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MFA Programme in Crafts, Jewellery Art, 120 credits

KHMX21 Master's Degree Project in Craft 2

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Supervisors: Jessica Hemmings & Magnus Haglund

PART A

> “Why is there this thing, sight, rather than sight blended with hearing? And would it make any sense to discuss such a blend? In what sense? Why this sight, which doesn't see infrared? This hearing, which doesn't hear ultrasound? Why should every sense have a threshold, and why are senses walled off from each other? Further still: aren't senses separate universes? Or else the dislocation of every possible universe? What's the disjunction of senses? And why five fingers? Why that beauty spot? Why this fold at the corner of the lips? That crease, there? That appearance, this gait, that restraint, this excess? Why this body, absolutely and exclusively this one?” (Nancy, 2008, 31)

During my undergraduate project, I embarked on a journey of self-discovery and artistic exploration. It was a process of shedding preconceived notions and embracing a more intuitive and organic approach to design. Drawing inspiration from Dewey's philosophy of experimental artistry (1934, p. 150), I allowed myself to break free from previous self constructed constraints on how I structured a project, but instead tap into a deeper state of creativity and the relationship of my body with certain materials and processes.

Initially, the main idea of this project was to "design and create finger prosthetics through jewellery art, in a co-creation process with an user." This perspective and idea stems from my bachelor's thesis as a designer at the University of los Andes, Colombia, which emphasises user-centred design philosophy.

In my bachelor's thesis, titled “Bajo la misma piel” - *"Under the Same Skin,"* I focused on researching the severe issue of acid attacks against women (primary victims) and men in Colombia. Through extensive surveys conducted at various hospitals, clinics, and among specialists in burn injuries, nurses, etc., I connected with three remarkable women who had endured acid attacks decades ago. They were at a stage where that jewellery intervention project worked for them, having undergone surgeries, healing, and acceptance.

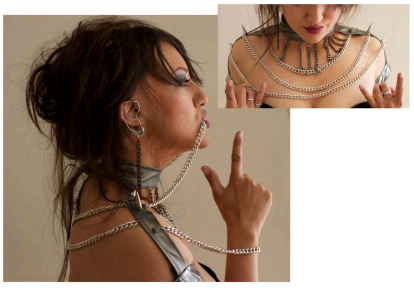
From the outset, it was clear that this jewellery project wasn't intended to heal their bodies or serve as a medical device. Instead, I was interested in exploring how a co-creation process with them, where they felt seen, heard, and appreciated as women (rather than victims), could positively impact their relationship with their bodies.

During this process, I visited the homes of these women - Patricia, Angie, and Gina - getting to know their families and gaining their trust as they shared their bodies' scars and vulnerabilities with me. They showed me the layers of clothing they used to conceal their scars and how they approached clothing purchases with this in mind. They were acquainted through a foundation created years ago by Gina, the first acid attack survivor legally known in Colombia.

During workshops at their homes, they shared their personal jewellery, aesthetics, preferred types of jewellery, and materials that made them feel secure and comfortable. Each had a different aesthetic and unique needs. Through observation during these visits, I noticed how they gradually became more comfortable with their bodies each time we met. They shed layers of clothing and expressed how activities like painting on translucent paper over their scars during our workshops made them appreciate the beauty of these marks on their skin, seeing flowers, rivers, and even animals within them according to their feedback. Engaging with their scars through an artistic and design lens brought forth a new and different light.

While this project initially focused on researching the issue, medical institutions, and interactions with victims, including shortcomings in medical responses, legal repercussions, and the injustices surrounding these attacks, the insights from our co-creation workshops and the resulting jewellery pieces were significant. The jewellery provided them with a renewed connection to their bodies, making them feel more beautiful, appreciated, secure, and sensual according to their final feedback.

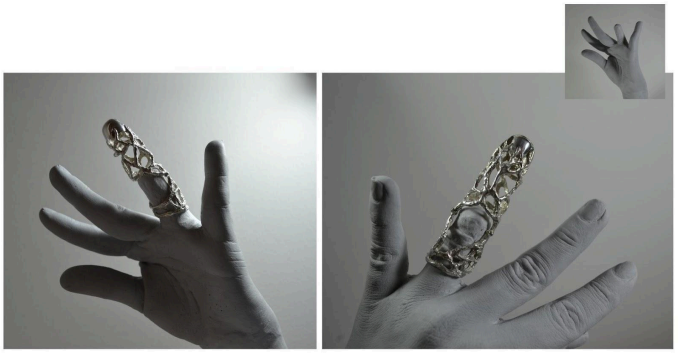
Patricia

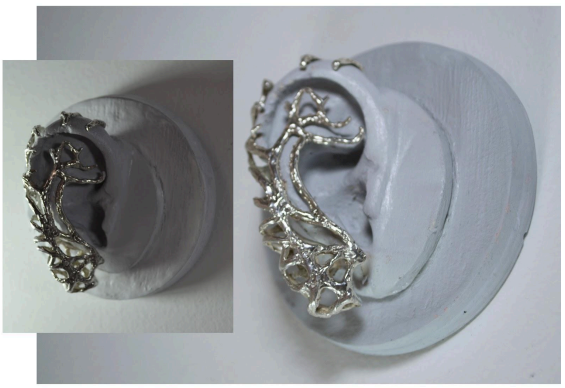


Angie

Gina

Upon completing my design degree, I decided to learn a new technique: lost wax casting. Delving into this technique, I was drawn to explore pieces inspired by finger and ear prosthetics in jewellery.





Due to that specific prior work and personal experience with jewellery, design, and art, and their relationship with bodies often perceived through conventional and social lenses as disabled, wounded, or victimised, I found myself drawn to delve deeper into these relationships.

In 2016, I had the opportunity to learn about the story and work of the model, artist, and singer Viktoria Modesta, through her song "Prototype":

´Forget what you know about disability´

(….) Another life filled with parts, circuit board connecting hearts

Nostalgia for the future

We're playing God, and now's the time

We're limitless, we're not confined

It's our future

I'm the pro, I'm the pro, I'm the prototype (…)

Assemble me, piece by piece

Strip away the incomplete

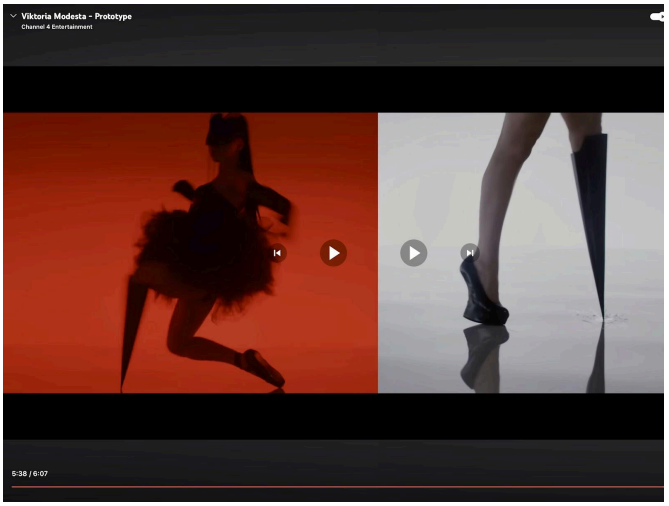
The model of the future

Colliding minds, it's just a start

Feel the sparks, we're building art

It's the vertigo of freedom

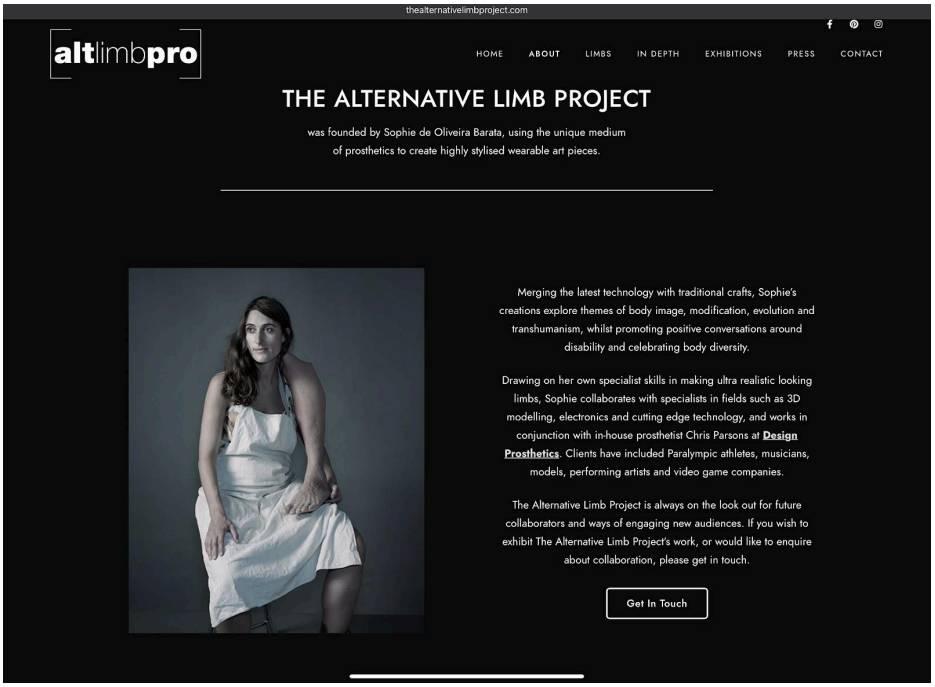
I'm the pro, I'm the pro, I'm the prototype (…)



(Viktoria Modesta On Prototype, 2016)

Viktoria Modesta stands out as a trailblazer in the fashion realm, seamlessly blending her 'disability' with artistry and exuberance. She serves as a canvas for various artists who craft daring and artistic leg prosthetics for her. None of these pieces aim to replicate the leg she once had; instead, they are intentionally distinct designs, adding a unique flair to her appearance. (Bailey, 2022)

For instance, this prosthesis shown in this video was designed and created by Sophie de Oliveira Barata and Ability Matters Clinic. Sophie is the founder of "The Alternative Limb Project," a project that seeks to emphasize the artistic aspect of prosthetic pieces "while promoting positive conversations around disability and celebrating body diversity." (The Alternative Limb Project, n.d.)



Oliveira's alternative limb project aims to empower the disabled body by highlighting its possibilities. While initially focusing on enhancing the aesthetic appeal of prosthetic pieces, the project also fosters positive discussions about disability and celebrates the diversity of the human form. An alternative prosthesis can be both a coveted luxury item and a captivating work of art, inspiring creativity and imagination in those who encounter it and encouraging appreciation for the varied appearances that the human body can take on, even in the face of injury. (Dominguez Escalona, 2017, p. 68).

With this in mind, I began researching the different types of prosthetics currently on the market.

Finger prosthetic research

Based on the findings of the National Academies of Sciences, Engineering, and Medicine, et al. 2017, *"Partial hand amputations are the most common, accounting for 75 percent of all traumatic amputations".* The text highlights the complexity of replacing upper extremity functions compared to lower extremities due to the intricate range of activities performed by the hands and fingers:

> "The function of the upper extremities is far more difficult to replace than that of the lower extremities. This is the case because the primary functions of the lower limbs are more limited and concern primarily maintenance and achievement of upright stance and various types of locomotion (…) In contrast, the primary functions of the upper extremities include not only gross

> and fine motor activities but also more complex combinations of activities, such as self-care, interaction with the environment and others, and self-expression. (Raichle et al., 2008)." (Sciences et al., 2017)

This information came as a big surprise to me. Before this research, I viewed finger prosthetics as the simplest pieces to make. Leg and hand prosthetics seemed more complex to me, leading me to believe that users of finger prosthetics were more satisfied compared to other fields. According to Pattanaik & Pattanaik, 2013, "Surveys on using such artificial hands reveal that 30–50 % of upper extremity amputees do not use their prosthetic hand regularly. The main factors for this are low functionality, poor cosmetic appearance, and low controllability." I came across various medical articles demonstrating and highlighting a greater dissatisfaction with finger prosthetics. For this reason, I decided to focus on understanding the different types of prosthetics in the market to gain a better understanding of this dissatisfaction on a general level.

According to the Medical Center Orthotics & Prosthetics (MCOPRO) the types of finger prosthetics available for users are:

Passive Prosthetics: Such as silicone prosthetics designed to look like natural fingers. These pieces don't provide active movement.

Passive Prosthetics from Point Design: This type of prosthetic is ideal for users lacking one or more fingers. Allows functional grasps of objects.

Passive Prosthetics from Naked Prosthetics: This type of prosthetic allows the users to reposition the piece using their other hand.

Passive Prosthetics from Partial Hand Solutions: Offers a heavy-duty prosthetic option for someone who has lost their thumb. Allows position adjustments using their other hand.

Body-Powered Prosthetics: These types of prosthetics are mechanical body-activated pieces that allow the users to achieve movements by the combination of finger-hand-wrist movements. Highly responsible control.

Myoelectric devices: Ideal for users missing from one to all five fingers. The pieces are fully articulated, and multi-positional, and allow full flexion and extension of the finger positions, achieving grasping activities.

(*Hand & finger prosthetics: MCOP* 2022)

3D printed finger prosthetics: Free to download customised pieces that work as body-powered prosthetics. Achieves movements by the combination of finger-hand-wrist movements. Highly responsible control.

(Thingiverse.com, *Knick's prosthetic finger V3.5.5 by Knick*)

> "3D printed prosthetics can greatly benefit children. The average lifespan of a prosthetic is five years, but in that time a child grows so rapidly that they will need a new prosthetic much more frequently. According to a statement made by the American Orthotics and Prosthetics Association, the average prosthetic costs between $1,500 to $8,000. This expense is often paid out of pocket rather than covered by insurance. By contrast, a 3D printed prosthetic costs as little as $50." (Reidel, 2019)

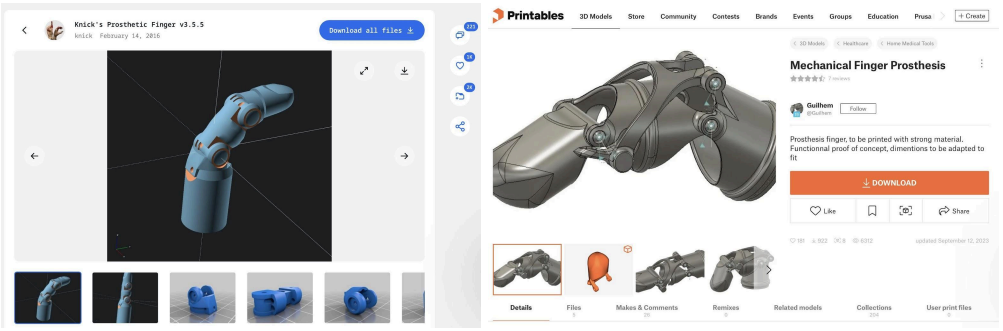
This research made me wonder if part of this dissatisfaction could be directly related not only to technological shortcomings, as it will never be possible to fully replace the motor capabilities of our anatomical fingers, but also to the noticeable lack of design and aesthetic exploration of these pieces, which could play a significant role in this sector of prosthetics.

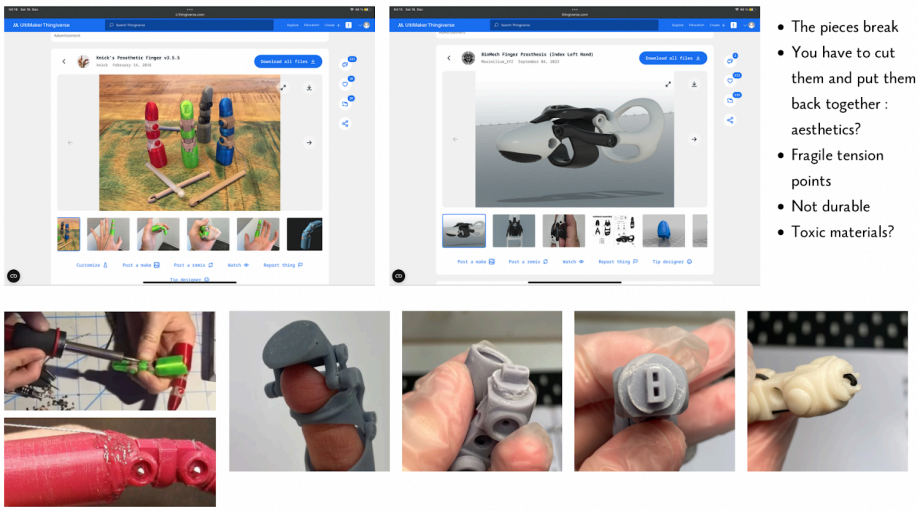
Collage of common current finger prosthetics found in the current market (Google images

In comparison to the variety of different designs and aesthetic options found in the market for arms and leg prosthetics (Google images):

During this research, I found myself pondering how to reconcile two aspects that seemed fractured. One part of me was interested in viewing these pieces as prosthetic devices with great potential for design and aesthetic improvement. My other part wanted to allow myself to find my voice and artistic expression through the art of jewellery. But I still wasn't able to be totally honest with myself at this point.

I printed then, 3 different 3D prosthetic pieces. Two of the most popular free download designs online, and worked with, studied, analized them.





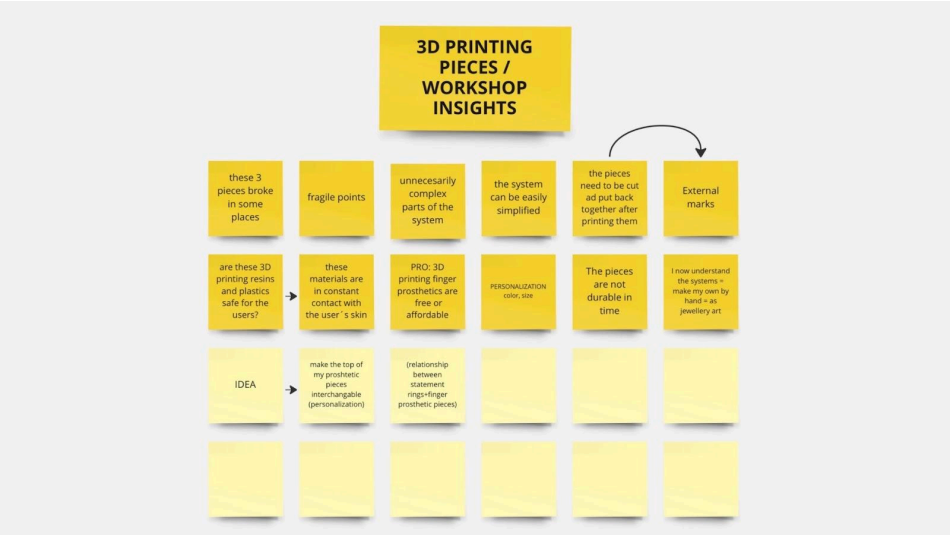
Upon printing these pieces, I found different insights.

Firstly, materials such as resin and plastic showed limited durability, being fragile and prone to breakage during assembly. The pieces also fall apart easily after some use.

The prosthetic pieces have vulnerable points, causing discomfort and pressure during wear.

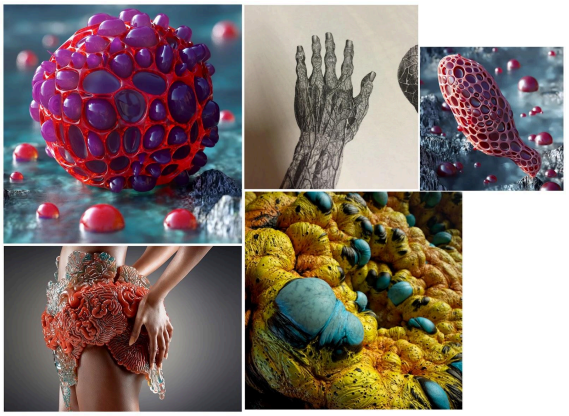
Assembling the pieces requires cutting the resin and plastic, followed by sealing them with heat. This not only affects their aesthetic appeal but also increases the risk of cutting or causing an injury to the skin of the healthy fingers in contact with the prosthesis.

Finally, the assembly was challenging and it took me more than an hour to finish the Knick's prosthetic finger piece. I decided to 3D print this piece several times and I ended up cutting the piece, creating new holes, closing existing ones, and making modifications to its inner design. The piece worked perfectly, and its assembly now takes me around fifteen minutes, which is very interesting to me.



After coming into contact with these pieces, I wanted to understand the mechanism behind finger extensions. I am interested in working with larger and longer pieces as well. Moreover, it served as a good exercise to gain a better understanding of finger mechanism pieces, subsequently allowing me to focus on aspects such as the aesthetics and materiality following this exploration.

But I also began to reconsider and understand the immense design and engineering challenges required for the successful development of these types of devices. Could I truly say that I was "developing finger prosthetics through jewellery"? Was this the right positioning for my jewellery art MA degree project? It did not feel right.



Collage of some of my first visual references.

Some of the first exploration pieces with different silicones, inspired in the common use of silicone in finger prosthetics

“The fabrication of finger prosthesis is as much an art as it is science. The ideally constructed prosthesis must duplicate the missing structures so precisely that patients can appear in public without fear of attracting unwanted attraction.” (Raghu et al., 2013) While reading this article, a part of me resonated with this information. The fabrication of finger prostheses is truly more of an art than a science, but as I immersed myself in this exploration with this new material for me, and considered my personal aesthetic preferences, I intuitively sought the opposite, as seen in the image above.

During this time, I had the opportunity to meet and engage in a discussion with Jan Zbinden, the first external person with whom I had the chance to have a conversation about this project due to his experience related to the topic.

Participant 1:

Occupation: Ph.D. student at Chalmers specialising in prosthetics, robotics, and pain research

Location: Gothenburg, Sweden

Gender: Male

Methodology: Conversation in person lasting approximately an hour and a half.

Original language of the conversation: English

Summary of the conversation: During this conversation, Jan explained to me the way studies are conducted at Chalmers University related to prosthetics and robotics. Their main idea is the design, development, and implementation of a new type of prosthetic connected to the patients' nervous system, allowing them to move their prosthetics through their thoughts.

He showed me videos, statistics and results of studies related to this new technology that will be launched on the market in a couple of years, which I cannot mention in this document due to confidentiality reasons. We talked about the patients, and I asked if they have contact with patients who have only lost their fingers or part of their hands. He said no, that they only work with patients who have lost a large part of their arms because they are interested in solving larger problems before moving on to smaller ones, although he has no professional experience with finger prosthetics.

Jan told me that during their work with these types of hand prosthetics, they have encountered issues regarding their durability. These pieces are quite expensive (around $25,000 to $55,000 USD dollars), and

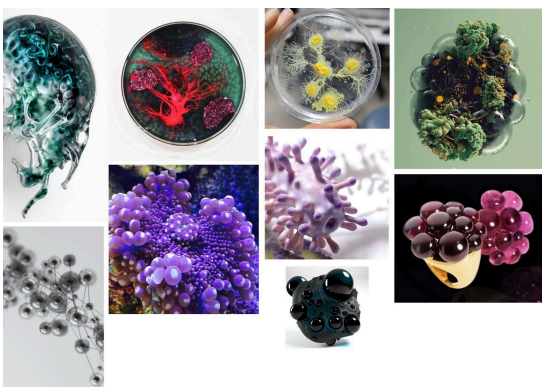
unfortunately, the fingers, by being so fragile, constantly break for the patients they are working with. This results in patients having to wait for two extra months while technicians repair the fingers and hands and send them back. Recently, they have taught their patients to repair the pieces themselves if possible.

For this reason, I decided not to push myself too hard in terms of the functionality and durability of the finger prosthetics I have been working with, as I gained a deeper understanding of their difficulty, and I chose to focus more on the jewellery art itself for these prosthetics.

When I showed him one of the sheets from my references, his eyes lit up, and he said he really liked the aesthetic and that it could work very well for a biologist, but he wouldn't be sure if it would be suitable for all patients who have undergone surgeries, pain, and infections. He said he loved the idea of the project of combining jewellery, art, colours, and prosthetics.

Quotes or Excerpts:

- “We are currently only working with patients who've experienced arm amputations. Our aim is to address cases from the most complex to the easier ones. Dealing with arm amputations presents quite a big challenge. Although I have not much experience with finger prosthetics and the specific challenges of these pieces."
- "From what I understand about finger amputations, and considering the trauma, infection process, and pain associated with surgery and recovery when integrating these type of prosthetics we are working on, it's possible that many may not see the value in it. Finger amputation represents a smaller portion of the body, and I can imagine they opting for some other options that work and are not as tedious.”
- "I really like it, I personally like this aesthetic inspired by bacteria, and vibrant, daring colours that aren't typically seen in the field of prosthetics. I think a biologists would love it, although some patients might not choose it due to the pain and trauma they've experienced. But, of course, it would be interesting to hear each patient's perspective on it."
- "Oh, and there's this one patient who couldn't use the prosthetic provided by the university for our study because it's so fragile and expensive, so they can not take it out when they are going to party. He actually made his own arm prosthesis without a movement mechanism. He made it in such a way that he can store beer cans and different alcohol bottles in it. He says security doesn't dare to inspect or touch it."



The image of the visual referents I showed Jan during our conversation.

Part of this conversation reminded me of one of the articles I had read before meeting Jan.

> "Fingers play a crucial role in daily tasks, social interaction, as well as aesthetics. Finger amputations are commonly associated with trauma, infection, congenital defects, and infections. Prosthetic rehabilitation is considered when patients cannot afford it or surgical reconstruction is not possible." (Colvenkar et al., 2022)

I wondered how I had overlooked something as crucial as the relationship between my greatest personal inspiration of natural, organic forms, like bacteria or corrugated skin, and the fact that finger prosthesis patients have experienced physical traumas related to infections.

Again, I felt that division within me, between what I desired to express artistically through these jewellery pieces and had in mind, and the fact that there are patients who "possibly" wouldn't like this. A possibility of which I wasn't even sure because I hadn't been able to speak with finger prosthesis users. This changed after a tutorial I had with Märta Mattson, who curiously had met a Colombian girl at a glass workshop in the United States, who specialises in making silicone finger prosthesis. She kindly gave me her contact information, and I was able to successfully engage in a long conversation with her.

As a side note, when the conversations were conducted in Spanish, I translated them to English with utmost care and accuracy to maintain their original content as precise as possible.

Participant 2:

Occupation: Silicone fingers prosthetic technician and special effects artist

Location: Medellin, Colombia

Gender: Female

Methodology: Conversations on chat and a phone call lasting approximately two hours.

Original language of the conversation: Spanish

Summary of the conversation: During my conversation with Mariana, I gained insights; into technical aspects of her work, such as the main differences between the silicones she uses as a special effects artist and the manufacturing of prostheses.

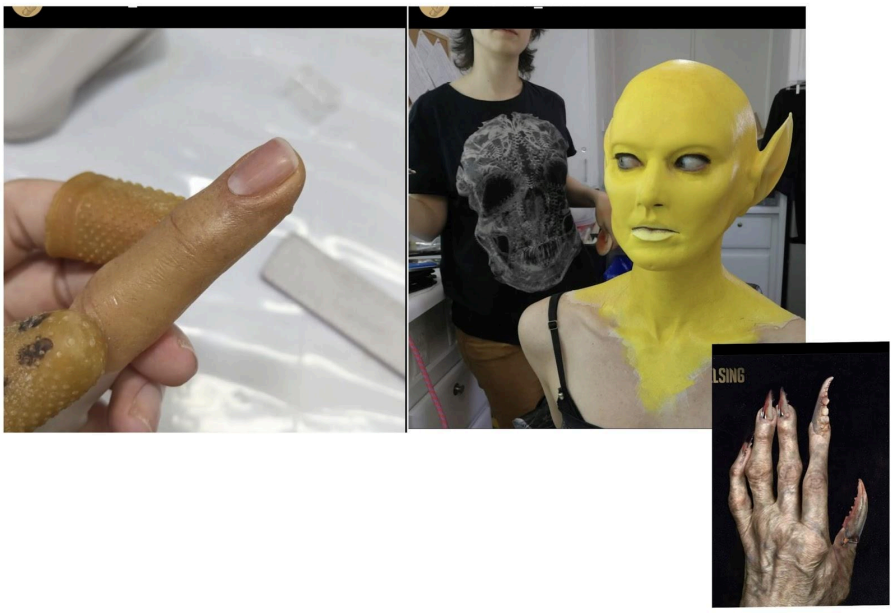
These silicones not only require medical or technical licensing for purchase but also must hold a much higher quality since they will be used constantly. It is to her knowledge that the prostheses made at her current workplace last around four months to a year, depending on patients' care. These cares include avoiding exposure to strong chemicals, constant rubbing, rough surfaces, and sleeping with them on. It was not allowed for confidentiality issues the prices of these prosthetic devices. She expressed sadness at

not being able to directly interact with patients and receive feedback from them, but that's how the company operates.

Mariana is highly interested in the idea of blending jewellery and prosthetics, seeing it as a promising business opportunity in Medellin, and is eager to collaborate on a project when I visit Colombia.

Quotes or Excerpts:

- "Indeed, in the company where I work, they say that when users feel completely comfortable being without their silicone prosthesis in public, that's when their process with this user has concluded. Silicone prostheses are devices intended to accompany users in accepting their new appearance, and when this is achieved, it means we have done our job."
- "Unfortunately, I don't have much contact with the users; instead, I receive moulds of their hands and other design parameters. My focus is on actually making the silicone prostheses, giving them colour, which is the most complicated and time-consuming process in this fabrication. There are several people within the company, and each has their role in bridging the gap between the patient and me."
- "I am very interested in the idea of jewellery combined with prosthetics. I would be very interested in learning jewellery and becoming a tool that provides various types of prostheses and possibilities for patients who are interested in this idea. I love it!"
- "In the nearly two years working at this company crafting prostheses, and based on the feedback I've received internally, I've noticed that initially, some patients request prosthetic pieces that mimic the finger they used to have. However, as they become more comfortable with their bodies, I see the potential to introduce the concept of creating jewellery inspired by prostheses."
- "Of course, there are prostheses that I have made that have not been successful with the user. When a user expects to have their finger back as it was before and still holds onto the memory of what it was like to have a healthy finger and expects the prosthesis to behave and feel the same, the process cannot continue. Because these prostheses will never be the same as healthy fingers."



Participant 3:

Occupation: Silicone fingers prosthetic user

Location: Medellin, Colombia

Gender: Female

Methodology: Conversation on a phone call that lasted approximately 15 minutes

Original language of the conversation: Spanish

Summary of the conversation: This patient has been needing and using silicone prosthetics for the past year due to a car accident. She expresses her interest in the project and having another option for finger prosthetics that are economically viable.

She tells me that the silicone piece makes her feel uncomfortable because she's constantly wondering if people around her have noticed it or if she should tell them she has a prosthesis. She would like to have a piece that is more obvious in terms of differentiation from her body, so she doesn't have to constantly think about how to address the issue, whether she should or shouldn't.

She says she would be very interested in working with me when I go to Colombia on a co-creation project for a ring-type prosthesis.

The photograph of this patient's hand condition was sent directly by the company, which has chosen to remain anonymous, and they have not allowed me to use these images at the moment.

Quotes or Excerpts:

- "You know what really makes me feel unconfident and uncomfortable still? The fact that when I'm talking to someone new, I feel like they're looking at my finger. I wonder if they're wondering if it's a fake finger or not? I feel the urge to say it's a prosthesis to get out of the topic and stop thinking about it. There are so many conversations I can't pay attention to because I'm thinking about it all the time. It makes me feel insecure, honestly."
- "I'd like a piece that's really different, elegant, with crystals or even something weird. Something totally unlike a silicone finger piece, but there are no more economically viable options here in Medellin."
- "I would love for you to make me a ring with the part of the finger that I'm missing, I know it would look sensational. I think I would even make my friends jealous."

Participant 4:

Occupation: Silicone fingers prosthetic user

Location: Medellin, Colombia

Gender: Female

Methodology: Conversation on a phone call that lasted approximately 15 minutes

Original language of the conversation: Spanish

Summary of the conversation: This patient expressed dissatisfaction with the silicone prosthetics. She has been a customer of our company for about 2.5 years and has had 4 of their pieces. She mentioned that she still hasn't gotten used to the heat and sweat on her finger while using it.

Additionally, she has gone through very painful recovery processes due to her skin condition that makes the recovery even more tedious. The prosthetics look good aesthetically, but they have several technical issues that bother her and make it possible for her to only use them outdoors and occasionally indoors. Although she feels uncomfortable without them due to self-esteem issues. She doesn't feel it would be a good moment for her to try jewellery prosthetics because of her constant pain. She expresses that hopefully in the future her situation will be brighter.

The photograph of this patient's hand condition was sent directly by the company, which has chosen to remain anonymous, and they have not allowed me to use these images at the moment.

Quotes or Excerpts:

- "It hurts a lot every day, the prosthesis bothers me, but even more so not having it due to self-esteem issues. It has been quite difficult."
- "The silicone looks good but it makes me sweat a lot, here in Medellin it's very hot and it's not an ideal climate for me and my health conditions."
- "I miss my finger a lot, I think about it every day."

Participant number 5 was contacted through a Facebook support group for finger and hand amputees.

Participant 5:

Occupation: Silicone fingers prosthetic user

Location: Washington, USA

Gender: Female

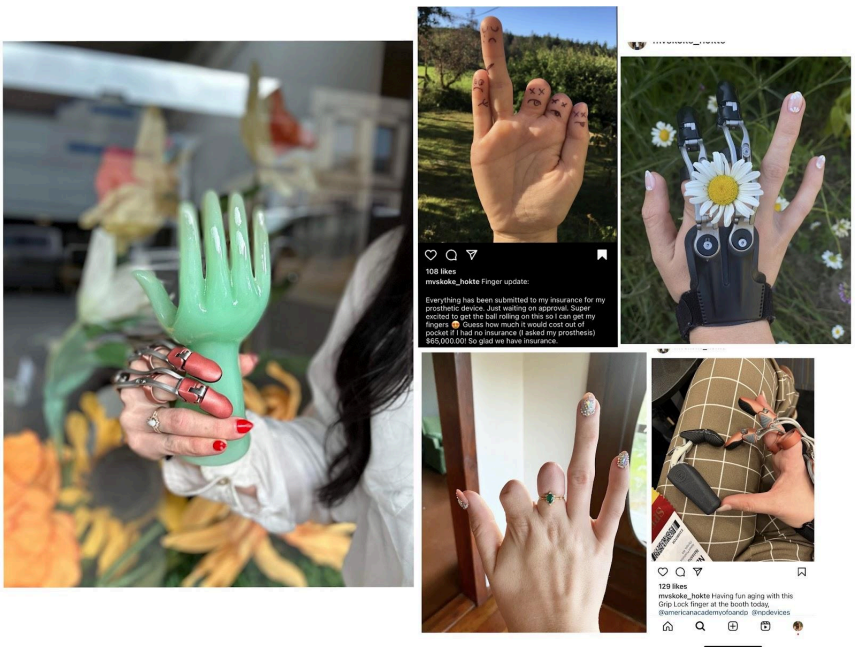
Methodology: Conversations as text-based chats and voice memos over a period of approximately 4 days for sustained interaction. Continued occasional communication thereafter

Original language of the conversation: English

Summary of the conversation: The conversations with this participant have been highly rewarding. Her consistently positive attitude and generosity in sharing her story and desires regarding prosthetics have been invaluable. She has candidly discussed her history, including the accident she had while working with machines in her woodshop. She conveyed that her experience with 3D-printed prosthetics was not positive, but she acknowledged that for those who have no other option, it's better than having nothing at all.

Quotes or Excerpts:

- "I use Naked Prosthetics. I love those; I have a black one and a pink one. I love the pink one, although I've asked them a thousand times to paint the metal a copper or pink colour, or even gold, but they're not interested in that. They say they're currently focused solely on the functionality and durability of the devices."
- "I used 3D printed pieces, but they felt painful and uncomfortable. When they made contact with the skin, it was very difficult for me to bear and move them. I have very sensitive nodes. What I love about Naked Prosthetics is that they have that empty space that doesn't make contact and allows better mobility; it's a ring, and I love that."
- "I would love for these prosthetics to look like jewelry. I've tried contacting multiple artists and jewellers asking them to work with me on this project, but they haven't been interested."
- "I've been asking Naked Prosthetics for years to make something different for the bracelet, but they haven't wanted to. Another thing I don't like about that bracelet besides its aesthetic aspect is that they can't get wet because they stop working. But everything else is waterproof."
- "I have been using these prosthetics since 2019. A day after I was at the hospital, I got in contact with Naked Prosthetics because I started googling what prosthetic options I could have. I have a very active life; I have 5 kids, I live on a farm, I am alone a lot because my husband is an airline pilot, and I need to use my hands all the time."
- "I am a very positive person and I love trying new things out!"
- "There are not a lot of amputees working in prosthetics and orthotics areas, so there are many missed opportunities. For example, my prosthetics was the first one ever to have conductive touchscreen on them. And it is so useful; I asked them for this feature for a long time and they accepted!"
- "I am so excited about you making jewellery inspired by finger prosthetics; I would 100% love working with you. I have so many ideas, and I am also so eager to see what you make!"



I found participant number 6 on Reddit, where I noticed he was engaging with people in need of prosthetics or those unaware of affordable options available to them.

Participant 6:

Occupation: Artist, photographer and IT engineer

Location: (currently unknown), USA

Gender: Male

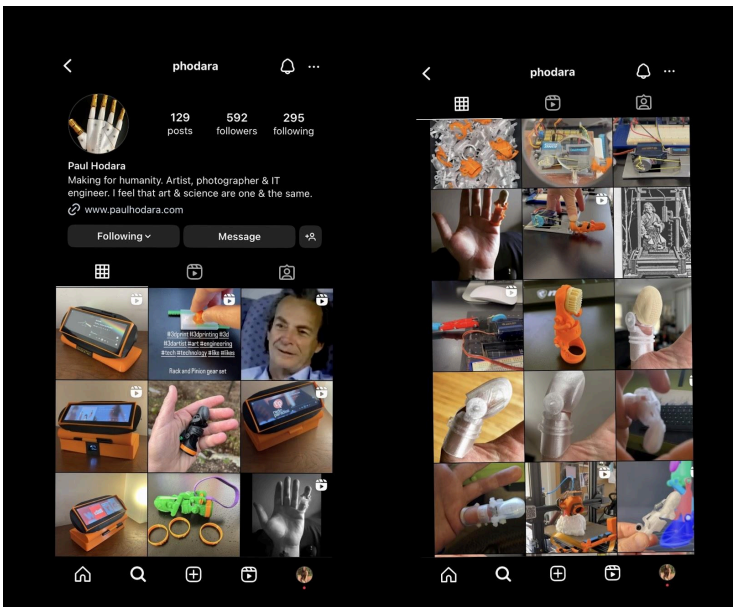
Methodology: Conversations as text-based chats over a period of approximately 10 minutes (currently waiting for more opportunities to talk more calmly, because I got his contact today, the 25th of March)

Original language of the conversation: English

Summary of the conversation: This participant expressed a desire to provide finger prosthetics to individuals who are unable to afford them because medical insurance does not cover them for all. He currently has a 3D PLA machine at home specifically for this purpose, which he purchased for trying these pieces out. Interestingly, he prints the same 2 models of 3D prosthetics that I also printed during this project. He suggested we could have a call later this week to discuss further.

Quotes or Excerpts:

- "I want to help as many people as I can, and this project is easy and something I deeply enjoy."
- "I download the files, request the users' measurements, print them, and send them at no cost."



<u>Ethical Considerations:</u>

Ethical considerations were carefully addressed throughout the study, including obtaining informed consent from participants, ensuring confidentiality of sensitive information, and prioritising the participants' well-being and privacy. The confidential information is secure in my personal device, protected by password.

The conversations with these participants gave me a clearer understanding of all the work, processes, timelines, materials, and money involved in making finger prosthetics.

Because of those reasons I decided that this project doesn't approach or understand my jewellery art pieces as a means of healing, but rather as a conduit for inspiration that stems from trauma and bodily discomfort. It delves into how adversity, pain, and unexpected challenges can serve as catalysts for creativity and innovation, not just within the realm of jewellery, but across different facets of life, and how overcoming certain obstacles can fuel more inner knowledge, connection, and personal growth.

Part B

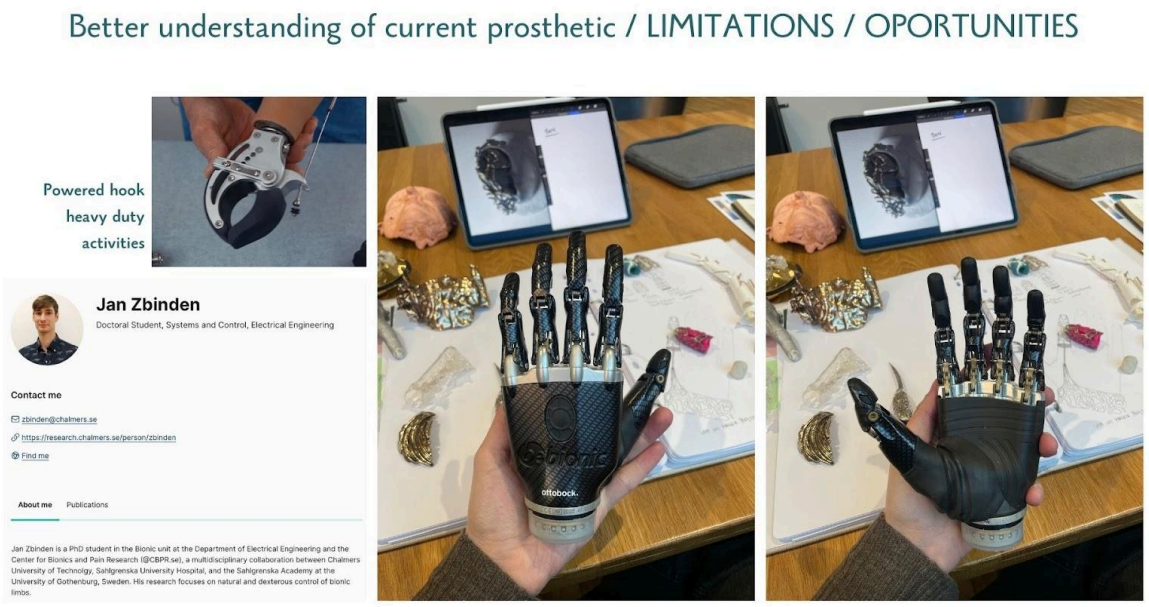
During the inception of this project, I used to refer to it as follows: "I'm designing finger prosthetics in jewellery." It sounded clear in my head, but there were two parts of me that felt divided.

One part of me wanted to design these finger prosthetics for users in co-creation. Drawing from my background as a product and communication designer, I had a clear vision of how to execute and collaborate in this process. The other part of me, which I wasn't being honest with, longed to find my voice and expression through jewellery, a field I deeply desired to work in. This second part of me felt suppressed, thinking I should approach things the way I knew, as if this were just another linear process where I could repeat known steps.

For this reason, I began researching finger prosthetics available in the market and the different materials used in this field.

I spent a lot of time experimenting with these materials and some silicones that I coloured and mixed with pieces made of silver, crafted using the lost-wax technique. I researched where to purchase the silicones used in finger prosthetics and realised that without a medical or technical licence, I couldn't access them. I felt like I was going in circles, trying to achieve something that wasn't clear in my mind, while another part of me felt trapped and restricted.

I attempted to contact prosthetics technicians, but I couldn't get a meeting with them here in Sweden. I tried to find users in Sweden and that's how I stumbled upon the Chalmers prosthetics project led by Max Ortiz, focusing on long-term sensory feedback and motor control of artificial limbs. I reached out to them and had a meeting with Jan Zbinden, a PhD student in the Bionic unit at the Department of Electrical Engineering and the Center for Bionics and Pain Research (more on this conversation in part A).



Jan told me that during his experience in this project, he noticed how fragile hand prosthetics were, even when imported from one of the pioneering companies in prosthetic and orthopaedic technology, Ottobock.

The fingers of the hand prosthetics constantly broke, approximately every two months. Users then had to send the prosthetics back and wait for about two months for repairs. For this reason, they opted to show some of these patients ways to repair them themselves if possible. He also mentioned that these prosthetics were very expensive and were loaned to users to analyse how arm prosthetics reacted to their bodies. From the results of their studies, they saw that very basic actions like lifting a glass of water were nearly impossible to perform. Consequently, users had to resort to cups with handles for better grip. I also learned that these prosthetics had to be removed if patients were to engage in activities that exerted more strain on their bodies, such as gardening. For such actions, they used a "powered hook" for heavy-duty activities.

This information, along with the findings from my initial research, which explained that users of finger and hand prosthetics were the least satisfied with the devices due to their shortcomings (MORE IN PART A), made me realise that there were several limitations in the jewellery pieces I planned to create, and that I was putting too much pressure on myself to fix them. This was the step that allowed me to be more realistic about what I could and couldn't achieve.

I then decided that it wasn't necessary for me to create the functionality of these pieces from scratch but that I could use the structure of the most commonly used 3D pieces in the market (All about these pieces in PART A). In my project plan, I proposed working on these prosthetics, designing their housing, and attempting to improve certain design and durability issues that I believed could be addressed through metal and certain new openings that made assembly simpler.

But throughout this process, I felt dishonest with myself. I was thinking like a product designer, not an artist. I wasn't allowing myself to do what my heart truly desired. I hadn't been able to find my stance on this project; I wanted to do it all, and I felt like I wasn't achieving anything concrete.

Even when I had contact with the three users from Colombia (all about it in PART A), who, through our conversations, allowed me to gain many more insights into their condition, their relationship with the silicone prosthetic pieces they use daily, I finally understood something that was obvious to me at first, but that I had forgotten during this journey. I was designing these pieces for everyone and no one; I was thinking of a user who wasn't there. I had no specific person to design for, to talk to, to discuss, to co-create with.

And it was finally when I sat down one afternoon at my house, asking myself honest questions, that I realised that I had "forgotten" that basic step, because I didn't really want to co-create in this project. The part of me that wanted to find its voice and expression in the art of jewellery was growing stronger and stronger. And since this was my final project, my master's thesis project, I decided that I would allow myself to think and work as a jewellery artist seeking expression in this project.

Therefore, I now refer to my project as: **"jewellery pieces inspired by finger prosthetics."** or **"jewellery pieces inspired by the idea of finger prosthetics."**

When I decided to view my project in this way, I allowed myself to **see** myself, my experiences outside and within the master's program.

Around September 2023, I made a wax piece of a bird. This dead bird had a human skeleton inside it, and it was a piece I made because on three of the most traumatic occasions in my life, I found a small dead bird laying next to me, in inexplicable places.

One of these examples: When my little brother was 5 years old at the time and I was 16 y/o), he fell ill during a trip to the beach with my parents. We were about 14 hours away by car from Bogotá, where we lived.

My brother had felt unwell the night before, dizzy and had vomited a couple of times during the night. But in the morning, he felt fine. So we thought it was just the food. I remember him and I playing at the beach, making sand castles and running around. But after some hours, my brother was very pale again, weak, and felt very sick. My parents decided it was best to return to Bogotá and see what was happening. We packed our bags and left. I remember having a water bottle in the cup holder, and about 3 hours into the journey, my brother was crying, puking and soiling himself. We all got out of the car, left the doors open, and I gave him my water.

My parents and I were with him for about 10 minutes while he got clean, and when we got back into the car, and I tried to put my water bottle back into the cup holder, there was a little brown dead bird in it. I remember screaming when I saw it and being so shocked; we didn't understand how it had gotten into the car, or at what moment, or why it hadn't tried to fly away or make any noise.

The following hours of that car journey was a nightmare; the towns we passed through were very poor and with no medical attention due to the holidays. All we could do was keep driving and get to the clinic in Bogotá. My brother arrived at the clinic almost dead, my parents shouted and cried for help, we were all desperate. A doctor came out, and my baby brother was taken straight into surgery. They said if we had arrived an hour later, he would have died.

My brother had appendicitis and he didn't feel any pain, only nausea. Because it wasn't treated, he developed severe peritonitis, and his body couldn't heal for over two years. He underwent constant surgeries, and during that time, my parents fell very ill due to stress, pain, and depression. My mom got suicidal and my dad got badly sick for a long time.

During those 2 years, I saw 2 more dead birds in front of our house, just when my brother was about to die again due to the same complication.

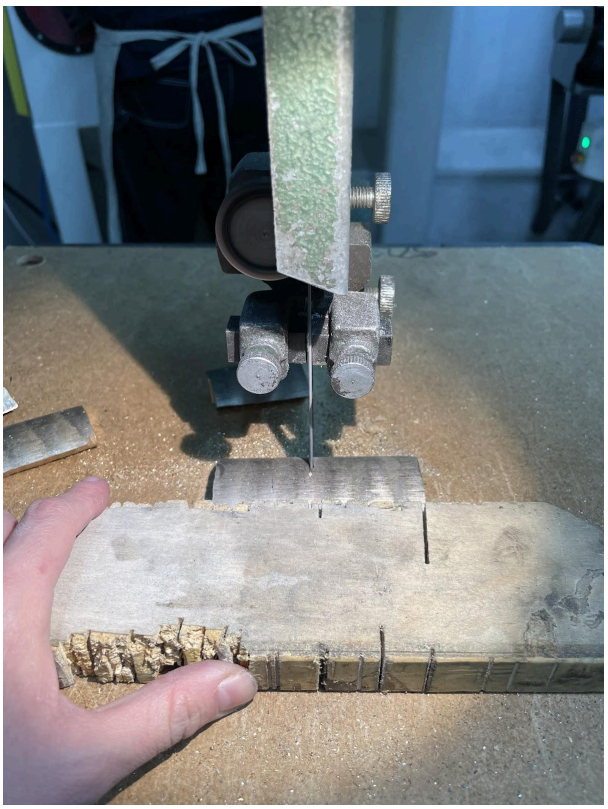
After that experience, I see birds as angels, as spirits that protect us and give their life for us to become better.

In December 2023, I decided to cast the wax bird I mentioned above. My dad, who is a jeweller, had given me some silver material to melt and use in my project. That day I brought just the necessary grams from home and melted it. This was the result, filled with colours, a beautiful piece in itself. Apparently, one of the metals I had included was not silver, and due to this exact mix, these colours emerged on their own.

It pained me to have to lose this piece, I didn't want to, but I had to use this material for my bird. When I cast it, everything went well; the piece was complete, though it had the usual grey like regular silver, lifeless and without the magic.

I decided to cut this piece in the metal workshop's machine, which was a grave mistake because this machine is very powerful, and the bird was very small and unstable, so I had to hold it with my own hands.

During this process, the machine tangled with one of the bird's legs, and my left hand got caught between the piece and the machine. Everything happened very quickly, and with my right hand, I managed to turn off the machine; my fingers, red and sore from struggling against the machine, released some blood, and my bird had shattered. The bird lost a wing and a leg.



(another of my pictures of this machine)

I was angry with myself. And I was scared. I had almost lost my fingers. I was trembling, and I felt grateful that nothing serious had happened.

Again, a bird, related to almost losing my fingers. The bird lost its fingers and its wing.

During the time I had decided to be honest with myself a couple of weeks ago, I considered the possibility of designing these pieces inspired by that event.

And I understand the importance of clarifying that I don't need finger prosthetics, and I don't intend to understand what an incident like that would cause in my life, body, and mind, but this event made me stop and think about what the Lana today would create for that hypothetical Lana, where that day, the accident had a more tragic outcome.

So, I decided that this small collection of jewellery pieces are not medical devices, or even prosthetics, I don't even want to call them prosthetics. They are simply decorative pieces inspired by a personal situation, keeping in mind all the research already done on finger prosthetics.

I decide that my stance in this project is to be honest with myself, to allow myself to think and work as an artist, for myself, on my body, with my personal expression, and with an idea behind it, but without trying to solve functionality or durability. I must allow myself to find my voice as a jeweller, so in the future, I can work for and with other people, as the finger prosthetics project is something I will continue to develop, but from a design perspective. Now, I will allow myself to put the artist hat on, and flow with these pieces.

Engaging in conversations with these participants helped me understand their experiences, feelings, and some of their desires regarding finger prosthetics, which I incorporated into my pieces.

I chose to remove functionality from these pieces, reflecting their shared feeling of never being able to regain the flexibility and abilities their fingers had before their accidents. I aimed to convey their frustration due to the lack of efficient mobility in their current finger prosthetics.

These words represent important feelings and experiences of the participants in their current situation or during their journey with finger prosthetics.

- Memory
- Pain
- Acceptance
- Confidence
- Talisman*

Each of my pieces aims to represent one of these words.

I will quote some of their words during our conversations.

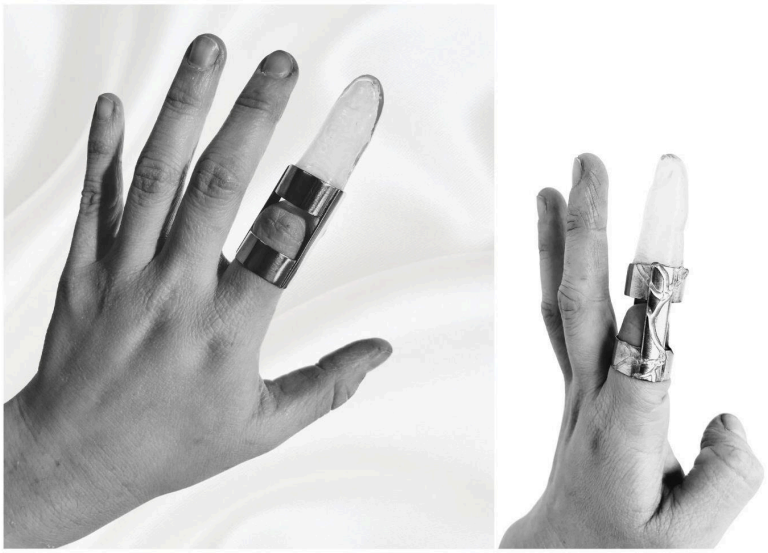
memory

“I think about my missing finger every single day, it is quite painful to know that my hand and the way I relate to the world will never be the same. It saddens me all the time.”

pain

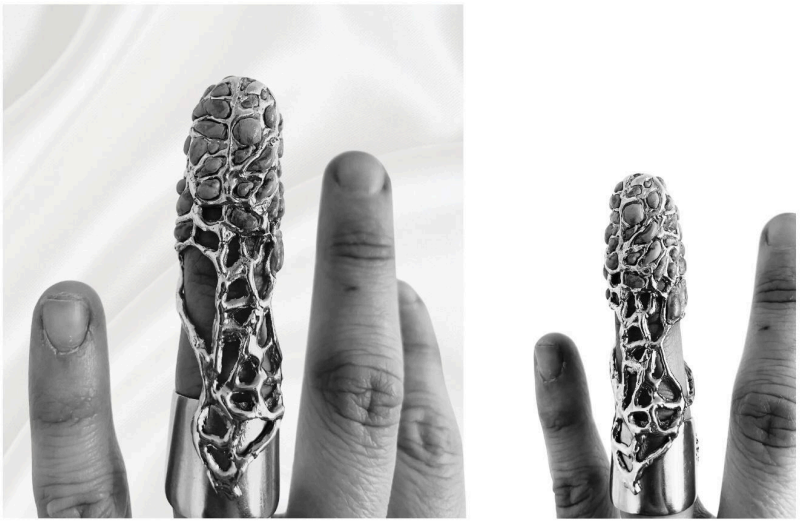
“Over the past two years, I have tried four (4) different finger prosthetics. All of them cause me pain, they are uncomfortable, but I endure the pain, because I feel ashamed and self-conscious when I am not wearing them.”

acceptance



“As a silicone finger prosthetic technician, I was taught that when a user feels completely comfortable without their silicone prosthetic, it signifies the conclusion of the process with that user. Silicone prosthetics are devices intended to accompany users into accepting their own appearance. This acceptance brings them freedom.”

confidence

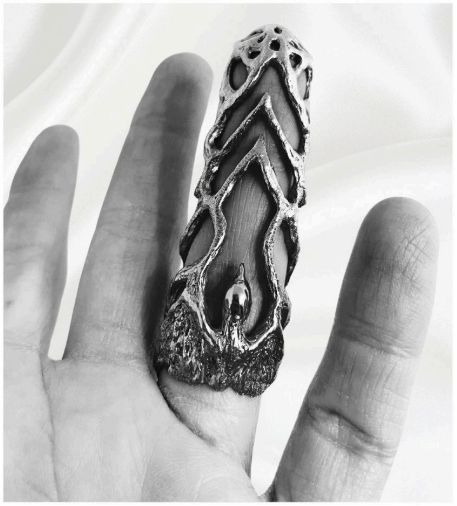


“Having a prosthetic that tries to look like your fingers makes me extremely uncomfortable. When I meet someone all I think about is: "Have they noticed it? Should I mention that I have a prosthetic?" I would prefer a device that looks different, colorful, and unique!”

For this piece I drew inspiration in the **turquoise stone** which is believed to have **anti-inflammatory** properties, and can help **reduce swelling and pain** in the body.

This crystal has also been used for centuries to increase **confidence and self-esteem.**

talisman*



"My husband had a ring made for me with an opaline stone, my favourite crystal. I love this ring so much; it makes me feel protected. Sadly, I don't think I feel the same way about my finger prosthetics."

**This piece I made thinking about the near accident where I almost lost my fingers. And my personal experience with birds, as mentioned above.*

In conclusion, creating these pieces enabled me to physically experience all the core sensations I have been exploring in this project.

"Memory" represents the tension between what once was and what now must be endured. "Pain" was created to emulate the feeling of a real prosthetic, inspired by a participant in my study who described her prosthesis as a cause of constant pain and a continuous reminder of her injury, making her self-conscious. I wore this piece for an entire day and experienced significant anxiety and pain, which made me more aware of her situation and tribulations. "Acceptance" is about finally making peace with the fact that your body will forever be different, yet can still be beautiful in its own way. "Confidence" represents the next step in the journey for some users who have accepted the change and wish to accentuate their differences through their expression. "Talisman" is a piece that relates to the connection between the physical and spiritual worlds. It was inspired by the idea of creating finger prosthetics that provide the user with a sense of protection and safety.

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