition starts with a slow tempo of 60 beats per minute with 5/4 time signature without key signature. The first measure starts with the theme played by the piano which represents the showering of rain and repeated with a slight change in rhythm toward the end of the second measure, followed by the insertion of quintal harmony played by the Ostinato. The Ostinato employed on the first beat is extended into the third measure (Figure 3)

Figure 3: Measure 1-3, the main melody is played by the piano to represent showering rain.



To represent the sound of falling rain, the notes increase in density as the number of instruments and the volume also increases. This concludes with glissando on the piano strings to imitate the sound of thunder. The piano will play solo to represent constant rainfall. The strings alternate between pizzicato and tremolo, depicting wind patterns during rain showers. The atmosphere intensifies into a peak, found at the cluster in measure 49. Here, every instrument will play the melody in incoherent manner to signify the harsh, incomprehensible fall of the rain (Figure 4). Everything then calms down as the intensity of the rain decreases. The rainwater is flowing from higher ground downward. The musicians make sibilant sound then return to the theme which gradually becomes softer, alternating between the thunder sound made by gentle glissando on the piano strings.

Figure 4: Measure 49-50 represents harsh rain fall, with incoherent and incomprehensible sound of several instruments.



2. Second movement: “2 Eyesears”

This movement is for flute, clarinet, violin, and cello. This movement focuses on the eyes and ears, two organs that are essential to experiencing music. Elements of the number 2 is used in this movement such as 2/4 time signature, second intervals, binary form, using Dorian mode, use of the D Major scale (the second note from C), and sound mixing through the use of a binaural microphone to generate intriguing three-dimensional sound. When the composition is performed live with instruments, the audience would be able to see the musician’s movement towards both microphones. This enhances the performance by giving it a both visual and aural elements.

Setting up the binaural microphones can be done in several ways with varying effects, depending on the performer’s preference. For this composition, two

microphones were used per performer. All musicians performed simultaneously in the same space, seated 1.5 meters apart. One microphone was placed on the left, and another on the right, each forming a 45-degree angle. The left microphone was set to only send the signal to the left monitor, and the right microphone only to the right monitor. The monitors were placed facing the audience at a 30-degree angle. One limitation of live performance of this pieces is the fact that a significant amount of particular equipment is required such as microphones and monitors which should be more than five inches in diameter. Another limitation is the number of seats for the audience. In order to have the best listening experience, the audience should sit approximately halfway between the two monitors. For this reason, recording provides clearer dimensions to the sound. Initials and arrows have been designated to show the directions in which musicians should move their instruments. (Figure 5 and Figure 6)

Figure 5: The stage positions of the instruments.

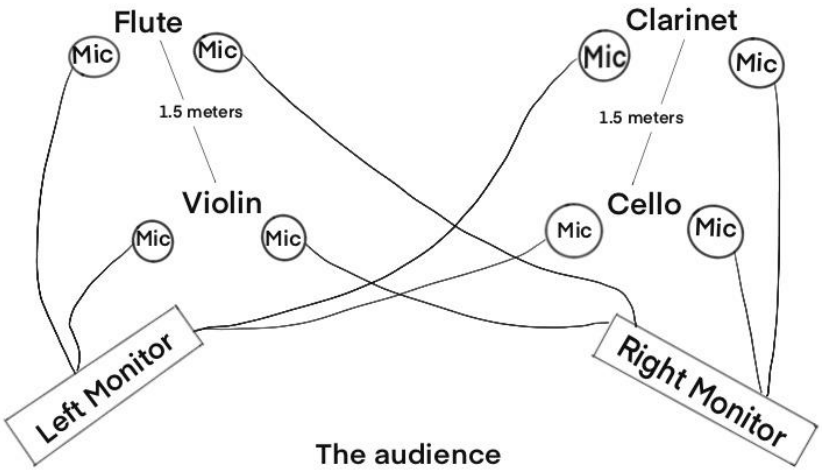
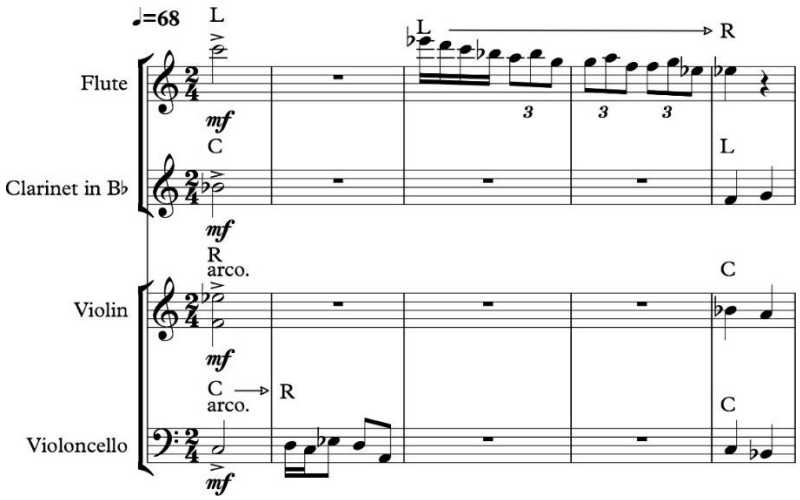


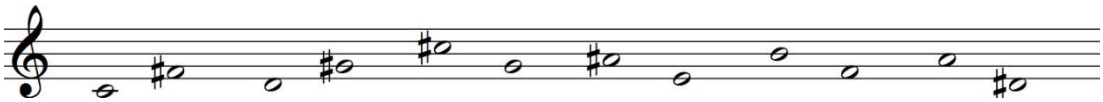
Figure 6: Measures 1-5 of the first theme. Sound would be projected in all directions in accord with the notes, creating a feeling of constant motion



3. Third movement: "12 Tone Clock"

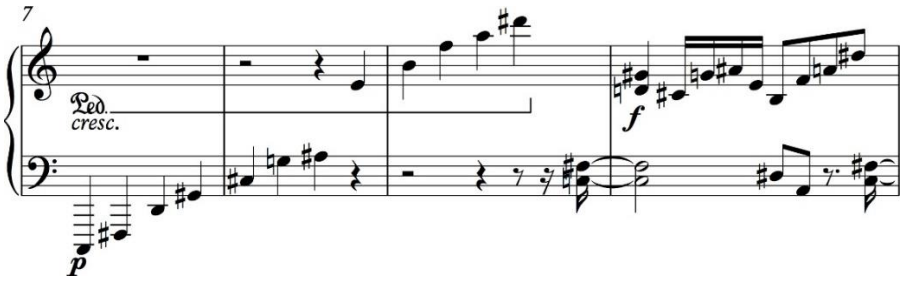
This movement was composed for four-hand piano, "12 a.m. to 12 p.m." The experience of insomnia and hallucination are incorporated into this Program Music. Core elements of the movement revolves around the number 12, such as Tone Clock, Twelve-tone Music, the division into twelve sections (each representing an hour) equal to six measures overall, and one conclusion- thirteen parts in total. A Bb0 note is played with the prepared piano technique as a separator between each part to depict the sound of an antique clock's bell signaling the time. Two periods of time are presented: nighttime from 12 a.m. to 6 a.m. which uses ascending pitch collections, and daytime from 6 a.m. to 12 p.m.

Figure 7: The composer has designed a twelve-tone row for this movement by starting from C. Each note is three to six semitones apart.



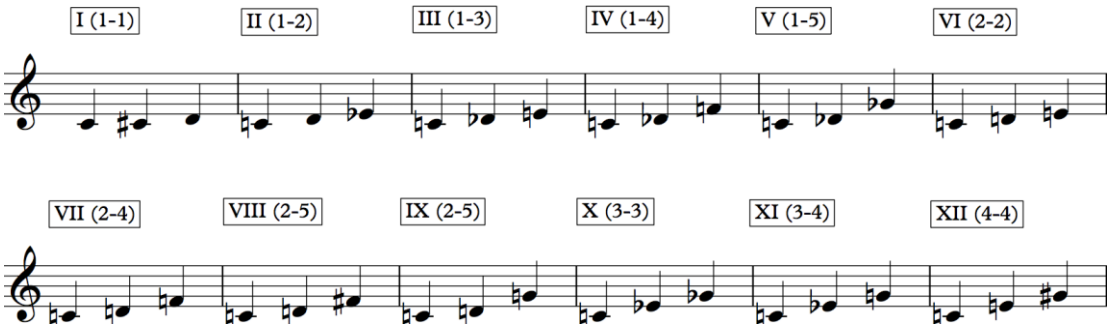
Before playing, the prepared piano would be set up by placing a large screw between the Bb0 to C1 strings. A large screw is needed to compensate for the considerable space between strings. To depict the sound of the bell of an antique clock's alarm, the music starts at Section 1 with a quarter-note beat at 120bpm in 4/4 time signature with 12 Bb0 notes to signal the time of 12 a.m. Each note takes one second when played with half notes. Afterward, the theme is played scaling up the twelve-tone row. The theme uses the rhythm adapted from the second movement which is a cyclic form (Figure 8).

Figure 8: Measure 7-10, the theme which scales up the twelve-tone row.



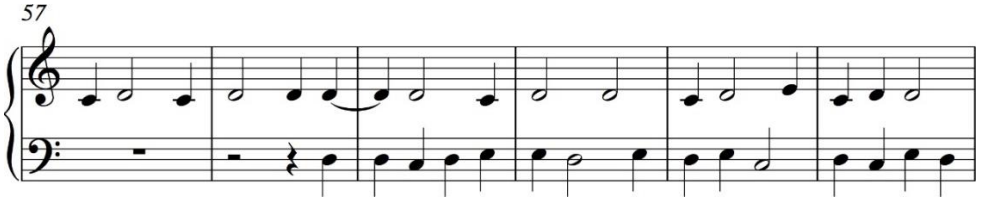
Each section and triad of the tone clock represents one hour. They are built from C, which functions as the tonic. Each hour indicates a semitone to be played on top of the original note. Each instance of the number "1" indicates that each added note or notes are related by a semitone. "2" indicates that the added note or notes are related by two semitones.

Figure 9: 12 hours of the tone clock are triads which uses mainly the note C.



Section 2 presents the hour of 1 a.m. by using the triad of the tone clock theory played in the same beat as Section 1 to create the sense of coherence. Section 3 shows the time of 2 p.m. The melody is loosely based on that found in measure 10, but made into a sequence, leading to a new melody. Section 4 enters the hour of 3 a.m., which depicts the idea of "Devil's Hour" between 3-4 a.m. according to the Christian belief. The notes are rapid, creating the energy that resembles the devil's enhanced strength during the hour. Section 5 represents the time of 4 a.m., where the composer has written the 12-tone row in retrograde and changed the original rhythm to a triplet rhythm to mark a continuation from the previous section. At this point, the time approaches where traders and merchants wake up to prepare for work. Daylight and the steady increase in activity and is represented by descending pitches. Section 6 uses an extended technique in which two piano players use wooden pencils or sticks similar in size to perform a glissando on the piano strings to imitate birdsong. Section 7 represents the time of 6 a.m. which is the time when Thai monks go out to receive food offerings from townspeople. The melody is derived from the Buddhist Anumodana chant. This chant the monk's blessing given to the donor of food, which creates feelings of calmness for many. Counterpoint is used to add complexity. This section acts as a bridge between nighttime and daytime (Figure 10).

Figure 10: Measure 57 – 62, the melody is derived from the Anumodana chanting melody.



Section 8 represents the entry into morning time. Twelve-tone rows are played in retrograde to depict daytime. 7 a.m. depicts the hurry of people on the road to

work in the pouring rain. The second pianist performs a glissando on strings to imitate the sound of the thunder. Section 9 represents the time 8 a.m. and uses the rain theme from the first movement, but is played with palm muting the piano strings to create a muffled sound similar to raindrops hitting the exterior of a car. The rain falls harder as the traffic gets worse, as the rain theme is now unmuted and played at the same time as the triad notes from the dissonant 12-tone clock. These triadic shapes represent the sounds of car horns.

In section 10 at "09:00 am" is a still, peaceful atmosphere of rainfall and traffic. The section now features ascending chromatic figures played by the second pianist. The second pianist plays the same notes, but in a higher octave and in half-time. The composer has written colliding, overlapping notes to represent a person beginning to experience dizziness due to prolonged sleep deprivation. Section 11 represents the time 10 a.m., and features a melody that uses notes from the earlier 12-tone row, but in a completely different rhythm than in any previous sections. The second pianist uses a special technique that involves playing the white note's rhythm on the piano's lid with their knuckles. This sound represents the "seconds" hand on a clock. At this point, the composer visits their personal feeling of being with themselves and pondering for long periods of time, as well as a feeling of singularity. Section 12 represents the time 11 a.m., and represents symptoms of hearing loss due to prolonged sleep deprivation. The rhythms begin to conjoin, signaled by two soundings of the note Bb, which symbolizes the alarm of an old grandfather clock. The 11 a.m. triads from the Tone Clock. This triad is built from notes C, Eb, and G (C minor). This creates a melancholy feeling, and is played by the second pianist's left hand. The chords are being played gradually lower and lower, signifying the growing intensity of sleep deprivation. Here, the composer also inserts a melody from "Thorani Rong Hai" a Thai song for Mahori ensemble that many Thais of this generation associate with sadness and death.

In Section 13, all of Section 1 is played in retrograde to end the movement with a sense of completion. The only difference is the addition of a Bb to represent the sound of the antique clock, which has been heard as a marker between sections throughout the piece. The movement ends with the pianist pressing both arms onto the keyboard of the piano at the same time to depict a person lying face down as he or she lost consciousness due to sleep deprivation. The ensemble plays by Attacca (continuing without pause) into the next movement.

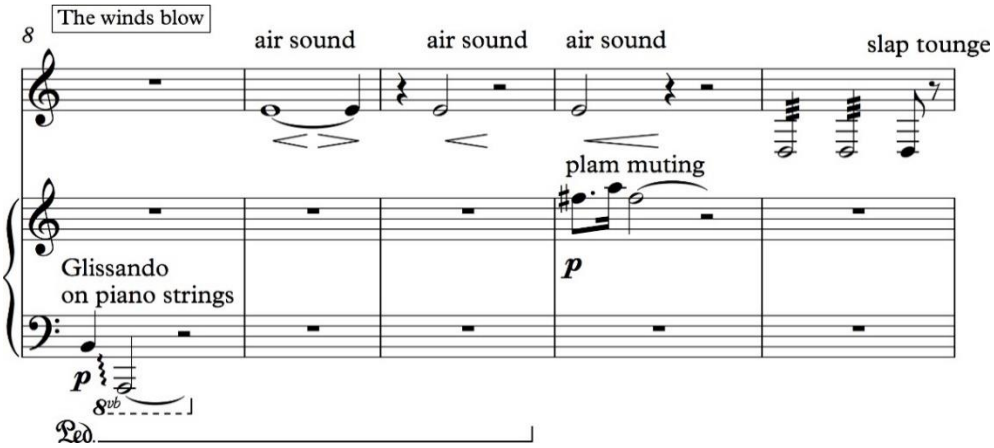
4. Fourth movement: “0 The Legend of Black Utopia”

This movement was orchestrated for piano and clarinet. The shortest of four movements, this programmatic piece is divided into three sections. Unlike the other movements, this one does not use numerological elements. The composer instead focuses on F#, the exact middle point of the chromatic scale (provided that it starts from C). This is done to create an uncertain, nebulous musical atmosphere, depicted through barely distinguishable notes. The clarity of these notes is obscured by extremely low pitch and volume levels, or special playing techniques. The title of this movement, “Utopia”, is borrowed from book of the same title by British author Sir Thomas More of the same name. The story tells of an imaginary world with an ideal society. Although it impressively realistic, it is yet unattainable in the real world. This movement presents the idea of the journey to the world of “Black Utopia”, an ideal afterlife where everyone achieves eternal bliss. The journey starts with a completely quiet atmosphere continued from the fermata at the end of the third movement. As the Black Utopia becomes closer, the theme becomes more and more melodious. Various extended techniques are performed on the clarinet and piano to portray the atmosphere of the journey.

The “Dark and Silence” section portrays the atmosphere surrounded by darkness. Although quiet, other faint sounds are still heard in the background. The sound is played at an extremely low pitch and volume level, also utilizing extended

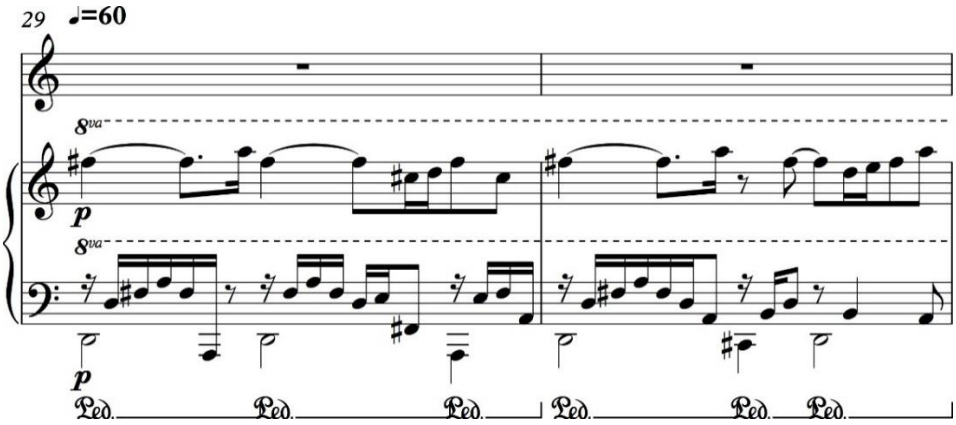
techniques, which make the notes difficult to hear. Some of these techniques include glissando on the piano strings, palm muting, tremolo on clarinet, and beating on piano strings. The “Wind Blow” section starts in measure 8. The sound of the wind is generated by performing air sound with the clarinet and glissando on the clarinet slowly. The theme of the Black Utopia can be heard starting from measure 11, and is ambiguous as the pianist uses palm muting to imitate a faraway sound (Figure 11). The theme increases in clarity in measures 13-14 as it is played with pizzicato on the piano strings, and can be heard distinctly for the first time when played on the piano keyboard in measures 21-24.

Figure 11: Measures 8-12, air sound from the clarinet represents the sound of the wind blowing.



The Utopia section starts at measure 29 with is a variation of the theme on the left hand. In measure 33, the piano performs the variation again with the clarinet playing counterpoint with staccato for added contrast and clarity (Figure 12).

Figure 12: Measure 29-30, the melodious theme with F# as a main pitch.



Although Measure 38 is still part of the "Utopia" section, the melody is entirely different. The piano and clarinet play the melody together, with slight delay. The rhythm played in the left hand is taken from section 1 of the third movement. Unlike the quietness at the start of the movement, the melody is rapid and chaotic to depict the god of the underworld confirming the dead's good deeds and sin to judge if the soul would go to heaven or hell. This is according to the belief portrayed in a prominent piece of Thai Buddisht literature, Traibhumikatha. At the moment of judgement as the souls are shown their own deeds prior to death for the last time, they are described as feeling restless. This restlessness is shown in the melody. Afterward, everything returns to serenity as all instruments decrease in volume, leaving only a low and soft F♯.

Conclusion

The composition *"The Matrix Soundscape Utopia"* for Chamber Ensembles influenced by mention examples of the composers and their works in the introductions the element of numbers is added to make the music more intriguing. The melody is clear and simple, making it easier for the general public to grasp onto. The objectives of this research are met by researching musical innovations by several 20th Century composers to gain understanding of contemporary performing

techniques. The results of the experiment were as expected and may be a subject to future study and analysis.

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