

# **SUBJECTIVE NATURE**

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*KYUNG - JIN CHO*



# SUBJECTIVE NATURE

DESIGNING SITUATIONS FOR NATURE AND HUMAN  
TO BE EMOTIONALLY INTERTWINED

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# Abstract

This project originated from my experience of an earthquake in September 2016, in Seoul, South Korea. It was an opportunity to re-think my disconnected relationship to nature. The sense of consciousness in nature and the symbiosis between humans and nature has been taken over by nature objectification. The question 'what if we change the perspective toward nature from objective to subjective?' came to my mind. Subjective Nature means that humanity is emotionally intertwined with nature.

In this project, I propose a sound installation that I named 'Swing Jam'. The intention is to translate the natural movement of pendulums into a sound experience. This could be poetically interpreted as 'giving a voice to nature'. By experiencing sound, I wish to evoke an emotional connection between nature and human.

By empowering nature and individual experiences through designing situations, I wish to open up the emotional dialogue between human and nature. In this project, I'd like to awaken the importance of individual and emotional experience that is the core of being in an ecosystem. Furthermore, this is an accessible dialogue between nature and human.



# Contents

<b>PART 1 / INTRODUCTION</b>	.....	<b>3</b>
<b>PART 2 / SWING JAM</b>	.....	<b>5</b>
2.1 Initial concept		
2.2 Sound bowls		
2.3 Learning by making		
2.4 Sound		
<b>PART 3 / PENDULUM</b>	.....	<b>11</b>
3.1 Foucault pendulum		
3.2 Alternative suggestion		
<b>PART 4 / DESIGN PROPOSAL</b>	.....	<b>15</b>
4.1 Stepper motors		
4.2 Wooden pendulum		
4.3 The crack		
<b>PART 5 / DISCUSSION</b>	.....	<b>18</b>
5.1 Reflection about spring exhibition		
5.2 Collaboration		
5.3 Subjective and dynamic nature		
REFERENCES	.....	<b>20</b>

# Introduction

September 2016, I was staying at home with my family in Seoul, South Korea. It was around 9 o'clock in the evening when we finished dinner. Suddenly an earthquake hit the apartment. The whole city was shocked, because Korea was known for a safe place from the earthquake. There were no ways to escape from it. It was a truly frightening experience.

However, it was an opportunity to re-think about my perception of nature. My knowledge regarding the earthquake was founded by the compulsory education originating from rational and senseless explanations such as ...

“Earthquake, any sudden shaking of the ground caused by the passage of seismic waves through Earth’s rocks. Seismic waves are produced when some form of energy stored in Earth’s crust is suddenly released, usually when masses of rock straining against one another suddenly fracture and slip.” <sup>1</sup>  
Encyclopaedia Britannica

This desensitized explanation does not match my embodied experience in the earthquake. In addition, the earthquake is an expression that the earth is spontaneously active and alive. The sense of consciousness by nature and symbiosis between nature and human has been taken over by nature objectification. Since

human rationality secures fundamental of knowledge, scientific tools and methods have been developed intending to objectify nature and making a distance between human and nature. Following is a quote from Bruno Latour, the distinction between society and nature established by modern purification.

“The moderns’ Constitution included four guarantees [...] the third guarantee assured the separation of powers, the two branches of government being kept in separate, watertight compartments. Nature will remain without relation to Society; Society will no longer have any relation to Nature. In other words, quasi-objects will be officially banished and translation networks will go into hiding, offering to the work of purification a counterpart that will nevertheless continue to be followed and monitored until the postmoderns obliterate it entirely.”<sup>2</sup>  
Bruno Latour

Humans have been objectifying nature by calculating, sourcing, capitalizing, controlling, and manipulating. Through these objectifications, we position ourselves higher above nature in a power hierarchy. Of course, it is totally wrong. I could easily recognize myself as a tiny futile creature on the earth during the earthquake. This is so clear that nature system sustains this planetary system regardless of human achievement.

“We must draw our standards from the natural world. We must honour with the humility of the wise, the bounds of that natural world and the mystery which lies beyond them, admitting that there is something in the order of being which evidently exceeds all our competence”<sup>3</sup>  
Václav Havel

In this project, I am standing on the phenomenal reality, the wordless world framed by sensational experience. By embracing wholeness and being independent from human rationality, an empirical approach would be the key action to break down the objectified relationship and narrow the divide between nature and human.

“Phenomenology seeks not to explain the world objectively but to describe the manner in which the world makes itself evident to awareness through direct, sensorial experience.”<sup>4</sup>  
David Abram

Through designing a situation, I’d like to challenge the current objectified relationship between nature and human. *Subjective Nature* is explained by humans being emotionally intertwined with nature through embodied experience. By empowering nature and individual experience through my artefacts, I wish to open up an emotional dialogue between human and nature. The importance of individual experience to shift one’s behaviour is explained by Robert Kull. The experiencing evokes the inner transformation that would eventually bring new approach.

“The felt experience of belonging to the environment that sustains us is psychologically and spiritually healing and may have profound implications for changing our ecologically destructive patterns of behaviour.”<sup>5</sup> Robert Kull

This essay is a documentation about series of my adventures in the aesthetics of Subjective Nature through designerly explorations in terms of form, material, situation, handicraft and experience.

PART 2 /

## ***Swing Jam***

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swing : pendulum movement

jam : slang in Jazz, improvised playing



**Figure 1** : Initial concept drawing, my ambition

## 2.1 INITIAL CONCEPT

I was fascinated by sound bowls exhibited in the National Museum of Modern and Contemporary Art in Seoul in 2016. Sound bowls, (Bangjja in Korean) exhibited at the museum were huge sizes (bronzeware, 1 x 0,8 meter, diameter x height) and visitors could play them by hitting them with sticks. When I played it, I felt the vibration and the overwhelming experience of sound. It reminded me of the earthquake.

Sound shares properties with earthquakes. A loud and low-frequency sound has a vibration that is similar to seismic activity. Furthermore, we were never able to escape from hearing this sound, despite blocking our ears with both hands. The earthquake was like that. You can't escape from it. Thus I decided to utilise the sound in my project.

Based on the inspiration from the Bangjja, I imagined a sound installation to experience the power of nature. The installation is for translating nature's language into a sound experience. This could be poetically and conceptually interpreted as 'giving a voice to nature' to awaken the ignored connection between nature and human.

With this intention, I thought about a scene of sound space through interaction between hanging pendulums and singing bowls. A huge singing bowl is hung from the ceiling, so people can stand inside the singing bowl. When a pendulum hit the bowl, the human feel the sound, and, at the same time, vibration (Fig. 1). There are 3 main factors in Swing Jam. They are sound bowls, pendulums and the sound itself.

## 2.2 SOUND BOWLS

At first, I wanted to make sound bowls in bronze like the ones I played at the exhibition. Fredrik Ingemansson (technician, Ädellab) gave me a few contacts outside Konstfack where I could ask for bronze casting. One producer in Hägersten invited me to visit and we discussed how to make the bronze bowls. They showed me a cylinder cast from bronze that did not make any echoes at all. He said the instrument needs to be made from thin and hard bronze which means it should be hammered by hand. Reflecting my previous experience making a 10 cm copper corn from copper plate by hand hammering, it took 2 whole days. It sounded like too much work if I wanted to make a huge singing bowl. They suggested it would be much better to buy commercial bowls in terms of time and cost. However, if I had bought commercial bowls, it would have limited my exploration in shapes and materials. Therefore, I decided to make the singing bowls using clay because I thought it was a more manageable material compared to metal. In the end, it turned out to be tremendously hard work.

For 7 days, I sat in front of the throwing wheel for 9 hours. During the first 3 days, it was very fun. I felt like my life might be much happier if I had known this before. It meditated me only for the first 3 days. When it became day 4, I lost my emotional balance. Because I didn't get a single bowl even though I had sat down there everyday for 4 days. I was really frustrated and started to regret my choice. It was, however, too late to change my decision. I had invested too much time, energy and materials. So I persevered (Fig. 2).

When I got the first piece on the 6th day, I was so Happy! I was singing and dancing in the corridor. From that time, I got to know how to use my body to throw. I made 11 test pieces (Fig. 3) varying in features such as volume, thickness, shapes, and materials in relation to volume/longevity/colour of the sound.



**Figure 2** : throwing practices



**Figure 3** : the first test pieces

### 2.3 LEARNING BY MAKING

Thinking-through-making takes major part in design practices in the process of knowledge creation and bringing new insight. Making such as crafting objects is an expressed knowledge without text. Juhani Pallasmaa stated in his book *The Thinking Hand*, to reveal a complete architectural or artistic entity, a subjective certainty is gradually achieved through embodied and tactile experience in which guided by the hand and feeling of the body. <sup>6</sup> Through making ceramic bowls by hands, I understood why the singing bowl is shaped in a specific way.

Bronze singing bowls generally have a paper-thin bottom and a thicker top meanwhile ceramic singing bowls can't have the paper-thin bottom because the structure could collapse. By making a thin bottom and relatively thick top, I realized the thin bottom makes a louder sound because the singing bowl contains more volume inside.

By reflecting my first test in ceramic bowls, each bowl makes a different sound depending on physical features (Fig. 5). The sound is also influenced by the firing temperature inside the kiln and the number of times it has been fired. I found out If the bowl has been fired several times at a high temperature, it becomes harder and makes a louder sound.

During the endless making process, I learned the true craftsmanship. To deal with material sensitivity, making fine details, and testing different techniques, all these experience helped me to grasp the nuance of crafts and to respect the special skill. Most interesting part was the inner conversation with materials (ceramics). It reminds me of Tapio Wirkkala's sentence.

"All materials have their own unwritten laws. You should never violate the material you're working with. The designer's purpose is to be in harmony with the material. The craftsman has the advantage that at every stage of the work his material is in his hands to feel and command." <sup>7</sup>  
Tapio Wirkkala



**Film 1 :** make a big scale sound bowl  
<https://vimeo.com/243432914>

The most practical tip that I learned from 3 days of collapsing pottery was not to use water at all. It sped up the procedure and helped me to form a stable bottom to support weights on the top.

## 2.4 SOUND

After discussions with Fredrik Emilson (a film director and sound expert) in addition to my first sound test, I realized that I can't tune the sound in a specific way, because the sound is defined by a very complex and sensitive mechanism that is impossible to make a perfect and clear sound tone like a musical instrument.

Most of all, Fredrik freed me from restricting the form to produce a specific sound. He said an artificial sound, like a clear tone, is far from what I am looking for - the natural expression. He emphasized that all the ceramic bowls that I had made have their own personalities. That is unique, natural and pure.

Also, he clarified the sound that I was looking for. When I demonstrated my project, he said "you are looking for a loud and low-frequency sound so a human can feel a vibration through the sound. That is only possible on a big scale percussion. Look at Timpani". That conversation motivated me strongly to make larger scale sound bowls.

I personally prefer a scale that is similar to or bigger than a human. I believe the large scale gives objects power. The power that is enough to overwhelm a human enables the object to speak and people can start a dialogue with it.

There are several inspirations from which I designed the forms, such as, Timpani, bells, and Bangjja. I'd like to say the main inspiration is Onggi, that I am familiar with since my childhood. Onggi is a traditional food container in Korea that is rarely used these days, but when I was a child, it was common that every household had several Onggi at home and people believed spirits live in there and protect their homes from bad luck.

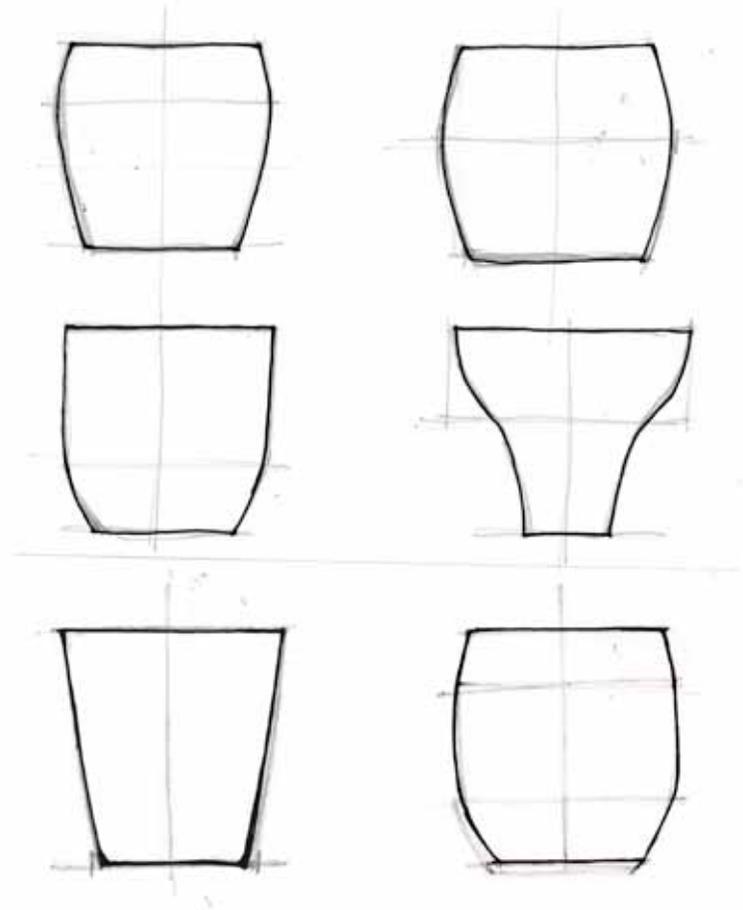


Figure 5. sketch studies regarding proportion and volumes

# Pendulum

During the idea development process, Martin Avila (Main tutor, Konstfack) gave me the idea to combine sound bowls with a Foucault pendulum. That was an interesting suggestion, because the Foucault pendulum is an explanation about the Earth's rotation/movement and the earthquake occurs because of the same movement. It is a comprehensive and tactile example to show the movement in cosmic-scale.

Before I start confessing my struggles with the Foucault pendulum, it would be better to explain what it is.

“Foucault pendulum, relatively large mass suspended from a long line mounted so that its perpendicular plane of swing is not confined to a particular direction and, in fact, rotates in relation to the Earth's surface.”<sup>8</sup>

Encyclopaedia Britannica

When I tried to apply the Foucault pendulum into my situation, it brought with it some extremely complicated physical issues, because when the pendulum hits the ceramic bowls, friction causes a decrease in the amount of energy used by the pendulum to oscillate consistently. By testing different settings, the pendulum stopped in a very short time period (in 5 minutes) and the worst part is the pendulum hit the ceramic bowl only once due to this loss of energy.

Since the rotation pattern of the Earth is the core of the Foucault pendulum, I need the oscillations of the pendulum during an entire day. I needed a special configuration to compensate the energy loss. How could I solve it?



Figure 5 : desperate pendulum experiment



**Figure 6** : testing the hook from Tekniska Museet

#### Trial and failure 1, **FOUCAULT PENDULUM FROM TEKNISKA MUSEET**

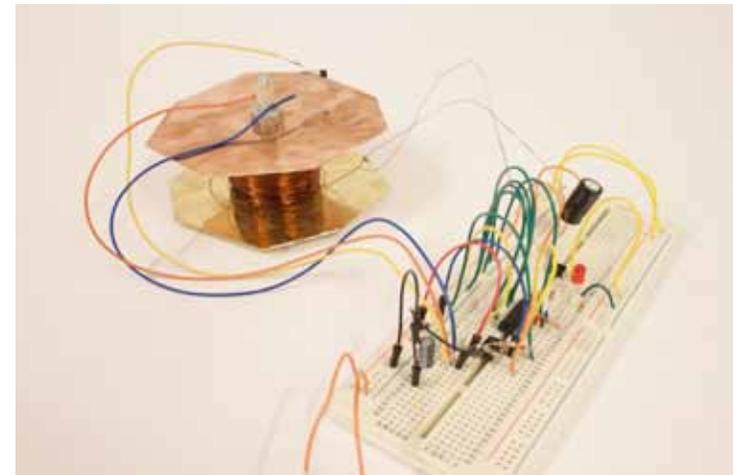
I met Palle Torsson in the Hacker's space at Konstfack and he introduced me to Nils Olander (curator, Tekniska Museet) who installed the Foucault pendulum at the museum. Nils allowed me to borrow the hook of Foucault pendulum from the museum. I borrowed it and installed at Konstfack (Fig. 6).

I tested the hook by hanging 700 gram, 4 kg, and 8 kg bobs. It worked very well until I placed ceramic bowls around the pendulum, however, the pendulum hit the bowl only once and never touched the bowl again on its return, because, as all the physicists advised me, the pendulum loses energy slightly each time.

#### Trial and failure 2, **ELECTROMAGNET WITH HALL SENSOR**

To explain briefly this experiment, one magnet is hung and an electromagnet (electromagnets are the same as any other magnet, the only difference is the magnetic field is generated by electricity) is placed on the floor. Because they are facing the same pole, they push each other when they get close whilst swinging and the pendulum will swing consistently.

I ordered all components and made the circuit board (Fig. 7) with the help of Harriet Aurell (educator in mechanics and technology). Unfortunately, the circuit board did not work. First of all, the hall sensor was not functioning and we couldn't figure out the reason. The second issue was I hung a magnet that was too strong in comparison to the electromagnet on the floor, so the repulsive force was not enough to maintain the oscillation.



**Figure 7** : the circuit board that Harriet and I made



**Figure 8** : testing pendulum with chaotic magnets

### Trial and failure 3, **CHAOTIC PENDULUM**

When I sank into the pit of despair from two failures, I got to know the similarity behind the electromagnet and the hook from the Tekniska Museet: They had the same mechanism. By facing the same pole, the repulsive force maintains the oscillations of the pendulum.

To minimize the energy loss from hitting the bowls, I added several thin arms onto the pendulum (Fig. 8). So the body was not impacted directly, however, this caused the sound to be too subtle to hear.

The second issue was the hanging magnet stopped in the spot of equilibrium, because all magnets have same amount of magnetic field and the hung magnet can move freely, there were several equilibrium spots. Eventually the pendulum always stopped oscillating. That meant, that I still needed to find a way to break the balance.

### **3. 2 ALTERNATIVE SUGGESTION**

What I needed was an oscillation of the pendulum to hit the ceramic bowls, I was looking to translate nature's language to a sound pattern. I wanted to listen to their dialogue. I thought; Perhaps I do not need any complex devices. Nature might give me an answer. I need to meet it.

So I brought all my materials and placed it in a small forest close to Konstfack [image 8]. At first, I expected the wind to move the pendulum, but the wind is relatively weak compared to the mass of the pendulum. I stood under the tree for a while. I was confused. I did not know what to do anymore. Then I heard the sound of the branches swaying in the breeze. I saw the movement of branches. I saw the dynamics and randomness. At that moment, I got the idea to connect multiple threads to the pendulum from several branches. When the branches sway in the breeze, rain, snow or because of interaction with birds, the pendulums move randomly and make a dynamic sound.

I decided not taking this suggestion because it wasn't clearly relevant to my experience in earthquake in case the sound generated by wind interaction.



**Figure 9** : connecting multiple threads to branches

PART 4 /

## **Design proposal**



**Film 2** : Swing Jam installation at Konstfack  
<https://vimeo.com/243432237>

#### 4.1 STEPPER MOTORS

After the failure in testing the Foucault pendulum, the chaotic pendulum and the alternative suggestion, I had to use stepper motors to rotate pendulums. I got three stepper motors from my friend Jacob Stenman (previous classmate). They have different speeds and gear boxes. With the help of Andreas Hammar (expert in mechanics and electronics, SVART), I attached 3 different weighted wooden pendulums. At first, I tested them by installing them into a ceiling at 3 meters height, however, the pendulums did not make the random movement. That was disappointing because I was looking for random sounds, but, when I installed them into a ceiling at 5 meters height, in the room A10, the magic happened! Three pendulums started making random movement, because of the height, the movement of the three pendulums is exaggerated. When the pendulums hit the sound bowls, they change direction randomly, I finally heard a natural sound.

One positive reaction of visitors was that it was good to expose the motors so people can understand the mechanism easily and clearly. This simple, almost raw technology fits into the concept of being natural.

#### 4.2 WOODEN PENDULUM

At first, I tested a cylindrical shape with sharp edges, but then I realised the sharp edges do not match to the organic shapes of my sound bowls, so I trimmed the bottoms of the pendulums.

During the exhibition, I got common questions from visitors regarding wooden pendulums such as “what is the material of the pendulum? is it also ceramic? Or why does it have that colour?”.

I chose wood because it is what I am used to working with. Specifically alder has a fine grain and it is easy to lathe, and also is lightweight, so I can reduce the pressure on the motors. The reason why I burned the surface is a technical choice. I remembered the advice by a physicist, he said an object with a slip-

pery surface is bouncing more. Also I knew that when the wood is burnt, it loses weight slightly. Thus, the reason why I burnt the wooden pendulums was to make more dramatic movements.

One surprise was the ashes of burnt wood that would leave marks on the surface of the ceramic bowls. The expression is rough and natural. I got an unexpected expression by this natural movement.

My installation has one secret. The audience can feel the vibrations of sound when they put their hands on the stage (podium). With the help of Ricardo Atienza (teacher in sound lab at Konstfack), I put 4 speakers underneath the stage, which amplify the sound a little bit whilst at the same time generating subtle vibrations. I didn't put any information about it because it could be too much information to the visitors, and I'd prefer to have individual conversations with visitors.

It was a good decision to take black wire for the pendulums. I did not pay attention to the movement of pendulums before installation, but all of sudden when they start moving, the combination of burnt wood with black wire emphasizes the movement in contrast to the white space. Furthermore It became an eye-catching expression between dynamic movement and the heavy ceramic bowls.

#### 4.3 THE CRACK

I placed one cracked sound bowl in the exhibition to diversify the sound experience. Most visitors liked the cracking sound and they agreed on it making a balance between the softness and harsher sounds. If the cracked sound bowl is broken during the exhibition, it may show the power of natural movement.

## 5.1 REFLECTION ABOUT SPRING EXHIBITON

I learned the importance of details such as shape and colour of the podium, and keeping the balance in a space. I also benefit from the bright space with spatial depth, that emphasize my objects and sound experience.

During the exhibition, I've received so many compliments that I didn't expect. The most common comments are 'it is beautiful, this is my favorite, it sounds like church bell, I feel meditated, I can stay here forever'. Couple of visitors come back again several times. The most surprising response for me was when people were staying for a while. I think this is the charm of the sound. It makes you to want to stay, sit and wait. The comment that I was impressed by came from students who told me they were inspired by this installation. I felt I made an impact on people.

I am happy that I managed to make my project so close to my initial drawing, and did not have to compromise too much. I always admire architects or designers who execute their project straight forward from their initial concept. For me they are the talented people, and now I experienced how hard it is.

When I finished installing the setting, it was a day before the opening day. The first impression what I had was that it was too beautiful. I felt this installation started romanticized my experience of the earthquake - that was not about beauty or calmness. I think it is a contradiction. I need to make artifacts or installations look attractive in order to reach more people and communicate what I want to deliver. But somehow the beauty starts blurring the story. I was happy to see visitors are pleased, but at the same time I became suspicious whether this is the right way to talk about my thoughts, the consciousness of nature.

Overall, I think this project has strength in balance regarding the colour and shape, between static and dynamic, natural and artificial, fragile and durable.

## 4.2 COLLABORATION

I often complained that I couldn't find collaborators such as ceramicists or technicians in electronics. If I could have collaborated with ceramicists and technicians, this project would have proceeded much faster and I would have had more time to take care of details.

But when I look back at my project at this moment, I had so many collaborators. Fredrik Emilson gave me a direction about the scale and shapes of ceramic bowls. Simon Whitfield taught me the skills in throwing and caring details, Nils Olander let me test the Foucault pendulum at Konstfack, and Harriet Aurell helped me to make the complex circuit board.

Furthermore, by taking all the steps by myself, I gained so much knowledge regarding the relation between form and the sound and the complex physical interaction in oscillation of the pendulums. This made my project so abundant.

Before I studied at Konstfack, I had a narrow view about the role as designers. I thought a designer is the one who decides the material and the shapes, aiming for a certain target group and prioritizing human usability the most, but through this project, I experienced the extended role of a designer who engages in combining diverse knowledges. A designer who could speak about a value other than human usability. In this project, I am a designer who is not only caring about physicality but also building the relationship between object, nature, and human.

## 4.3 SUBJECTIVE AND DYNAMIC NATURE

The project was exploring the situation where nature is and expose force, and to give language to those places so that human can feel the force of their emotion. Nature cannot be understood as a passive, manipulable, and neutral entity. Nature and human are fundamentally alive in their complex relationship and

entangled in a ontological network system as a social agent as Jane Bennett defined.

“A source of action that can be either human or nonhuman, it is that which has efficacy, can do things, has sufficient coherence to make difference, produce effects, alter the course of events.”<sup>9</sup>

Jane Bennett

The relationship between nature and humanity is very subtle, personal and mostly based on emotions, however current society do not pay enough attention to the individual and subjective thought, and the reason that blocks the dialogue between nature and human is we do not know how to articulate it.

“The role of Symbiosis: ‘Becoming with-in the living world’ is about symbiosis. This metamorphosing concept helps to realize our role as *symbiotic designers*. When our design intention is oriented toward the interrelationship of the three key practices, symbiotic consciousness can begin to emerge, and a change of worldview is acknowledged. At this stage, the design becomes truly integral, in both an ethical and aesthetic sense.”<sup>10</sup>

David Sánchez Ruano

Through this project, I wish to open up new permanent dialogues by creating another context and resituating the human. It delivers different messages that are so rarely expressed by language. I believe this project enables humans to step into another relationship.

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