

# **Soma Design: On Articulation, Materiality, Politics, and the Body.**

Interview conducted by Claudia  
Núñez-Pacheco at KTH Royal  
Institute of Technology,  
Stockholm,  
on October 12, 2021.

## **Interview with Kristina Höök**

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<b>Interview</b>	
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Kristina Höök is Professor of Interaction Design at the Royal Institute of Technology (KTH), where she leads the Somaesthetic Design Research Group, a lab that explores ways to reincorporate the body and movement into a design regime that has long privileged language and logic. Höök's research on affective interaction, somaesthetic design, and the Internet of Things seeks to make life with technology more meaningful, enjoyable, creative, and aesthetically appealing by focusing on the soma, that is, on our living, purposive, sentient, perceptive body.

Author of *Designing with the Body: Somaesthetic Interaction Design* (MIT Press, 2018), Kristina Höök starts by briefly defining soma design in connection with somaesthetics and feminist theories. In light of the fundamental definition of somaesthetics and the role of cultivation and appreciation, Höök makes some distinctions between soma design and other design approaches, discussing, for example, the tensions between the use of language and body, cultivation versus correction, slowness versus solutionism, culture versus nature, and tangible versus digital materiality. She clarifies how the significance of articulating experience in detail for soma design does not betray the centrality of the body, where sketching, making, and coding could represent means of articulation in themselves.

## To begin with, Kia, I'll ask you to talk about yourself.

### Who are you?

My name is Kia; or full name, Kristina Höök. I am a professor of interaction design here at KTH, the Royal Institute of Technology in Stockholm, Sweden. But..., who am I? It is a deeper question! I only gave you my title. In a sense, my position on identity consists of two parts: some traits stay with me my whole life, but I also change myself regularly throughout it — my attitudes, my beliefs, my roles, my identity and how I speak to myself, and so on.

Right now, I feel like I am a menopausal grandmother who loves to go horseback riding, with some bodily aches and pains from a long life of giving birth to children and whatnot. Well established professionally but slightly bored, to be honest...

### Slightly bored, really?

Yes. I have done a lot of things that I wanted to do, and I am spending this autumn on a mini sabbatical to try and figure out what the next step might be. Are there dreams left careerwise that I have not fulfilled? And what would those be? Maybe this was a weird way of introducing the self?

**No, absolutely not! Indeed, I wish to start with a question that connects with what you are saying (as you are speaking about the body, motherhood, menopause, etc.). One of the exciting things about being here at KTH is the very noticeable presence of strong women in our lab, and how this somaesthetic view has influenced the work of many of us, along with feminist epistemologies in general. And I would like to begin precisely with that, by knowing how you think somaesthetic-based design is aligned with feminist epistemologies.**

I think it is aligned. We should come back to the concept of “strong woman”. I think that is an interesting one. But anyway, *somaesthetics* is a theory of philosophy proposed by Richard Shusterman. He found that when most philosophers in pragmatism and phenomenology and so on, speak about the body, it is always the male normative body.<sup>1</sup> When they speak of bodies and what the body means for our ways of being in the world, it is always with this assumption related to maleness, male ways of being in the world. On the other hand, Shusterman remarks having spent quite some time with people who do dancing or other such

1 See: Shusterman, R. (2003). Somaesthetics and “The Second Sex”: A Pragmatist Reading of a Feminist Classic. *Hypatia*, 18(4), 106–136.

aesthetic practices that involve bodies, along with his own Feldenkrais training and practice. Hence, he wanted to bring some of the insights from that into the somaesthetics philosophy and remind us that we have different bodies. We have different ways of engaging. Not everything starts from the male body carrying around this important mind, but there can be other ways of being a body.

To me, when I tried to translate the somaesthetic theories into the active stance of design, it was very important to acknowledge that there are different bodies in the world. When you design through the body, it becomes so apparent every step of the way that it matters what kind of body you have. You can no longer ignore the fact that we are different — male, female, whether you are menstruating or are menopausal, or you have pain, or you are short or tall. Or whether you belong to a particular culture that has encouraged you to be a so-called ‘strong woman’, or if you are from a culture where you have learned how, as a woman, you must avoid the male eye or how to look and behave with ‘woman dignity’ — not exerting any power on the world, but instead avoiding taking any space.

What surprised me was the difference between this design stance and how we engage in, for example, user-centered design. In user-centered design, when we speak of end-users, we see as if our task were to go (with empathy) out into the world to figure out what they need. But when you carry out soma design, you quickly realize that your end-users and yourself are all different! We have different needs! It became so much in my face, this body, these differences in bodies, and how that matters to design. It becomes a feminist project. In that sense, soma design follows a pluralist feminist position, acknowledging biological realities, but also bringing in cultural differences on how the culture completes us, as Elizabeth Grosz says.<sup>2</sup> Male and female bodies are ‘completed’ in different ways depending on how cultural attitudes towards women are enacted.

**Consequently, the question is, how would you define soma design? How do we bring these differences into the design process?**

Some think that it is a particular set of design methods, and of course, it is not. It can be any design method that makes sense towards the bodily realities in the room and the design challenges you have. If you are designing for martial arts, then you need martial arts practices in the room. If you are designing for singing with drones, then

<sup>2</sup> Grosz, E. (1994). *Volatile Bodies: Toward a Corporeal Feminism*. Indiana University Press.

3 Working together at the  
Division of Media Technology  
and Interaction Design, KTH.

you need drones in the room and you need people who can sing or want to sing with drones in the room.

The other day, you, me, and some others<sup>3</sup> were talking about what would be the minimal thing that needs to be there for us to recognize it as a somaesthetic design process. I keep going back to the fundamental definition of somaesthetics, namely, that anything that makes you improve on your ability to appreciate through all your senses, will be a path to somaesthetics. So, what does it mean to improve your ability to appreciate? Well, it can be anything!

Going back over my examples, it can be martial arts, which is a way of creating body awareness and enjoyment through fast and aggressive movements. Or it can be ways of engaging with drones that allow you to be expressive so that you can be singing with them, the way of expressing something interesting with this otherness that the drone manifests itself as. The *axiom* of soma design work becomes the aim to improve on what you can sense, feel, and experience through all your senses.

**Regarding improvement: For soma design, appreciation is connected to our first-person experience or phenomenological reality, meaning that the third-person view of the body is not our focus. As an example, when we interact with technologies such as drones, we are not seeing the body as opposed to the drone, but rather as a conversation between these two entities. In your book *Designing with the Body: Somaesthetic Interaction Design*, you explain how the third-person position that sees the body from an objective, disembodied stance is still really prevalent in HCI, and we know this. Soma design and its focus on first-person research are becoming more noticeable, although I would say we are still a minority. Now, it is still not uncommon that some authors, who claim to be influenced by soma design, embark on projects based on *perfecting* or *correcting* some of the weaknesses of the body, which in a way might be responding to societal expectations that in some cases escape from a more candid, first-person view. But I was wondering, are these views misleading? Are there any sort of boundaries where we could question whereas those views are aligned with somaesthetics or soma design?**

I am very influenced by Johan Redström's book *Making Design Theory*. For him, building a design program, for example, the soma design program, means starting from certain axioms, and then building exemplar systems, filling the program with content. You can start pointing to some of those exemplars as prototypical soma design and others as being on the border. What you look for is whenever you need variants of the axiom or new axioms to support the idea that this is still a soma design process.

This is where I think we are right now. We are trying to figure out how far can we take soma design, which design challenges it works for, and where soma design is not appropriate. I would not say that I know for sure whether a particular design comes out of a soma design process or not, but there is often something in common that I recognize. There is a subtleness; there is a care for details, materials, and interactions that deliver something interesting and unique to me.

Going back to your question. You asked, what if you have a system that is correcting you, trying to make you behave in certain ways; would that be soma design? My answer would be that it depends on how it is carried out because it is not necessarily the case that such a design falls outside the soma design program. Just because the system makes you go through a phase of muscle ache, or your body posture or movements are being corrected, or you are exposing yourself to risk, does not mean that you are not ending up increasing your ability to appreciate. It depends on what the end goal is. Where are you ending up? Sometimes the path to an aesthetic experience or the path to an ethically good experience might be through pain or discomfort, or engaging with correction.

**Now, I would like to ask you something a bit different.  
How did you make the transition from your work of affective interactions into soma design? What happened?**

What happened? That is a good question! I was interested in emotion, and affect, and mood, and all those things, because I came to that from doing social recommenders, and I realized that people use such recommendation systems to feel safe in their choices (of movies, books, or other choices) and as such, they help foster certain cultural attitudes, certain ways of conforming certain emotional experiences. At the time, I listened to a keynote by Rosalind Picard on affective computing, a really interesting talk at the Intelligent User Interfaces Conference. She pointed out that affect is not solely a process in the brain, nor is it solely a process in the body, nor is it solely in the social interaction. It is everywhere. Affect

*“Technologies are shaping us. They are shaping our bodies, our nervous system reactions, our muscle systems, our hormone levels, our frontal lobe reasoning. All these things are shaped by these technologies that are so prevalent everywhere. Then, we have an obligation to be responsible as designers. How can all these technologies lead to a good life? The somaesthetic ideal helped me to move out of the traditional ideas we had at the time about usability. Usability focuses mainly on how to perform work tasks efficiently. To me, it was clear that once you come to the third wave of HCI, the aim is no longer solely about efficiency”*

colors everything from how you interact, what you display facially, to how that interacts with processes in your brain and hippocampus, amygdala, processes in your body, hormonal levels, and so on, back and forth. Accordingly, this was interesting because as a designer, this meant that you could tap into that loop — between movement, thinking, sociality, and the connection through affect. But what she didn't provide at the time in that talk (and this was a long time ago) were the ideals for why we, as designers, would tap into that. Why do we want to engage users' emotions? Of course, you can sell more stuff with good UX, right?

But beyond selling more stuff, what else could there be? We were building systems at the time where we could tap into these emotional processes by making people gesture and interact in rich ways. But we didn't know why we were doing it. Why would we improve on the user experience, with what purpose? Then, this is where I was unhappy with solely looking upon the body and emotion like some kind of mechanism that I could, as a designer, manipulate. I needed something more than that. And that is where somaesthetics provided value. Somaesthetics asks: What is a good life? What does it mean to lead a good life?

I am an atheist. I don't believe in God. I don't believe in a life after this one. I believe that we need to lead a good life here and now. What does it mean to lead a good life here and now if you have a lot of technologies around you? How can they make my life experience rich and interesting? That is where I found a home, where I was excited, because I could see that technologies were everywhere, and if they should be such an important part of our lifeworld, then they need to provide us with something important.

These technologies are shaping us. They are shaping our bodies, our nervous system reactions, our muscle systems, our hormone levels, our frontal lobe reasoning. All these things are shaped by these technologies that are so prevalent everywhere. Then, we have an obligation to be responsible as designers. How can all these technologies lead to a good life? The somaesthetic ideal helped me to move out of the traditional ideas we had at the time about usability. Usability focuses mainly on how to perform work tasks efficiently. To me, it was clear that once you come to the third wave of HCI, the aim is no longer solely about efficiency.

Fine. It is not about efficiency! But then what? What is it about? Why are we doing it? Why are we putting games into kids' lives? Why are we putting creative tools on people? Why are we doing these things? Are we there to make tasks more efficient, removed from our



bodies and movements, focusing on our symbolic reasoning, or are we there to make life more interesting and richer, to lead a good life, to arrive at a place where you are enjoying life through all your senses? So that is where my interest arose from. Also, there have been others that have done work before us. Thecla Schiphorst at Simon Fraser University in Canada, Lian Loke, your former supervisor in the University of Sydney, alongside George Khut and many others have done work on soma design way before us. This is how I came across that literature. I was not the first one longing for a different design stance.

**While you were speaking about ‘good life’ and connecting with your senses, I was thinking about the concept of designing for a better life. When you live in Sweden, you get in contact with nature very closely. Haven’t you thought about undesigning things when you are riding your horse, for example? We don’t need that much. You might need to walk every day for an hour, have a cup of coffee, ride a horse, and then you are happy. Do we need more design? Do we really need more technology to fulfill a better life?**

Very good question! But I would like to point out that horses are, in fact, in a sense, designed. First of all, of course, there are technologies such as the saddle, the tack, the stirrups, and all these things. Those are designed artifacts that we put onto the horse to be able to ride it. But secondly, the horses themselves have been in human culture for a long, long time, and we have been breeding them to fit our needs. The horses I ride are not like the original horse living on the savannah or in Siberia. They have been changed, their genetic constitution has been changing over hundreds and hundreds of years to fit our needs. In a sense, horses are designed artifacts.

Or take your example of having a coffee: there is the very important practice of a Swedish *fika* — a coffee break. But coffee did not originate in Sweden. The cup is designed; the whole idea of a culture where you have your coffee in the morning is a practice we have shaped. It is a designed practice, isn’t it?

**It is a ritual, yes.**

It is. And the idea that taking a walkout in nature is a good thing, is also a practice that we have designed. I am not adhering to the idea that “here’s the purely natural way of living out in nature. And here

is another way of living, which includes technology.” I don’t think we can make that distinction. To take this even further, take a look at our human habitats. We build nests, we build buildings where we are together with other people and where we bring up our kids and whatnot. This is nature to us. This office building is, in a way, an expression of our human morphology.

I don’t think you can say “let’s take away tool-making from a human in order to find what is natural to humans” because toolmaking and tool-use is part of our human morphology. This is what we do. We are creative. You look at kids and you realize humans are made to create things. But what we need to do is not to lock ourselves into a situation where we solely consume ready-made artifacts, and we are not allowed to be creative tool makers anymore. And where the technology is restricting us to certain very rigid movements or emotions or ways of socializing. I think we have all seen this during the pandemic, right? That we were forced into a particular way of socializing that makes many of us very unhappy and very stressed.

**One of the characteristics of soma design is its *slowness* when creatively engaging in a design endeavor. We are always talking about this slowness that relates to connecting with the themes we are exploring, the methods we use, etc. This is interesting from both a methodological perspective and as a matter of purpose. So methodologically speaking, soma design requires time to engage with. Consequently, it contradicts, of course, what is expected from design as a discipline, where we require ready-made solutions, and the use of solutionist language is prevalent (we are always talking about *solving problems*). So, how do we deal with this contradictory positioning? On one hand, as designers, we have to provide answers. But saying ‘solutions’ is a little bit tricky because it implies setting a final viewpoint, and we are changing and reframing our questions all the time. What is your perspective on this tension between immediacy and slowness? How does that work?**

This is such an interesting question because if you take a practice like, let us go back to what we have been talking about, horseback riding or martial arts, then everybody recognizes that it takes ages to become good at it. And in fact, with horseback riding, I think it is a whole

life, as I am still not very good at it. Then, why is it that we accept that slowness in acquiring the skills for horseback riding, but we assume that creating a mobile app to save the world can be done with a few post-it notes on the wall and a quick user study?

### **And save the world with that!**

Yes, solutionism! “Click here and save the world.”<sup>4</sup> But because soma design engages quite a lot with the connection between movement, emotion, thinking, and sociality, it has to care for the fact that the human body is slow in learning certain things. Our frontal lobe reasoning is fast, our verbalization of concepts is fast. But to build new muscles, or building a new nervous system reaction takes time. In that sense, soma design is slow — or perhaps better framed as *thoughtful*. As a soma designer, you have to spend time with the practice you want to design to get somewhere interesting. The problem then, of course, becomes: Is soma design ever going to spread if it is competing with the faster methods where you can just quickly generate ideas, and then it is done? I don’t know. In some ways, I don’t care if it is a viable design stance commercially right now! If we never provide alternatives, then there is no way we are going to find other ways of designing, right? So, I am just going to struggle to try to figure out why it is slow? When is it slow? How do we facilitate it in a way that can speed up aspects of it so that it becomes a viable alternative?

But it is important to do this work to offer alternatives to the commercial, capitalist, fast, quick solution because we can see that it is not making the world super happy right now. I don’t want to say that all the digital tools that we have are garbage. Of course, a lot of it is amazing. We have done fantastic things, but we also have a world in distress when it comes to sustainability, and not only sustainability in terms of taking care of nature, but also sustainability in the sense of people being stressed and having bodies with problems like diabetes and heart issues and burnout and all these things, right? And we have to care about that as designers. How do we care about that? Well, I think there is no quick fix, so we need to engage. There is no other way.

**You mentioned something at the very beginning of the interview: that you are getting *slightly bored*. Why is that? Could you elaborate on this? Is this related to questions where you cannot arrive at any conclusion? Which are they?**

<sup>4</sup> See: Morozov, E. (2014). *To Save Everything, Click Here: The Folly of Technological Solutionism*. PublicAffairs. See also: <https://clickheretosavetheworld.com/>

*“We have to care about the physical materials because we are shifting out of the screen-based interaction towards the Internet of Things and ubiquitous computing. So suddenly, you have electronics, you have wood, plastic, moss, etc., and then you have this intangible material of the digital that you embed in the mixture of physical materials. But all of them need to come together in your craft. You need to be able to experience the algorithm and the data, the sensor, and what they do, and the actuator with its vibration, for example. And when you can feel all these materials, that is when you can extract the aesthetic potential or the affordance of the material”*

As I said, I like Johan Redström's idea of a design program that you set up by starting from certain axioms, then you try to fill this bucket with exemplar systems, and you probe the program's viability through checking how generative it is. And I think we have done that for soma design. We have proven that soma design, as a framework, is very generative and we have been able to design all sorts of things. The project I am carrying out right now is with Volvo. It is with autonomous driving cars. It is very 'industrial'. Step by step we are coming to a point where we can show that soma design seems to work over and over. And that is where I get bored!

### **When things start working!**

When something we worked on starts taking off, when it starts working, we need to properly validate it, substantiate it, and this is where academic research needs to be more meticulous in filling and probing the program/paradigm. I am sloppy and fast, and I long for new ideas. So once we reach that stage, I move on. Not because the soma design research endeavor is done, but because I am not so good at those more structured research methods.

But there are a couple of things that keep bothering me in soma design that still interest me. One of them is probing the boundaries of the soma design program. We already touched on that: Can I design a classical mobile app with the soma design process? Can I design an ordinary, instrumental, task-oriented work app with this way of engaging? I haven't tried that, and I would like to do that to probe the boundaries of the program.

The other is handling the idea that soma design is only for the rich, affluent, middle-classes in the Western society context. I would like to engage more deeply with the idea that if it is a good way of leading your life, it should be for all.

The third challenge is a bit difficult to talk about: Is soma design really for *all* designers? Can anyone become a soma designer? Can anyone become a soma designer of digital tools or of their own experience? I have had this discussion with other researchers in the field, like Dag Svanæs and others. And it seems to us that whenever we set up a workshop and we invite people to engage somatically, some people get it right away and they just go, "boom!" and they enjoy it. They figure out what to do with it. But others are very confused or dismissive. Like "where is it leading to? I don't see it. What are you trying to get at?" And I would like to know why this is so. Does it have to be for everyone? No, of course

not. It is a bit like you have to find your favorite ways of designing stuff, right? So, some people enjoy certain methods and others enjoy others. That is fine. But why can I see who will be able to carry out some design already during the first hour of engaging in a workshop?

**Yes. You can feel it!**

You can feel it! Some people in the room are not engaging. They cannot feel it. Whatever it is we are trying to engage with. Why is that? I would like to know.

**Some people seem to be more reluctant to use these slow methods. And other people get it right away. We know that. You just said that you are not sure; you don't understand why that is happening. Do you have any hypotheses? Would you be adventurous and try to provide an explanation?**

My feeling is that — and I have been in this situation myself — if you overemphasize rationality and certain ways of building your arguments, certain ways of thinking about the world as a problem that needs to be solved through technology, then, being asked to *feel* something — in a work context, not as part of your everyday life — is just too far from your habitual ways of engaging at work. For some, it is almost impossible to cross that bridge. It takes a lot of effort for someone who habitually engages with design work solely through a trained rationalistic engagement. Then, it is not that they don't feel anything. Usually, what you can do is you can connect, try to connect with whatever leisure time activities somebody has, and sort of say, "well, if you go to your martial arts class, how do you learn this and that?" And then, they, slowly, can engage with it.

Body awareness, as we said before, is something the somaesthetic axiom says that you can train yourself to appreciate. You can train your appreciation, you can train your body awareness, you can train your emotional awareness, your awareness of your own thoughts and how to modify them, your awareness of what you project socially. But if you have never done that, if you have never engaged with those kinds of processes, it is challenging. It takes time. It is slow. It takes time getting to know yourself and becoming more grounded in your own body.

**Consequently, this focus on grounding through bodily engagement leads us to the next question that relates to the role of conceptualization in soma design. The idea of “don’t tell, but experience”; doing rather than telling, is something we hear repeatedly when we do this kind of design work. This interests me at a personal level because words and conceptualizations are fundamental for my research and practice. We would not engage in this discussion about how words are part of our embodied experience, that is not the point. However, we have to recognize that soma design seems to be reluctant to integrate words very actively into the design process, as you have expressed. For example, incorporating theoretical introductions at the beginning of a workshop is going to do a disservice to soma design because, in a way, you are also putting people within a position, so they might experience it from a pre-given perspective. On the other hand, you have called for the importance of carefully articulating experience, which means that at some point, words become important, of course. Could you please elaborate on this to clarify?**

As you said, there is no dichotomy between language and felt experience, because if I say a word, you can allow yourself to feel that word. And you can allow yourself to notice how that is connected to experiences you have had in your life. But sometimes we can go into a world of words where we are disconnecting from the first person. We are hiding behind these words. We are sort of playing games with words, disconnected from our reality. It allows us to try to distance ourselves from our own felt experience. So, the way we use words (in the Focusing method) is not to distance ourselves from our own experience, but the other way around; we are using them as a way of getting very, very close to the first-person felt experience. There is something in our methods that has to do with vulnerability, exposure, and honesty. There are ways of doing with words where you can do it without revealing much about yourself, where you are trying to distance yourself. I sometimes refer to it as ‘intellectual masturbation’.

You put the words out there, you put the structures out there, the rationalizations for stuff out there so that you don’t have to reveal yourself. And sometimes those rhetorics, like more rational ways of figuring out things, using rules, and math, and whatnot, are good,

right? Because it allows for validation and removes some of the subjectivity. But if we want to reintroduce subjectivity, then that way of using language does not help us. We need this other way of using language.

Therefore, coming back to your question on what articulation is. It is about making it clear in your mind. Accordingly, it does not necessarily have to mean words. It can be anything. It can be a drawing. It can be a way of transporting yourself back into a particular situation repeatedly to feel it over and over again. Or it can be words, and it doesn't have to be poetry. It can just be a label that recalls that felt experience. But I think the process of articulation has nothing to do with language. It has to do with making it clear in your mind. What was it that I experienced? To attend to it. And attending to your inner universe is demanding! It requires attention. If I want to be compassionate with you now, I need to focus. I need to look at you. I need to look at your eyes, and your movements, and I need to spend time with that. It takes energy and engagement. That is what we mean by articulation. It is not whether you can put a verbal label on something or not. It is about making clear in your mind, what is this experience. And then you put a word to it or a poem to it, or you put a drawing to it, or you put some technology gadget to it that allows you to scaffold that experience. The words become flesh and blood.

**I have to mention that, for example, in the soma design workshop held at Grinda, we did an exercise involving touching natural textures in the forest. I was in your group, and I thought, “all of you are Swedes, except me!”. It was interesting, because you had a bunch of Swedish words that explain your very particular connection to the forest. And you were trying to translate those words to me, but they didn't make sense. This lack of sensemaking is not just because of a mistranslation. Something was missing in the way that you embody the word because your mother tongue connects you with your relationship to the forest, which in my case, is not the same. So, I would say that sometimes words, especially under certain contexts, bring out all this embodied meaning very evidently. Perhaps it is more about what you cannot explain. Language, in a way, tells you more about what you cannot explain than what you can say.**

There are so many layers here. One layer is there are cultural differences between us; your relationship to nature is different



*“In soma design, we are trying to make the physical and digital materials available to somatic experience early on in the process. It is, as we argue, the socio-digital material we are designing with. We are crafting or sketching with our own bodies and intercorporeality — seeing our own bodies as the moldable tool of tools as Shusterman framed it — as well as crafting and sketching with the physical and digital materials touching our somatic selves”*

from mine. When I grew up, there was something called *Fältbiologerna*. They were left-wing, strongly sustainability-oriented young people who wanted to learn about nature. It was a culture for adolescence where we would go out together to look at birds and we would look them up in our books. And we would try to figure out how these birds occupy different parts of the ecosystems — some birds would be in the top of the tree, others in the middle, and some underneath it, etc. But it was not engaging with nature, as is, solely. It was also engaging with certain political values. *Fältbiologerna* was against nuclear power plants. We were protesting. There was a particular practice of how to enter the forest, how to interpret the forest, how to interpret the bird's behaviors, and so on. That is one way of engaging with nature that I have learned. And then there are other ways of engaging with forests in Sweden. People quite recently used to be super poor here. Therefore, they would go into the forest to pick berries and mushrooms, and they would keep those mushroom places to themselves so that nobody else would come and steal their mushrooms next year. That kind of poverty-related way of engaging with the forest is also part of my childhood. And so on. Depending on which of these practices I go into the forest with, I will see and engage in different ways.

In that session with you and the other Swedes in the forest, what I found interesting was that there were certain words that I used. And Klas, one of our Swedish friends in the group who is about the same age as me, used certain words that I recognized as part of these practices that we would have as young kids. That brought up a whole system of preconceived notions of what the forest is, and especially this dichotomy of nature versus culture. That was very present in those Swedish words we used.

**That is why I was asking you about the question of un-designing, because I see it from an external perspective. Sweden is a highly creative country, where there is an established culture of innovation and scientific development. And it is also highly industrialized, but you guard your lifestyle and your connection to nature very well.**

Sort of. You know how hard it is to see your own culture from the outside. Our culture believes that anything modern must be good. Designs, practices, social organization, society should all be modern, new, rational, and organized. But included in this modernity is this idea that going to the forest is a good thing. It balances you.

**It balances you because... there is any dichotomy between the two worlds? Or?**

I don't know. It is a very strong social democrat project; this idea that everybody should be entitled to a good life. What is a good life for a social democrat? Well, it is one where you are not exploited. Where a worker gets a decent salary. Where your kids get equal opportunities as everyone else, which is why we have good kindergartens and free education, including university. Where you should not have to beg for help if you are ill, or if you have mental health issues, or if you harm yourself; the state should be there picking you up. Also, one where everybody is entitled to a holiday. The social democrats worked hard to make sure that the working hours per week got reduced step by step, down to 40 hours a week. So it is also because of a political project, in certain ways, that we need science. We need new technology. We need all these solutions to make sure that everybody gets a good life. Also, this idea that the whole of Sweden should be educated... Why? Well, to exercise their democratic rights, but also as a self-fulfillment project that everybody should be allowed to have that opportunity to read literature and educate themselves. But also ensure that our industry is competitive with well-educated workers. That idea of *Folkhemmet* — the home for all people — was so strong, especially when I was growing up.

**Let's move to another topic; the separation between the tangible materiality and the digital one, and the assumption that the tangible materiality was in a way superior persists in some academic circles of more traditional design, even though the outside world is moving towards a different direction. Lately, we have seen an important increase in the demand for programmers or AI specialists. In academia, there are plenty of positions open for professionals with this profile. Traditional graphic design, in a way, can be considered endangered. Even graphic designers have become UI designers. In that sense, what is the soma design position about this tension between the tangible and the digital, where tangible materials seem to be more precious?**

I come at this issue from my own experience. I came out of computer science. Learning how to program, and learning what an algorithm can do becomes a craft of sorts; it is something that you have to learn as a skill, an art. But this was not recognized when I started my

computer science education. At that time, it was taught more as a theoretical, mathematical, rational problem-solving practice. Earlier on, I think, it was more of a craft, but then somehow, we lost that understanding. In HCI, it was definitely lost. The digital material was seen as a material without any properties, it could be shaped into anything. One of my Ph.D. students, Petra Sundström, worked quite a lot around the idea that the digital is also a material. It might not be tangible, and you might have to work a bit to make it tangible if you want to put it alongside other tangible materials. But it is material. So, a particular algorithm has a certain feel to it. Another algorithm has another feel to it. Some are faster, some are slower. How do you make that craft, the programming algorithmic knowledge, something that is in the room to be experienced alongside the physical materials? We have to care about the physical materials because we are shifting out of the screen-based interaction towards the Internet of Things and ubiquitous computing. So suddenly, you have electronics, you have wood, plastic, moss, etc., and then you have this intangible material of the digital that you embed in the mixture of physical materials. But all of them need to come together in your craft. You need to be able to experience the algorithm and the data, the sensor, and what they do, and the actuator with its vibration, for example. And when you can feel all these materials, that is when you can extract the aesthetic potential or the affordance of the material. This is where I am coming from. I am not coming as you are coming from graphic design, where craft was obvious and where there was a reaction against putting digital tools that would distance you from the craft. I come out of a computer science tradition where the craft was lacking. It was not discussed as a craft, but of course, in some sense, it was a craft. In soma design, we are trying to make the physical and digital materials available to somatic experience early on in the process. It is, as we argue, the socio-digital material we are designing with. We are crafting or sketching with our own bodies and intercorporeality — seeing our own bodies as the moldable tool of tools as Shusterman framed it — as well as crafting and sketching with the physical and digital materials touching our somatic selves.

Again, going back to Johan Redström, he did this amazing work on designing with energy, and he speaks of how he had to go back to the raw material of electricity. What is electricity? How does it travel? What is its aesthetic potential? How do we understand it? And based on those explorations, he could then design aesthetically interesting tools for saving energy at home.

**The rawness of experiencing materials is an interesting stance, but then, again, technologies are not neutral.**

They are not neutral, of course. But I also don't want to be sentimental or nostalgic and say, "oh, we should touch the moss and we should touch the wood." I think we should use these new materials, the Arduino or the AI recommender tool suggesting colors for the interface. Why not? But you need to understand what is being black-boxed away from you in those tools and how that relates to some particular values. We can use any tools in the soma design process. We can use virtual reality or augmented reality or recommender systems or whatever, but we need to understand them from a felt experience of what they are, what they black-box, and what they don't. And what values they come with.

**Felt experience and critical thinking...**

For sure, the critical thinking we have discussed for such a long time. And of course, everything has got a political value. For me, what is interesting to see is how far can I take the individual felt experience into account in that process of critical awareness. **D**