

## Between music & architecture

Federica Goffi, Isabel Potworowski & Jesse Stewart

This workshop explores musical notation as a precedent for architectural drawing. Music and architecture are both allographic arts – they are both carried out by others; the composer writes notations for musicians, and the architect draws for builders. Both musical and architectural notation thus invite participation. They anticipate sound and movement.<sup>1</sup>

Based on this commonality, first year architecture students were invited to create hybrids of a musical graphic score and an architectural drawing. Such drawings lean more towards the abstract nature of a musical graphic score (yet still contain spatial elements), or towards conventional architectural representation, such as a plan or section. Whether it is musical or architectural, the drawing-scores are designed to be interpreted musically by an ensemble of up to three musicians, while also informing further architectural development.

<sup>1</sup> Federica Goffi, “Chromesthesia and the Multiverse of Listening in Music and Architecture: Luigi Nono in Collaboration with Renzo Piano,” in *The Sound of Architecture*, edited by Angeliki Sioli and Elisavet Kiourtsoglou, Cornell University Press, 2022.

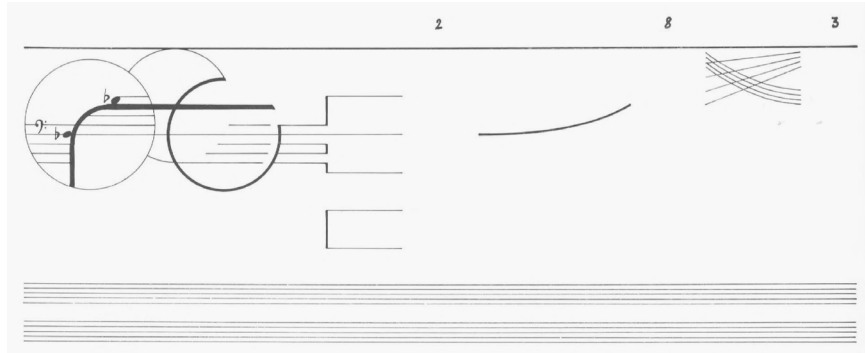
**Bachelor of Architecture Studies Students featured:** Salma Ibrahim | Vanessa Lei | Amelie Murphy | Navnoor Bahia | Gasali Abdul-Rahman | Achilla Hamilton | Sameer Patel | Monica Thompson | Morgan Brenner | Gabriel Normandeau | Leo Moon | Liam Bergeron | Nikki Sond | Nashia Williams | Casey Pantaleon | Eshum Mateen | Angela Crea | Shannelle de Croos

# Assignment outline (not shown in exhibition)

## Exercise 7: Graphic Drawing-Scores

(9% of final grade)

Due on Tuesday, October 18



Excerpt from "Treatise" by Cornelius Cardew (1967)

### Introduction

This exercise is a special workshop as part of the Agora II symposium (*Un)Common Precedents*, organized by Federica Goffi, Isabel Potworowski, Kristin Washco (CRIPTIC) in collaboration with Jesse Stewart, Associate Professor in the Music Department at Carleton University [\[link\]](#). The workshop explores music as a precedent for architectural design. Specifically, it looks at how musical notation can be a precedent for architectural design.

As Federica Goffi explains in her recent article about chromesthesia, music and architecture are both allographic arts, meaning that they are both carried out by others; the composer writes notations for musicians, and the architect draws for builders. Both musical and architectural notation thus invite participation. They anticipate sound and movement.<sup>1</sup>

*The visualizations of sound through musical scores and architectural sketches of a performance space in plans and sections can be based on sensory associations of one sense modality with another through the use of colored notations, allowing for chromesthesia—a silent color hearing through sound seeing.*

*The musical score is critical in sensing time, operating a silent listening. However, seeing the music is different from hearing the music. In musical notation, sign and signifier belong to different sense modalities—vision and hearing, respectively. Line weighted orthographic plans and sections offer the opportunity to sense the sequencing of spaces and events synchronically, opening the gaze to the temporal aspect of architecture. Horizontal and vertical sections reveal*

<sup>1</sup> Federica Goffi, "Chromesthesia and the Multiverse of Listening in Music and Architecture: Luigi Nono in Collaboration with Renzo Piano," in *The Sound of Architecture*, edited by Angeliki Sioli and Elisavet Kiourtsoglou, Cornell University Press, 2022.

*the thickness of time, defining what I like to call 'chronosections'—drawings that allow us to be here and there, in the before and after, at the same time.*

*The gap between score and music is a listening space open to performers' interpretation, not unlike the translational gap between drawing and building. While sketches and drawings release immediate sensory content in drawn music and architecture, they also relay a delayed sensory content: the performance or the executed architecture.<sup>2</sup>*

Thus, musical scores and architectural designs have much in common: both are blueprints for particular kinds of sensory and aesthetic experiences; both use graphic notations to communicate information to would-be interpreters of the drawn and scored signs who translate the information into a new medium in space and/or time. In the context of this course, you are encouraged to think of musical scores in relation to architectural design. For example, how would you notate particular sounds that are to be played in a performance space in your dream house? How might this notation suggest an architectural space? How would you draw the rhythms and movements of walking through or living in the dream house? Such drawings-scores can be interpreted as both architectural and musical pieces of design and sound notation, and may serve as inspiration for further design development.

### Task

For this exercise, you will be asked to develop an architectural drawing which is also a graphic musical score.

Taking inspiration from the examples of graphic musical notation shown by Dr. Jesse Stewart, as well as architectural examples of notation and visualization of sound shown during the lecture, please develop a graphic musical-architectural drawing-score. The drawing should be a hybrid between a musical graphic score and an architectural drawing. It can lean more towards the abstract nature of a musical graphic score (yet still contain spatial elements), or towards conventional architectural representation, such as a plan or section. Whether it is more musical or architectural, the drawing-score should be designed to be interpreted musically by an ensemble of up to three musicians. You could include a short description or interpretative key for your score.

The drawing-score should be based on one of your previous exercises (11, 10 or 8). When translating your chosen exercise into a spatialized graphic score, it might be helpful to focus on one musical parameter in particular (defined as any attribute of sound that can change over time, e.g. rhythm, pitch, timbre, temporal density). Some of your drawings in this course may lend themselves to musical interpretation more than others. For example, do any of your previous exercises in the course convey a particularly strong sense of rhythm or explore different densities of visual information (dots, lines, etc.) that could be translated into different densities of sound? Given the subjective nature of graphic score interpretation, the duration of performances of your drawing-score will vary, but you should aim to create a drawing-score that can generate a performance (and sustain interest) for at least 2 minutes. Assignments will be graded based on creativity, the aesthetic quality of the score, and the degree to which the graphic score realizes your intentions and provides a compelling experience for would-be performers and audience members.

### Deliverables and guidelines

- Your graphic musical score can be any size, but should be legible by musicians
- Interpretative key or short description
- Musical scores must be drawn by hand

<sup>2</sup> Ibid.

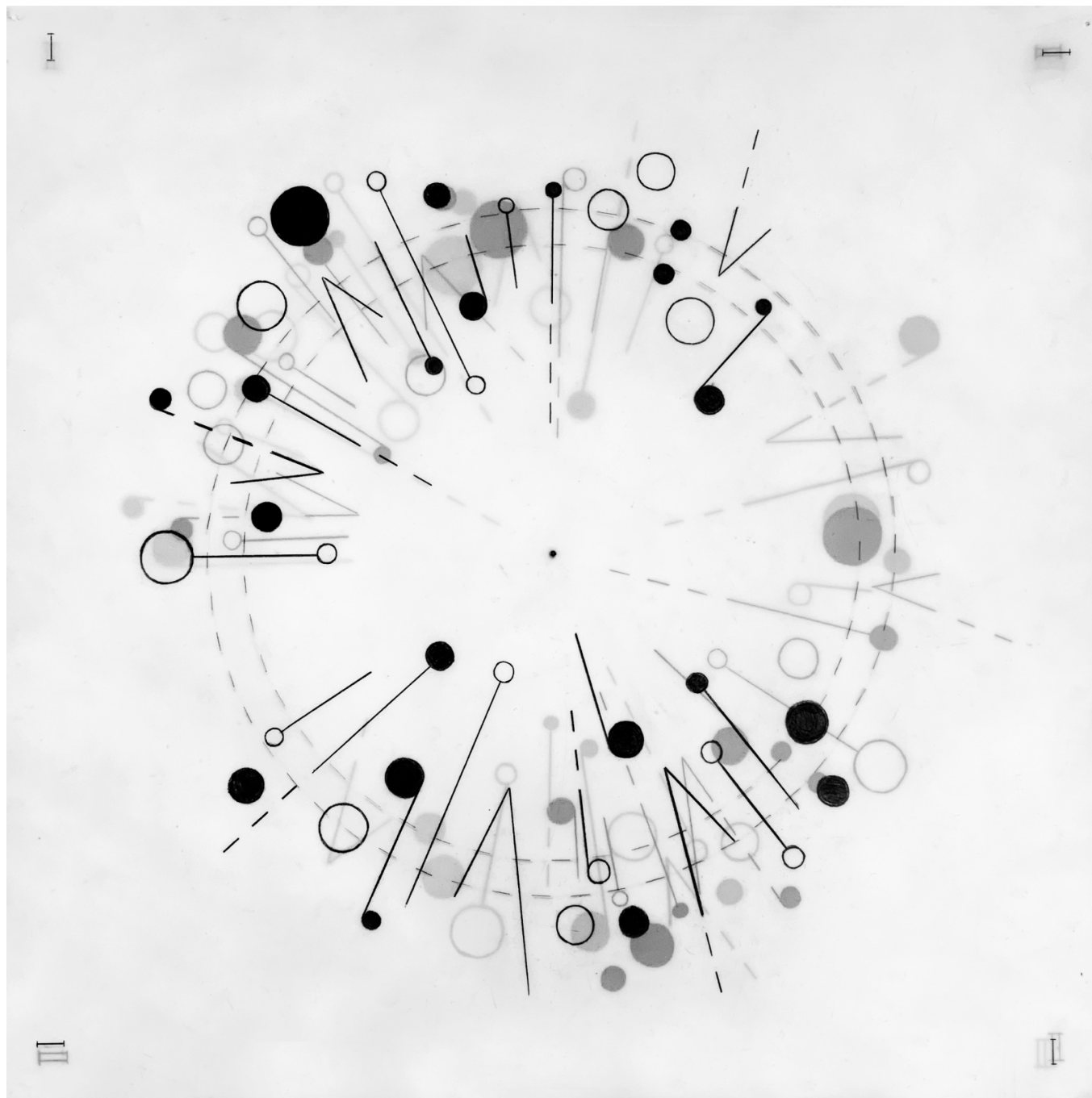
# Nikki Sond

- Whole note
- Staccato note
- Continuous sound
- - Change in tempo
- ∨ Progressive rhythm

From top to bottom, sheets are played from forte to piano, respectively

Each sheet can be oriented in four different ways

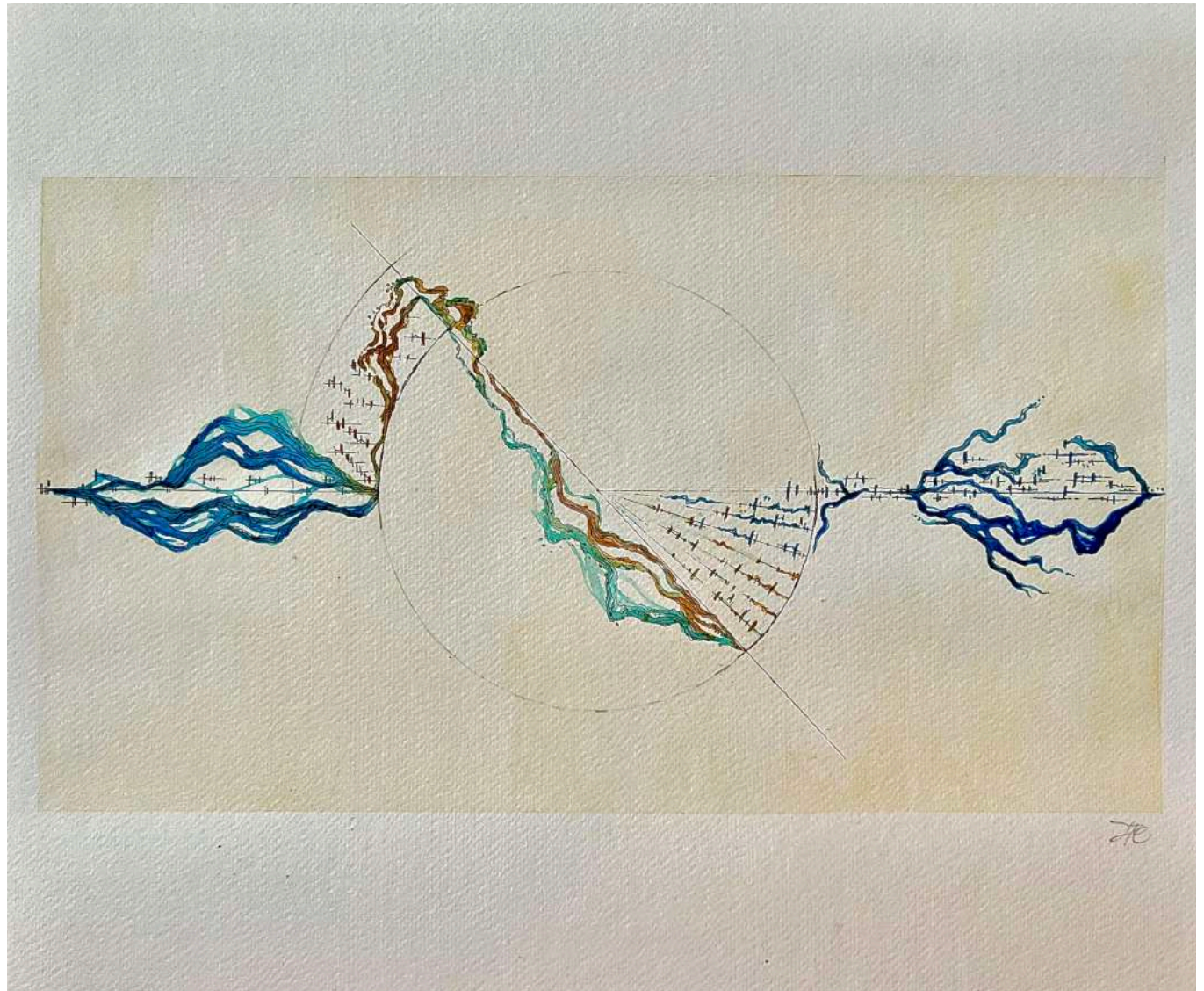
Music is read in a clockwise direction, beginning at the 12 o'clock position



## Liam Bergeron

For the graphic score, my goal was to compose a piece reflecting a view of the ocean during a 24-hour period. The work would start during the first midnight and end on the second midnight, 24 hours later. To create contrast and clear division in the song itself. I used differed depictions of lines and the use of colour variation to show changes in instrumentation and sound. The density of lines translates to the richness of the sound and the colours are a show of mood. The musical portions of the score are also meant to show an abstract interaction between the dock and the oceans

during the aforementioned 24-hour period.



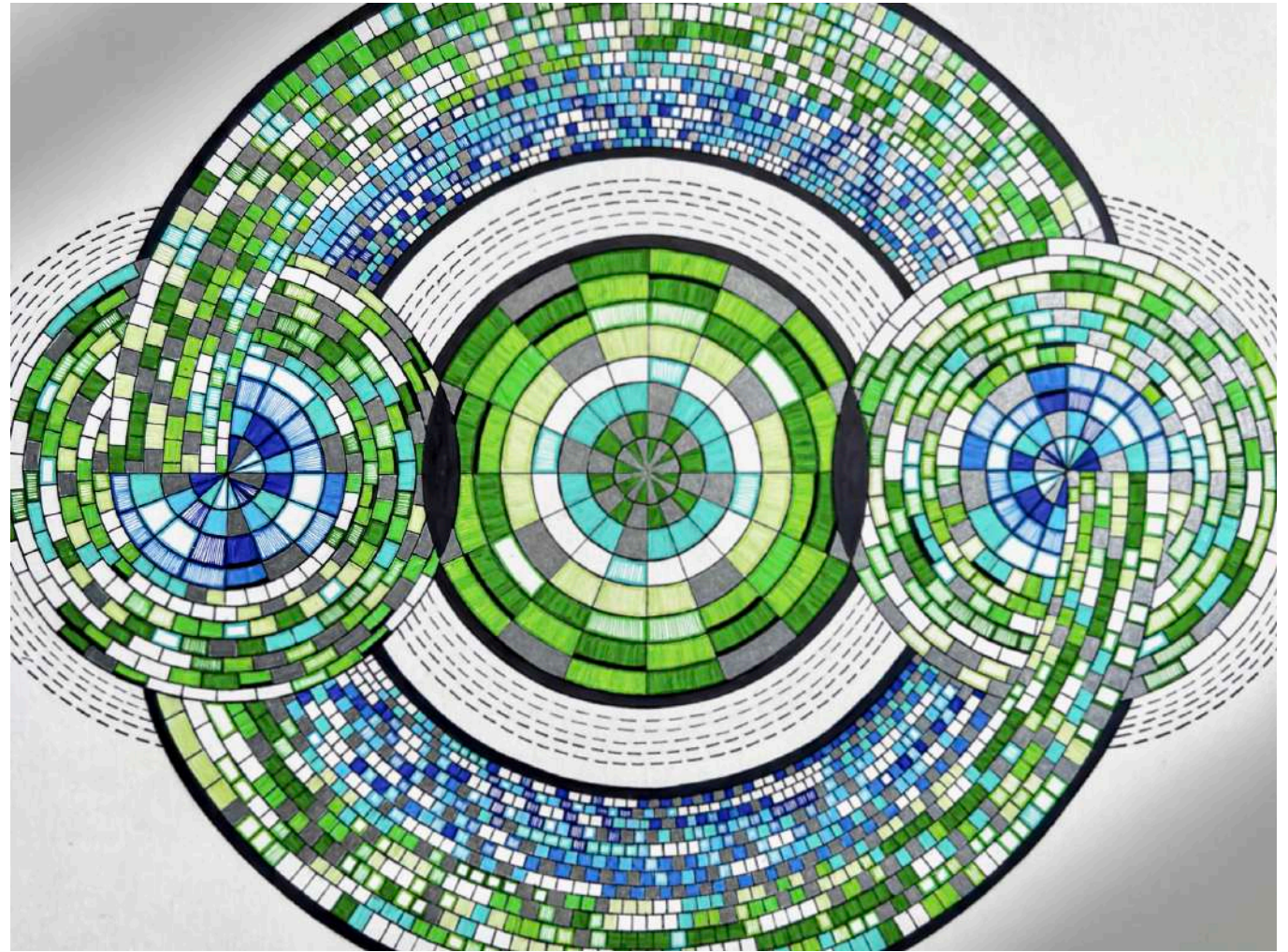
## Casey Pantaleon

The largest circle represents the entire ensemble of the orchestra and should be read from left to right. The top portion of the circle is played by one part of the band and the bottom half is played by the other half. There are 3 small circles marking the different movements within the song. They are meant to be played by soloists.


The colours in my piece represent instruments. The blues represent wind instruments and greens represent string instruments. Lighter shades represent instruments that are higher in pitch and darker shades are for those with a lower pitch. The dashed lines around the circles represent percussion and the main rhythm that should be followed.


The number of bands wrapping around the circle represents the musical staff. The blue and green bands should be viewed as separate staves as they are played by different kinds of instruments. They represent the musical staff, but musicians can add notes above the circle to indicate changes in register.


The square-like shapes within the bands represent the instrument playing for the length of the note. The squares that are filled in are to be interpreted as longer, fuller notes and those that have tiny lines within them reflect fast, short, and dry notes. White squares indicate to stop playing and silver squares represent the choir and their changing of harmonies.




# Salma Ibrahim


 Water steps/splash

 Loud waterdrop


 Water ripple sound

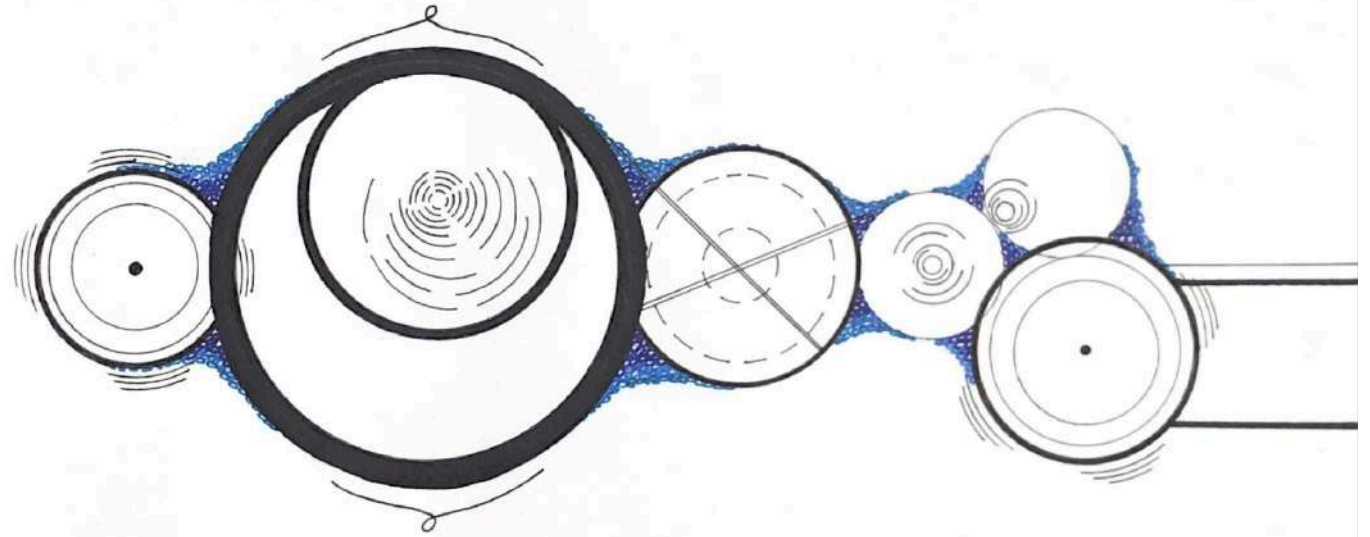
 Medium waterdrop

 Quiet waterdrop

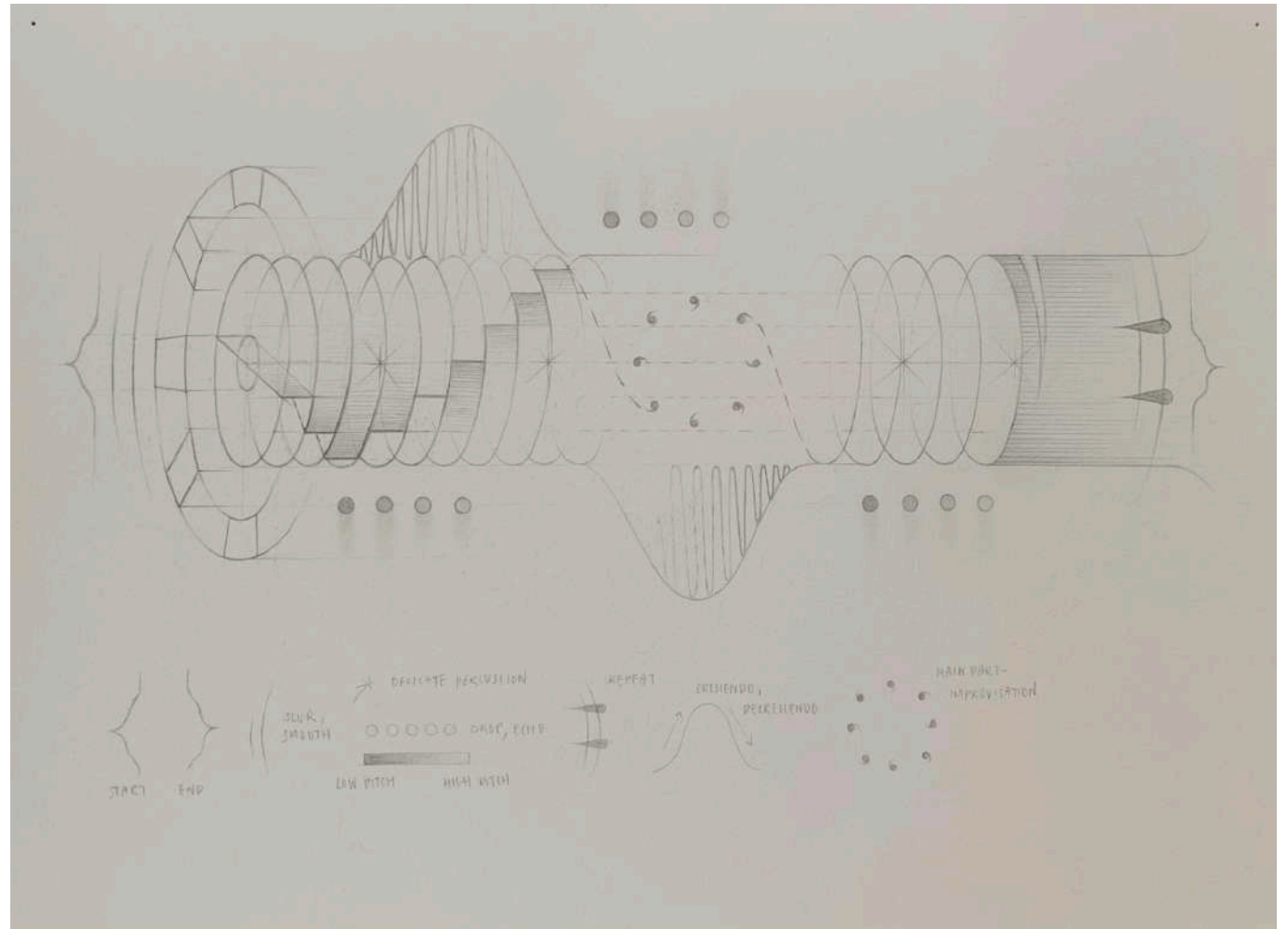
 Water vibration

 Loud wave

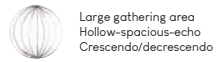
 Raindrop



■ Vanessa Lei



# Amelie Murphy



Large gathering area  
Hollow-spacious-echo  
Crescendo/decrescendo



Busy, condensed area  
Socialization-loud  
Forte



Intimate area  
Closed-secluded-  
isolated  
Mezzo piano



Corridor  
Long-closed-dimmed  
Lowest note possible

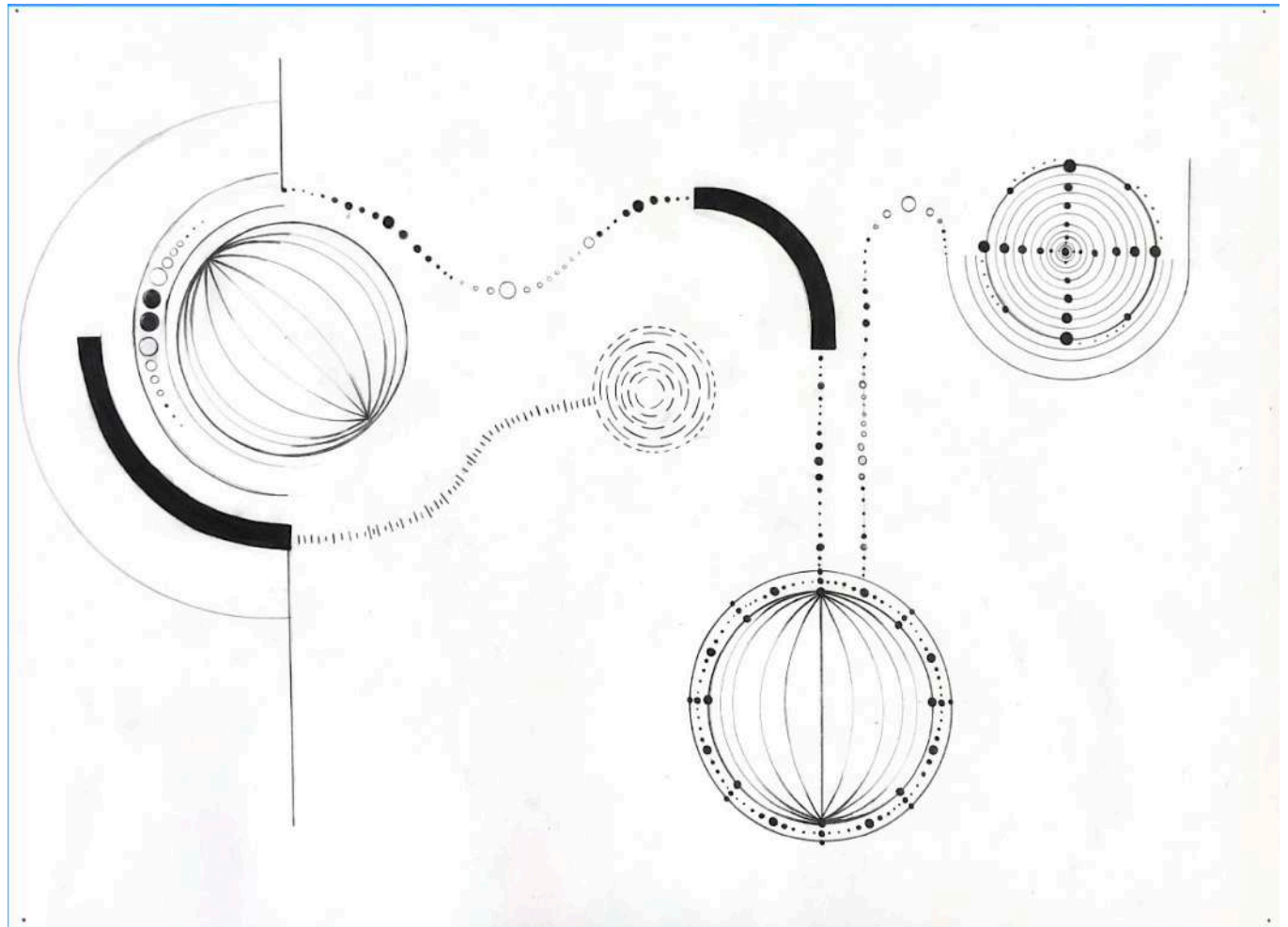


Guided pathway  
Structured-aisle  
Staccato



Personal spatial  
experience  
Emotion  
Single note

The entire piece is meant to have a hollow feeling, with many repeating areas. From a playable standpoint, I imagined the performers using various string instruments to create an airy feel. On the other hand, architecturally, the different circles represent gathering spaces and the depth corresponds to the more densely populated environments. Meanwhile, walking pathways created of single, dotted lines are meant to guide the viewer through the space. The choice to use graphite and plain paper without colour kept to the running theme of simplicity, balance, and delicacy. To summarize, the music and the atmosphere created are meant to coincide into a breathable space.

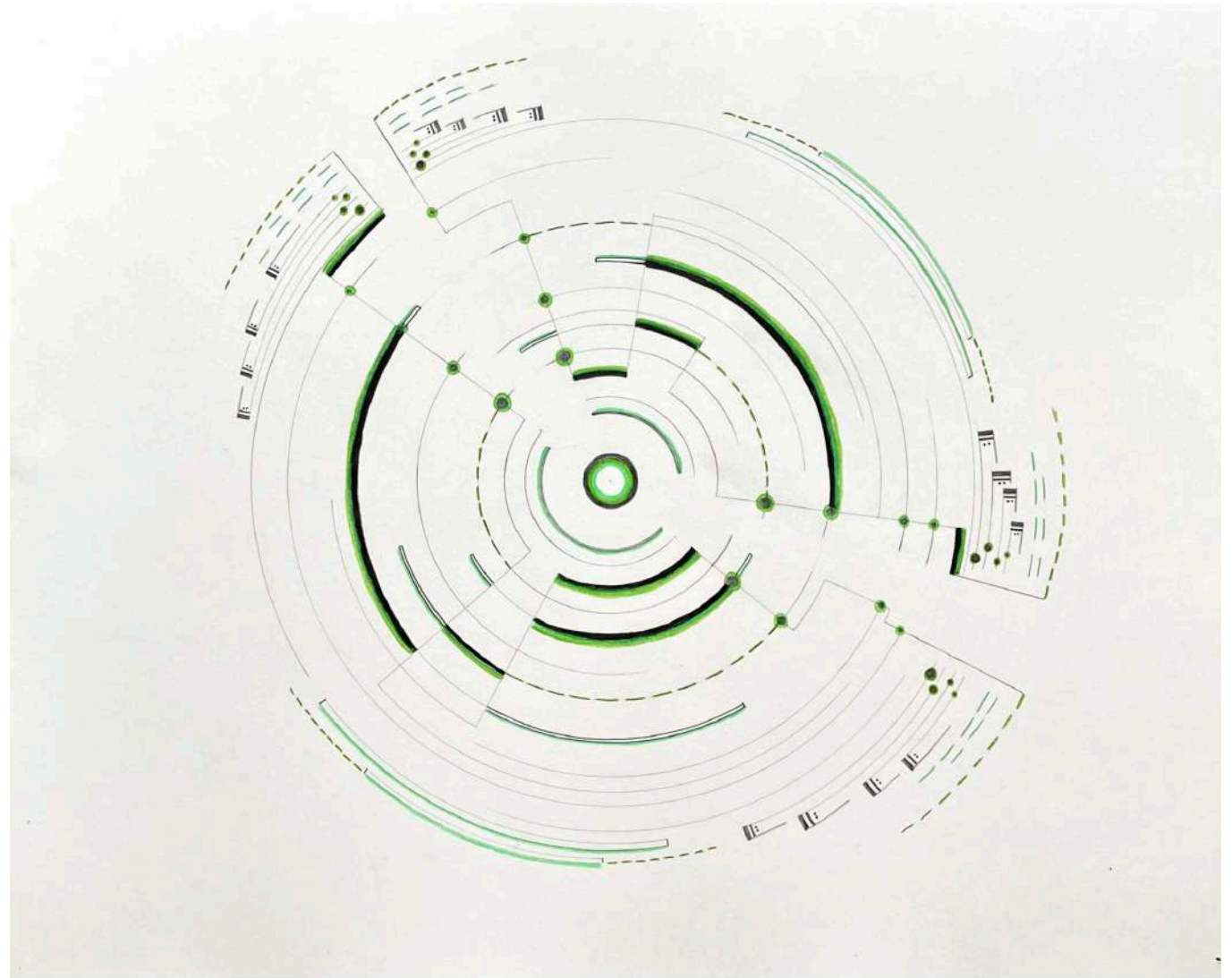


# Navnoor Bahia

-  Dirt paths (1/4 note)
-  Sidewalks (1/2 note)
-  Main streets (whole note)
-  Roads (tie)
-  Campus buildings (loud tone)
-  Residence buildings/homes (soft tone)
-  Traffic lights (whole rest)
-  Parking (repeat)
-  Architecture building (treble or G clef)

Each item has an architectural meaning which can be connected to musical concepts based on its function.

Musical notation can be read starting from the centre.



# Gasail Abdul Rahman









## The Wave Rhythm

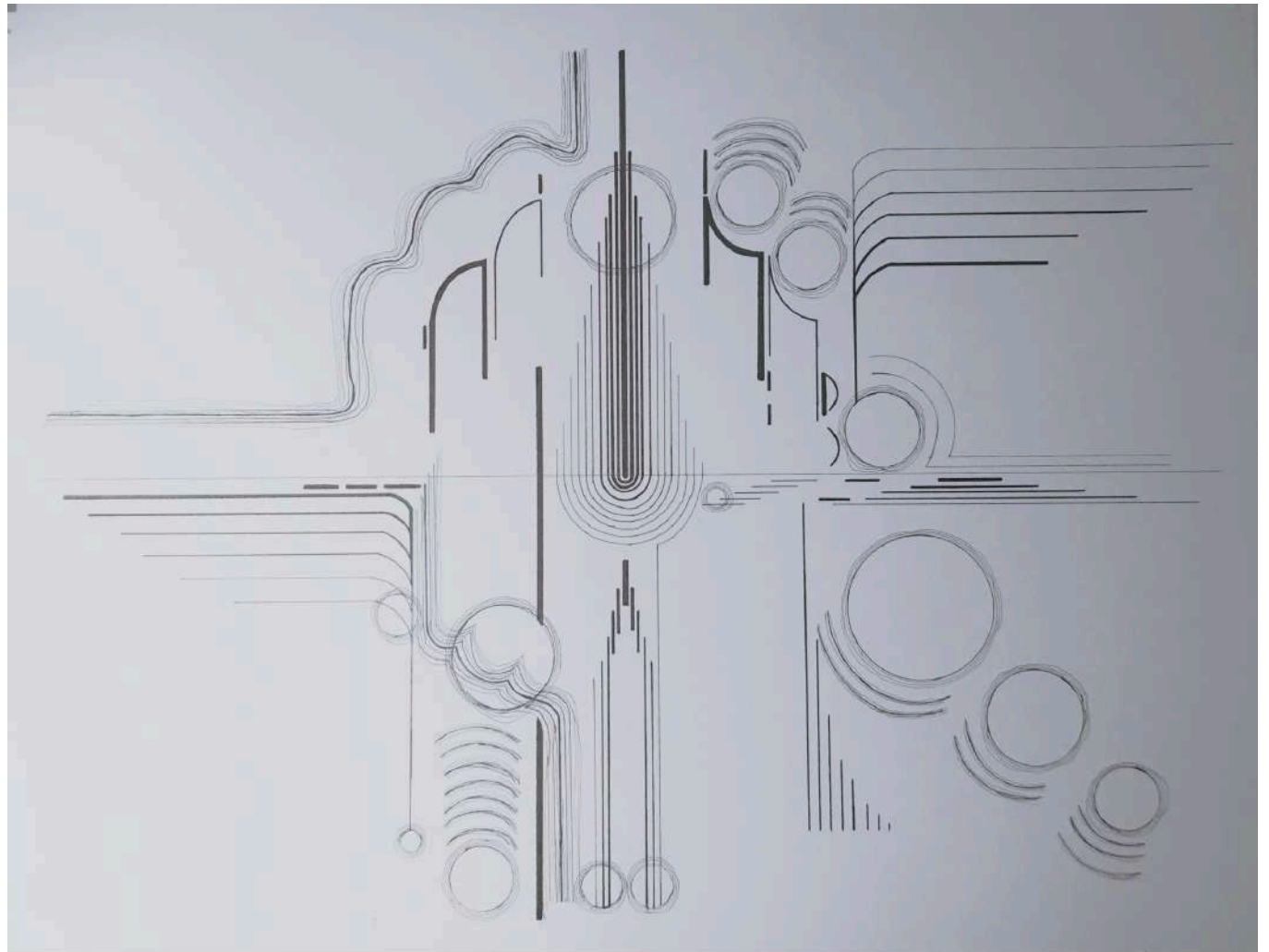
Dashed lines show unspecified connections between notes allowing suggestions from different musicians and their instruments. Each symbol for notes also hints at the continuous progression of a line into shapes and their corresponding vertices, providing a basic guide for various imaginative musical interpretations of the score.

**LEGEND**














<b>NOTE</b>	High Low 1 2 3 4 5 6 7	<b>DURATION</b>  1 2 3 4	<b>ACTION</b>  START/END REPEAT TRANSITION INTERCHANGEABLE
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# Achilla Hamilton

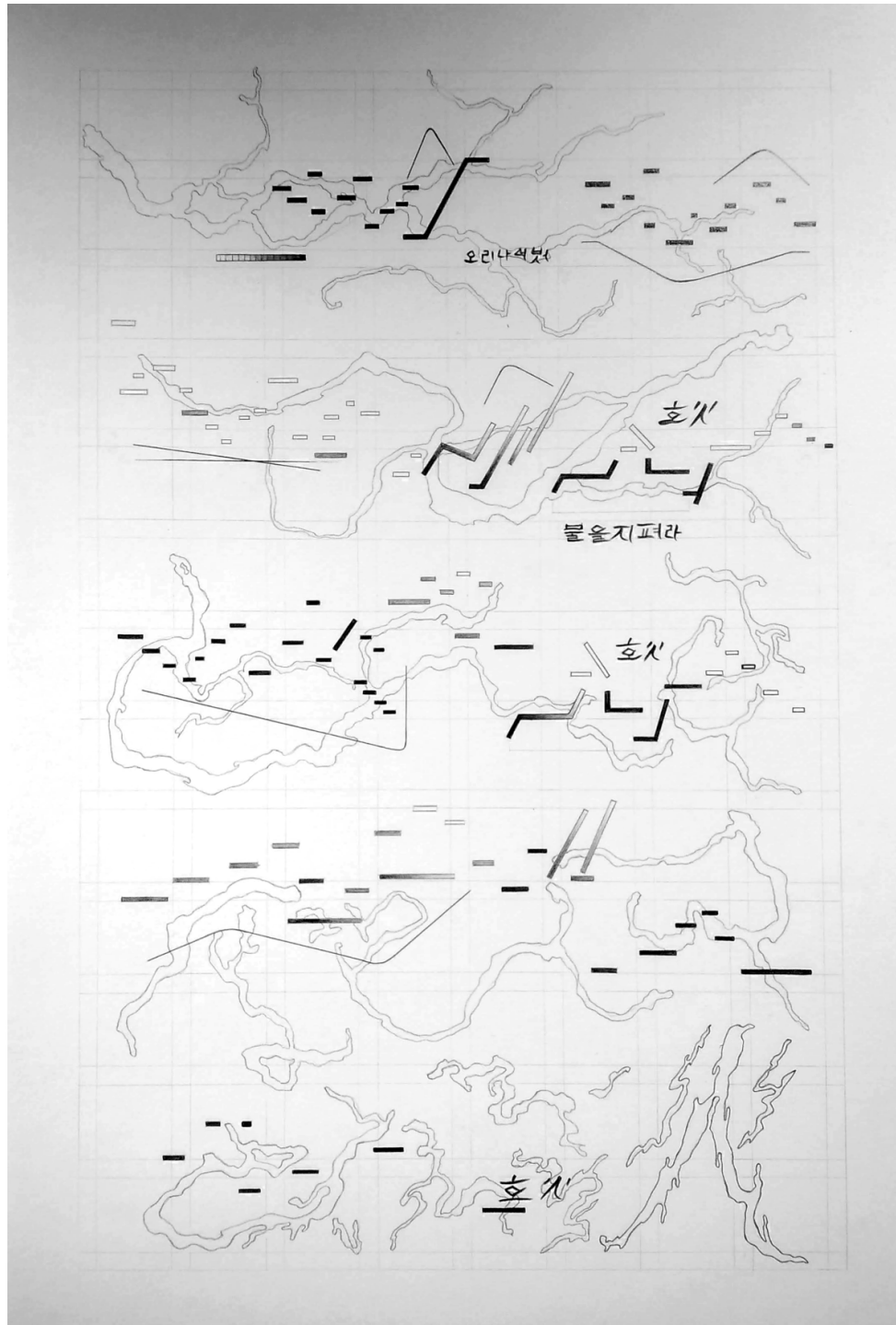
	Droplet		Fortissimo
	Droplet fades in background		
	Ripple		Strong
	Blowing wind		
	Drip		Moderate
	Running water		
	Growing river		Piano
	Rain		
			Leggiero



# Sameer Patel

-  Beginning of the score
-  Full vocal tone
-  Hollow/airy tone
-  Medium full tone
-  Transitional tonal progression
-  Length of each rectangle represents the sustained note
-  Slurs of a note/bars
-  Crescendo
-  Pitch rise
-  Slower progression
-  Treelike elements represent the bars of the score
-  Treelike bars transform into flames at the end of the score
-  Highlighted lyrics of the chosen song

This is a thematic, visual, and auditory simulation of a song called Hwaa. This song explores the metaphorical change of winter to spring as a representation of a relationship. I wanted to develop this idea of creation and the concept of death to life with the use of the musical staff. I chose to use the forms of tree branches that are represented in the visuals of the song to show the bare winter-like theme. The progression of the music score staff transforms into flames at the end to acclimatize the song's ending instrumental. The other main element of the graphic score is the vocal qualities of each note sung is represented by the opacity of each slab. Increases in volume and chord progressions are visualized by angled slabs. Overall the thematic presence from the song into the graphic score is heavily conceptual rather than a physical piece to play.



# Monica Thompson



Violin



Cello



Violin vibrato



Viola



Viola pizzicato

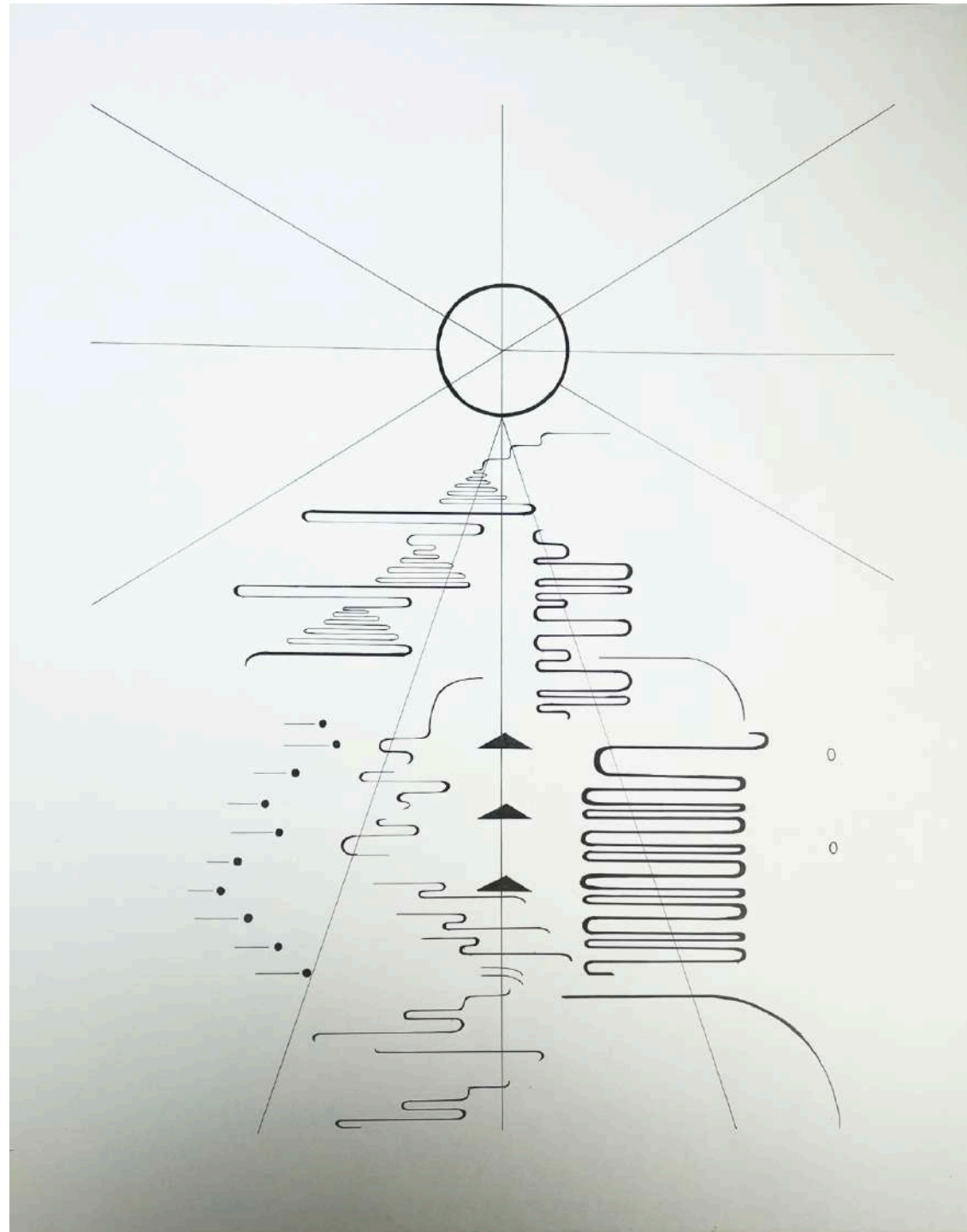


Bass



Col legno battuto

The song I desired to emulate in my graphic score was composed entirely of string instruments, so I utilized curved lines that oscillated representing the bow moving up and down along the strings, as well as vibrato in certain sections. The triangular shaper represent a violin technique called *col legno battuto*, in which the strings are struck by the wooden section of the bow. The technique creates a harsher sound, so I used a triangular shape, commonly associated with aggression. The song I envisioned started tenser and subsequently metamorphosed to a lighted, calmer, and airier sound. My graphic score is played by reading the page rotated 90° clockwise, but it's displayed this way to show the notes rising toward the sun.



# Morgan Brenner

I envisioned the sound of the music as it is being played through the tunnels of the straws. Architecturally, I perceived it as a large building with many interconnected spaces within which to walk through as one pleases spending a specific amount of time in each. I took inspiration for the graphic scoring techniques from two Polish composers, Krzysztof Penderecki and Wlondzimirz Kotonski who focus their work in changing line weights, lengths, and heights.

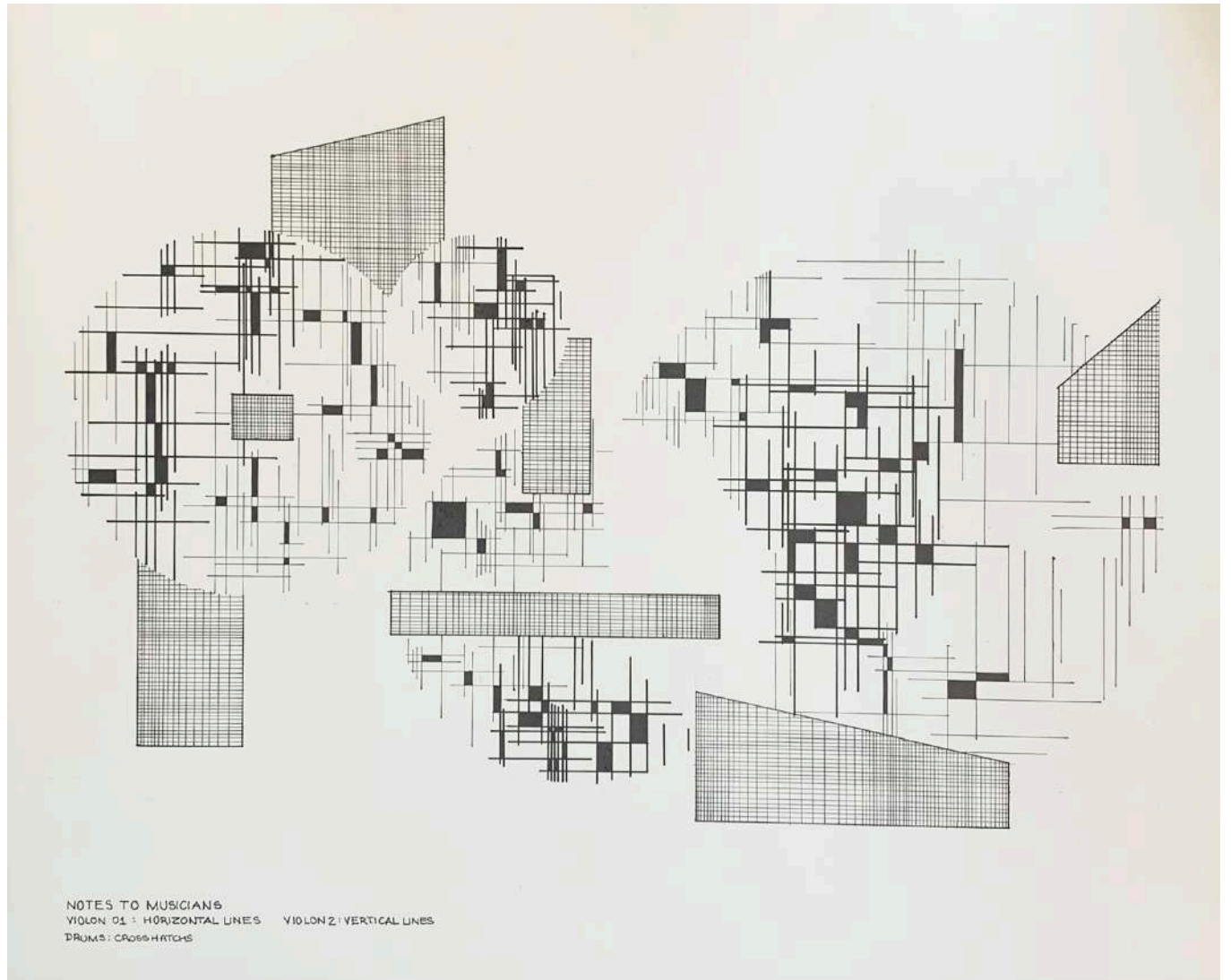
The graphic score is a hand-drawn musical score for Bass Continuo. It features a central staff with various musical notations and a legend on the right side. The score is divided into two systems by a horizontal line labeled "BASSO CONTINUO".

**Legend:**

- VIBRATO: Represented by a wavy, oval shape.
- TEMPO ALLEGRO: Represented by a horizontal line with a small vertical tick every 5mm.
- TEMPO ANDANTE: Represented by a horizontal line with a small vertical tick every 2.5cm.
- TEMPO ADAGIO: Represented by a horizontal line with a small vertical tick every 10cm.
- SFORZANDO: Represented by a small black triangle.
- TYPE OF NOTE: Represented by a small black triangle.
- BAR LINES: Represented by horizontal lines.
- BASSO CONTINUO: A horizontal line separating the two systems.
- LOW PITCH: Represented by a small black square.
- HIGH PITCH: Represented by a small white square.
- distance above base line: LOUD DYNAMIC.
- distance below base line: SOFT DYNAMIC.

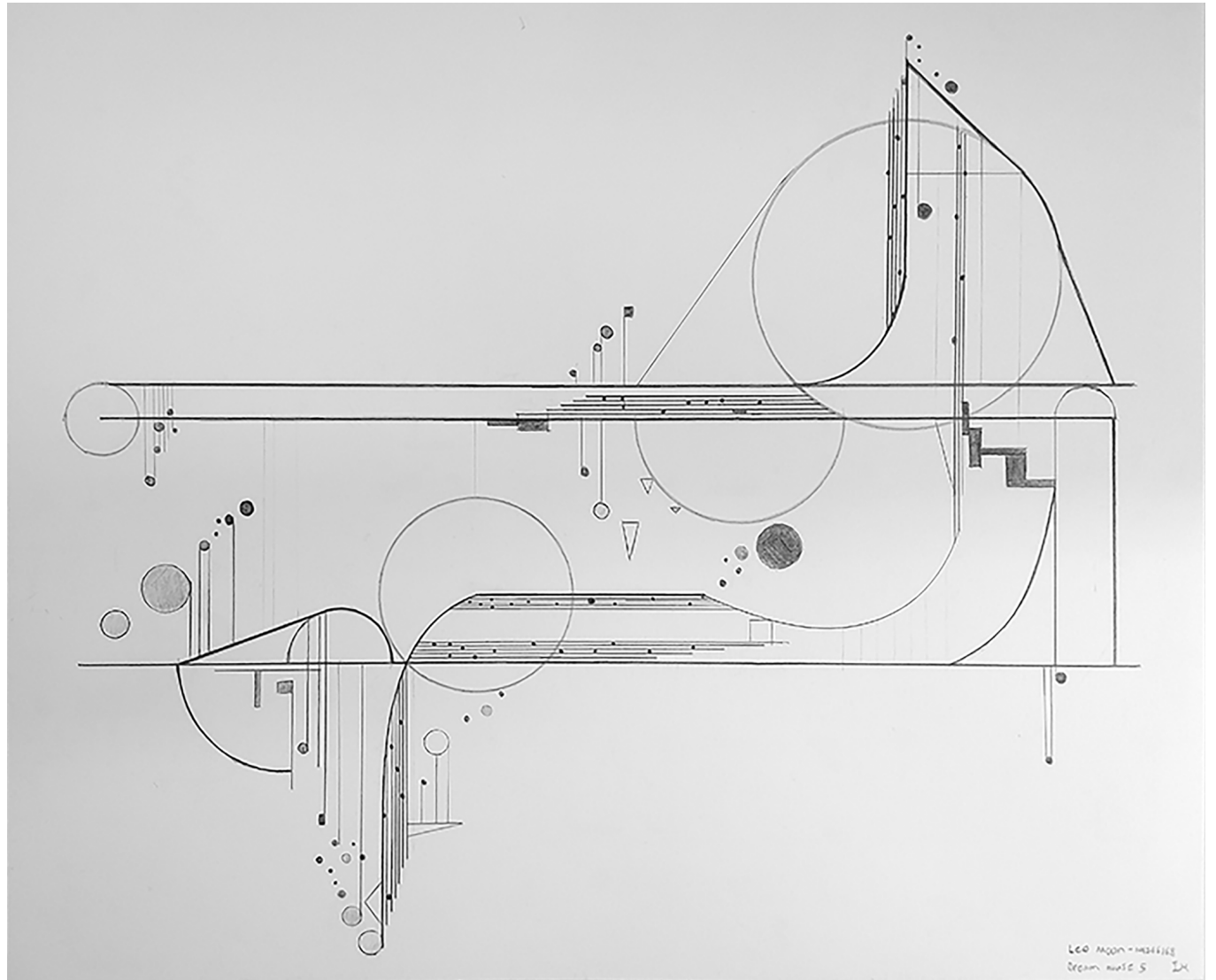
The score itself consists of a central staff with various musical notations, including horizontal lines, triangles, and wavy shapes, representing the sound of the music as it is being played through the tunnels of the straws. The notation is highly abstract and graphic, with varying line weights, lengths, and heights. The score is divided into two systems by a horizontal line labeled "BASSO CONTINUO".

■ Gabriel  
Normandeau



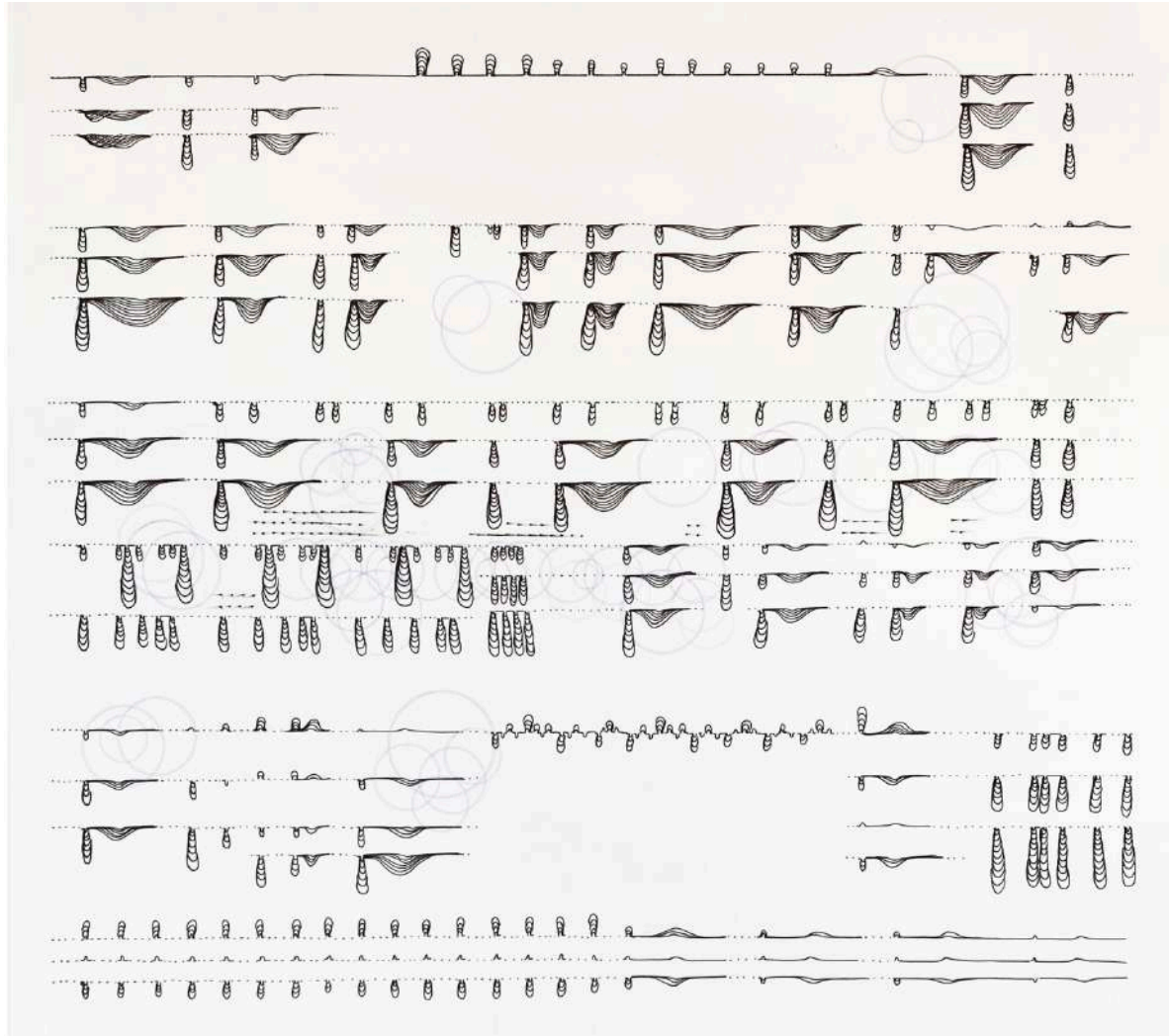
# Leo Moon

- Strong note
- Soft note
- ◻ Pause
- ▬ Long pause
- ▽ Sharp
- Volume + duration
- △ Gradually increasing
- ▽ Gradually decreasing
- ▬ Keyboard
- Pitch height



# Nashia Williams

- Instrumental
  - ..... Main voice
  - - - - Background voice
  - ~ Initial key
  - ~ Continuation of key
  - ~ High notes
  - ~ Low notes
  - Drum beat
  - ~ Pitch
- The song used as inspiration is "This Is Me" by Keala Settle. I feel as though the progression of the song embodies me. Beginning as quiet & soft (shy) and then evolving into something more confident (or comfortable) the end of the ensemble settles down to the softness it began with. However, rather representing my shy attributes, it mirrors how being comfortable can also mean appreciating tranquility. Spatially I wanted to display a typical day's routine, leaving a place of rest to do your daily regime and then returning to rest (done through circles "drum beat" & blank spaces).

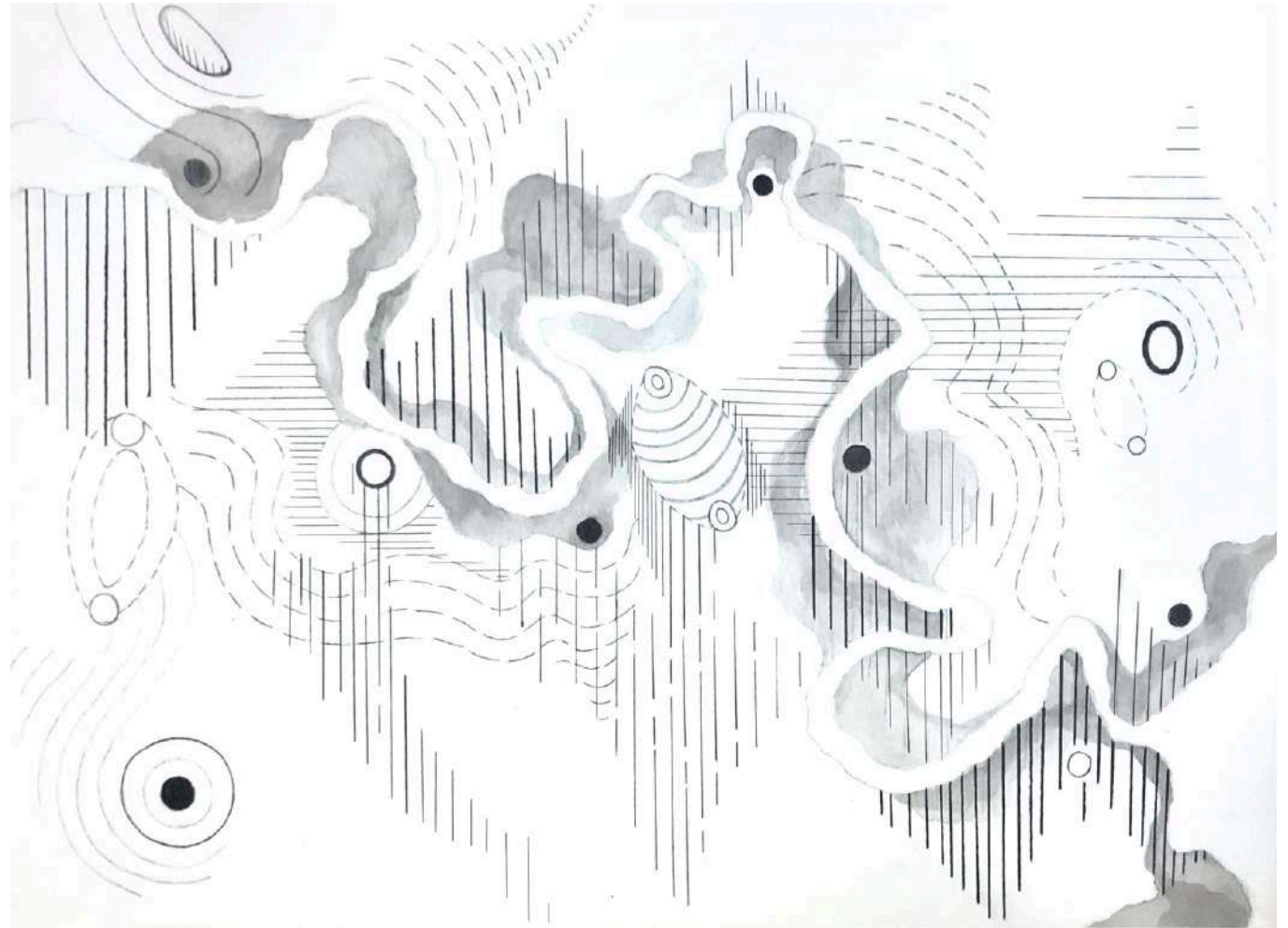


LEGEND	DESCRIPTION
—	INSTRUMENTAL
.....	MAIN VOICE
- - - -	BACKGROUND VOICE
~	INITIAL KEY
~	CONTINUATION OF KEY
~	HIGH NOTES
~	LOW NOTES
○	DRUM BEAT
~	PITCH

LOW HIGH

# Eshum Mateen

- Dark water drop
- |||| Intimidation
- ||||| Sun peaking into the cave
- ||||| Wind whistle
- ~ Far echo
- ~ Close echo
- ~ Escape out the labyrinth
- Shadow/darkness



# Shanelle de Croos



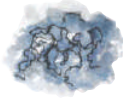
Smooth  
- flowy curve  
- "entrance"



Sustained  
- rigid wavelike shape



Quiet/Slow  
- sparse  
- thin line weights  
- gradual build up  
- pale blue wash



Loud/Quick  
- dense areas  
- thick line weights  
- dark blue wash



Diminish  
- end of the score



# ■ Angelina Crea

● Change in note

/ Line length is the  
note length

▮ Line thickness is  
volume

When the end of  
the line is at the  
point, you pick  
another line to  
follow that is  
also from the  
point

