

Ask The Researcher with Victoria Manganiello and Julian Goldman

Tuesday, June 6, 2020

4-5 pm

02:00 Marilyn Zapf (Moderator) Hi everybody, my name is Marilyn Zapf. I'm the Assistant Director and Curator here at the Center for Craft. I'm joined today by Victoria Manganiello and Julian Goldman.

Victoria and Julian, are some of the Center for Crafts 2020 Materials Based Research recipients. And for those of you who may not know, the Materials-Based Research Grant was initiated in 2016 to support a tendency among contemporary crafts people to explore how material specific knowledge, skills, and creativity can apply outside the field of art.

This grant in particular encourages mutually beneficial collaboration between craft and STEM fields including science, technology, engineering and mathematics through the funding of teams of researchers.

I'm really excited to have both Victoria and Julian with us today!

Victoria is a multidisciplinary artist combining textiles, installation, paintings, and kinetic sculpture. And in addition to receiving numerous awards and prestigious grants and commissions and appointments, she exhibits her work internationally, and currently is the adjunct professor at NYU and Parsons The New School and living and working in Brooklyn, New York.

03:24 Victoria Manganiello (Artist) Hello!

03:26 Marilyn

Hi, Victoria!

Julian, who's also here with us, is a designer and artist based in Oakland, California. Currently the lead designer at Bolt Threads where he's involved in the development of novel biomaterials.

Likewise, Goldman has a really remarkable exhibition history, including places like the Museum of Arts and Design, Indianapolis Museum of Contemporary Art, and Current New Media Festival in Santa Fe, among many others.

Suffice it to say I think both of their work really explores the convergences of materiality, innovation, technology, and society.

Welcome to you both. Thanks for taking your afternoon with us.

I just want to point out that when I was preparing for our conversation today, I went back and looked at your original grant application and I thought it was very poignant that the first line is “research shows extended time spent attached to screens is detrimental.” And here we are, on a screen by zoom in which, you know, in the time of coronavirus it seems like the only way we can be together.

So, I hope that we can dig into all the solutions that you have for us to decrease our screen time as we learn more about your project.

04:49 Julian
Goldman
(Artist, Designer)

I think it should also be pointed out that we made this application before coronavirus was...

04:44 Victoria

...it was in February...

04:48 Julian

...yeah, maybe it was on the radar but it wasn't something that we thought of as increasing our screen time.

05:02 Marilyn

Yeah, no kidding. So, new challenges for your research to address.

Okay, well I definitely want to get to hearing more about your project but before that let's do a few little icebreakers because I think it's great to be able to learn about you all as holistic people.

I was wondering if you might start by sharing with us what one of your first memories of either an art or science experience?

05:35 Victoria

I can go first.

I have been making objects with soft materials ever since I was a kid, and really enjoyed friendship bracelets. It was, I think of that as my professional entry point into the career that I now have as a textile artist and designer and educator and, and maybe it feels, you know, trivial or something but it is something that I always look back to because I learned it within the context of community and also feminine craft.

And as time has gone on since doing then, I've heard a lot more of those kinds of materials and techniques can be connected to so many other industries including STEM.

So, my work with Julian has, has sort of been born in that interest that goes along with it.

06:28 Marilyn

Super cool. I love the connection. That's awesome.

06:28 Julian

Yeah, friendship bracelets are like a gateway drug to textile art.

06:39 Marilyn

I did them, I certainly did.

06:45 Julian

I remember pretty clearly being a six-year-old and thinking it'd be very cool to be an inventor, and I don't really have a lot of recollections of specific science or art moments but I do remember taking apart machinery a lot like a television, little remote-control cars.

And at that time, my inventions were like rigging up string that would turn on and off my light switch from bed, you know, that kind of a thing.

But now a string that is doing mechanical action, or creating some kind of effect like that is not too far off from what we're doing right now. So, I think that kind of way of thinking is what got me into this work.

07:40 Marilyn

I love the backstory.

I'm also curious. You all are in New York and California right now. I'd like to know a little bit about what you do for a day job, you know, what keeps you busy, but also how that's changed because of COVID-19?

08:10 Julian

So just to point out, we started this collaboration when we were both living in Brooklyn. None of this ever would have started as a remote relationship, but somehow it has worked out pretty well. And we've been able to keep it going pretty productively remotely across the whole country.

Right now, my work is changing. I'll be moving on to something else starting tomorrow, but what I have been doing for the past two years and what brought me out to California in the first place was this company called Bolt Threads that is creating really two main "biomaterials" is what we are calling them.

They are not synthetically created but biologically created materials. The first one I started with was a spider silk protein that's made by genetically modified yeast and then fermenting or brewing that yeast to create this protein which can be spun into a silk. It can be used as an ingredient in skincare and can even be developed into a plastic, I can show you an example of it.

So this is a glasses frame that I designed. It's like a late Le Corbusier-inspired design. There's of course temples and lenses and everything that needs to be attached but this is actually made from solid spider silk.

And we also are increasingly focused on a leather that's made from mycelium. So, we most commonly know the mycelium organism, as the mushroom, the mushroom is the fruiting body or the apple of the tree mycelium is all underground. And we've been able to figure out how to grow it into a mat that can be compressed into a leather-like product, and that should be hitting markets pretty soon.

COVID has made a lot of companies have to shrink and design teams are a little bit like a, like the cherry on top, like the thing you really like to have, but is difficult to support at times we need more footprint and help with launching product but since we're not even selling that product on the market right now, that's part of the reason I'll be moving on. So that's what I have been doing day to day for the past two years, is turning these interesting materials into product.

And also doing a lot of work with the science staff to help them kind of think less linearly and help them understand modern manufacturing

techniques and the way in which we can take the materials and fit them into manufacturing streams that exist already in the world.

11:30 Marilyn

I'd love to come back to that, to what you're saying about your role, educating and helping scientists to not think so linearly.

I think that as we've had this grant program going on for a while that's been one of the questions that's come up is what do artists bring to the research and development team that is unique and so I'd be curious to dig into that later.

11:57 Julian

I have a lot to say about that.

12:05 Marilyn

Victoria, what about you? What keeps you going day to day?

12:10 Victoria

So in addition to being a visual artist, showing my work and galleries and museums and other types of spaces around, I also am an educator, like you mentioned earlier. I'm part-time faculty at Parsons New School. I teach in the textile MFA program where one of the other grant awardees from our cycle also comes, which is pretty cool for me because my proud of my colleagues that we can all be in this together. And then I also teach at NYU in the Bachelor's of Fine Arts the BFA program, so my students from the two universities span categories from architecture interior design and product design to the fine arts fashion design, and lots of other things in between.

Being in the university, especially with all those different kinds of students, is a great way for me to sort of switch my brain between disciplines, and re-synthesize all this information through different lenses. So, I'm mostly teaching my students how to make their own materials through construction techniques and manipulation and embellishment techniques. Weaving and dying in particular are my specialties.

And then I do a handful of other freelance stuff. I think a lot of artists, especially ones who live in cities like New York are freelancers doing lots of different projects here and there, and sometimes I feel like I have my foot and so many different projects, just because that's the nature of New York. But of course, with COVID, a lot of that kind of work has either disappeared or changed and access to studio space and tools and materials has also decreased.

So, for me I've been thinking a lot about what I have access to in my home and it's funny how certain materials have revealed themselves to me in my home that I didn't realized before I could be use for making stuff. When you spend a certain amount of time somewhere you start to look at the things around you differently. And like Julian mentioned before we had already been working remotely for nearly two years together. It's funny how we had never really relied on these tools that everybody's using now because we spoke mostly on the phone, and we have come now to see the benefit of zoom, although we didn't use it before. So, this isn't the first time at all that we're working remotely, but the fact that we're sharing that with our communities, perhaps makes it new.

14:48 Marilyn

I love that. looking around your apartment and finding the materials and seeing things in a new way. That resonates with me in terms of my experience with the coronavirus.

So, you mentioned that you two met a long time ago and one question that we often get from prospective applicants for this grant is about the collaborative part. Could you all maybe speak to how you met or what the first project you worked on was like?

15:20 Victoria

Yeah, so I had a vague idea in my head of something I wanted to do. I was really excited about the history of the computer and its relationship to the history of weaving, as well as the future of the computer and the future of weaving. I had this like kind of really vague idea in my mind of something that I wanted to create but I knew that I couldn't do it on my own, and through a few mutual friends I connected with someone who I was like, "oh, you gotta meet Julian," the first person that she mentioned, and we met up and it turned out he'd been asking himself the same questions pretty much about the history of textile and its relationship to technology and we just like immediately vibed and we were like "we need to immediately collaborate" because we both had skills that the other didn't have but our interests overlap. It's been more than three years now, I guess.

So, we've mostly been working on one sort of larger project but doing lots of different iterations and experiments with it and the one that we're working on through the Center for Craft grant stems from that seed project as well.

16:35 Marilyn

Also, could you tell us a little bit about *Soft Monitor*, the project that you just mentioned and what sort of questions you're asking through this research and how you are going to go about the project?

16:50 Julian

Maybe I'll do that while I show a little bit about what we have. So, when we first met, I felt like we were speaking the same language. I had been working on a thesis about the ethics around control over our personal data in a future where we're going to be increasingly using biometric sensing.

From your Apple Watch, to embedded technologies that are knit into your T shirt that are sensing your heart rate and hormone levels, etc. That's a far out, future perspective of essentially the loom computer.

But my major and undergrad was Science Technology and Society. It's like a history and philosophy of science and we learn a lot in that vein about history and philosophy of science. You talk a lot about the origins of computation. So, when Victoria started talking, talking about Deckard, Charles Babbage, Alan Turing, Ada Lovelace, we were both very excited.

And this is a prototype we've built and shown a variety of places but it's a woven cloth. If you look closely you can see that there's tubing and the Left. Left?

18:27 Victoria

Left, yeah. Left.

18:29 Julian

We can pump liquid through that tubing. This is all one continuous system. And we can control whether it will be color or clear. Those become our pixels, our ones and zeros. So, right now there's a lot of chaos in the system. There's a lot of pressure build up, and you get these kind of pressure buildups and then release of pressure and you get these intense and interesting waves back and forth across it. We have a lot of control over...fill, basically, how much, density of color we have.

And on smaller systems we've been able to actually upload patterns. We can do waves and crosses and calm like Mario steps. But we never have been able to quite upload an image or text, or a woven pattern which would be an interesting thing for us to be able to do, to upload a pattern from weaving the cloth. So, that's what we're hoping to do with this grant, or at least approach that.

You can see a little bit of our equipment here. We're using pneumatics and air compressor, a pressure vessel down here. And there's a prototype for our die vessel, and then starting to build out what we're calling our operating system. So far Victoria hasn't even seen this.

But here's all of these computer-controlled valves. Plenty of variety of regulators right here. And then here will be our vessel of liquid.

20:17 Victoria

So, in tandem with the kind of generation of a system that's going to allow our textile to show images that are more identifiable, we've been doing a lot of research about what kinds of images we want to show, who can use those images, how they could be controlled and that quote that you mentioned before you know we've spent so much time in front of screens.

That it's been proven to be detrimental is something that's been really driving us because we have essentially, we've already created a screen. It's something that is changing. But we've been asking ourselves with a special focus since working with you guys "what can a screen be?"

And then a lot of the work that we've been doing is looking at the history of screens so that we can think about what a future screen could be. They've looked so different throughout history but pretty much now, like the surrounding timeline to right now they more or less look the same. They're shiny, they're glass, they have lights, and those are all the things that kind of make us feel like zombies but there's no rule that says a screen can't be made out of soft natural materials. Or at least that's what we believe in.

So, addition to making something that can be used more like a screen, we've been exploring conceptually what that means. So far, something that zoom has offered us in this distance is a way to get into other people's conversations more easily. We've done a couple of workshops already working with middle schoolers. We did a series with them and then we've also been working with an adult learner group, just talking to them about what they think screens can be, and speculating on the future of screens, and also looking at precedents where textiles and technology are overlapping.

22:14 Marilyn

Yeah, my mind is expanding just listening to you all talk. It's so fascinating and I'm making my own associations with my Art History background between screens and frames and how we convey information. There just seems like a lot to dig into there.

What are some of the potentials that you are seeing or applications? And I don't just mean that in a "product development" way, I also mean, like you said you're approaching this conceptually. How do you see your research changing the conversation?

22:53 Julian

We've talked about this in a product development way, and we've talked about it in a more fine arts perspective as well. But we've been asking, what if when you're zooming with your relatives, you could actually wrap the screen around you? Or wear it like a blanket? Or, you could be that kid reading their book after dark, or after you're supposed to be going to sleep in your little like tent, blanket tent. You could be animating that.

And maybe that is more of a product, and going more into that broad direction. We've been talking about, you know, in New York City when you have these buildings under construction, they have huge textile kind of safety nets that go top to bottom. You could be animating and putting imagery on that. Just using water.

Or another direction and one in which we kind of got excited about, in the very early days was, if you could just be able to create simple patterns and freeze those patterns you could then use those as a sort of pattern trigger for augmented reality, and then have another layer on top of that information, layer. A second kind of a meta layer of information that could be, you know, talking about say history of textile history of technology, other artworks in a museum, things like that.

So, I'm the product guy. I think we should let Victoria talk more to the conceptual art.

24:39 Victoria

Yeah, and one of the real pleasures that I know that we've both gotten from our collaboration is the opportunity to recognize that just because a designer makes something doesn't mean that it can only be designed, or just because an artist makes something doesn't mean that it can only be art. I think that's also part of why we were so drawn to this brand, because it really embraces the idea that you can work across disciplines.

And so, we're really excited by the idea that whatever we make could exist in a contemporary white wall gallery one day, and then the next day be in a public park, and then the next day a science lab, and then a school, and it could still be the same object in all of those locations. The context can inform its identity, or rather, expand its identity. And for me as an artist, even independent from my relationship working with Julian, it has been really eye-opening that those categories don't necessarily have as much meaning as a lot of us tend to think. Where, if we allow ourselves to see how expansive they are, perhaps there's more potential for innovation and creativity.

25:48 Marilyn

I love thinking about this object as crossing the boundaries and borders that we socially construct around them, that derives their meaning or predetermines their meaning, but it strikes me that you know working cross disciplinarily or trying to situate an object in different contexts takes a lot of extra work and understanding.

I'm curious what challenges you all have come across so far, from whether it's talking to different audiences about this or trying to help people understand what you're doing in different contexts, and if you found any tips or tricks for doing that kind of work.

26:44 Victoria

It's been interesting to put ourselves out there as a duo. Especially because we have diverse backgrounds and diverse working professional experiences and pretty recently, actually, maybe in tandem with our application to you guys we resolved that we wanted to have an identity that was a name that we shared. So, Soft Monitor is this newer name for us as a partnership and a collaboration. And so, we haven't really had the chance yet to see how that is received in contrast to what we were doing before with our two names.

But yeah, the different industries seem to accept this object in this collaboration in different ways. So, I don't know if it's been long enough to make any conclusions but we're certainly noticing that. And we do hope to be able to transcend, like we were saying before, transcend those boundaries and just let something be out in the world, and be accepted, and learn from it.

27:44 Julian

I think one thing we have noticed is that just comparing our showing of it at the Museum of Art and Design, where Victoria also kind of wrapped that in with a residency she was doing, or in a just fine art gallery, or maybe like the Governor's Island Art Fair. In those art contexts it was just viewed, and people thought it was beautiful and they thought it was interesting and they talked about the things that have conjured for them. People speak about traffic and things coming together and coming apart. Every once in a while, we get someone who has an ants-related reaction to it.

28:27 Marilyn

A what-related reaction?

- 28:29 Julian Ants-related, like an ant farm.
- 28:34 Marilyn Ooh
- 28:34 Victoria I'll show you what they mean.
- 28:38 Julian Yeah, we can share. But then in the Mad museum, people would often come and recommend things for us to do with it.
- They would go up to Victoria especially because she was there working on it, and say, you know, "oh you could do this with this and that would be so interesting", and it was more of a product-type understanding.
- 29:08 Marilyn Interesting.
Gosh, even in a museum context that's really...
- 29:10 Julian But a *design* museum.
- 29:13 Marilyn Yeah, that's true, yeah. Audience expectations has a big....
- 29:25 Victoria *(Victoria shows a video of the installation on her virtual background)*
- So maybe you see what Julian meant when he said an ant reference. But sometimes people seem to think that the liquid moving through the weft is a bug.
- 29:33 Marilyn I could see that. Fantastic.
- I want to loop back to Julian. Something you started to say at the beginning of this about your role within a design team and, and I'm sort of curious if you can go back and give us a little bit of insight about, you know, whether the artist as disrupter or the nonlinear role, what that looks like in an industry driven team. And then, what other opportunities you see maybe both for art and specifically craft in industry or in STEM fields.

30:22 Julian Let me, I have a little bit more show and tell. One second.

30:30 Marilyn Okay Victoria, what's behind you, while Julian is...

30:36 Victoria This is my virtual background so it's a Kipu, which is an ancient ink and counting device. So, they look to us like simple garment, or jewelry but actually all of the knots that are on each strand are placed there strategically.

These would be used to record information like dates or records by people many thousands of years ago, so it's an example of an early computer.

31:10 Julian

I wanted to share a little bit more of this glasses project. This is actually the mycelium leather you can see on the inside: it's mushrooms. And this is a spider silk fiber, braided around a core. And then here are the same glasses I designed but with pigment in the spider silk and more of a finalized version.

This example of a product that's kind of a speculative project. This all came out of working directly with the science staff.

When we were originally spinning fiber, the realization came up that fiber is a solid in the same way as these glasses are, it's just kind of an aspect ratio difference where this a fiber is just very thin and long. This one's a lot more compressed, you know. So, we started asking, could we make a film from this, could we make a little billet that we could machine. Can we mold it?

And scientists who had been solely focused on creating fibers from this protein powder start thinking about things in a different way. And through that we were able to make these glasses, but other things come out from that as well. It's not just, oh you get to make your glasses.

You also might be able to make a film now, and so you can use a silk film to do like a mask, like you know, for skincare, or maybe you can even make one that could be used for wrapping food or something like that.

So little prototypes result from certain questions that you might ask. That can be very interesting, both just from a pure interest perspective, and also from potentially a business and financial perspective.

So I think that's a lot of the role that a designer can take in science and a pure science context. But also, I think it should be stated that I'm sort of straddling those two worlds between art and science as a designer. I have a very tight sort of technical and biology focused background that helps me speak the language. It's not going to be that I can understand at the level that these biologists and chemists are working where they're thinking about molecules, and how to manipulate molecules and how to take apart molecules and reassemble them. But I have enough knowledge to be able to roughly understand what happens when you add a chemical, say, that's going to be a plasticizer, or a cross linker, or these things that functionalize molecules and create materials. It's asking for maybe material characteristics to create specific functions that will often push those types of thinkers in different directions.

34:55 Marilyn

Hmm. Yeah, that's awesome.

Victoria, do you have anything to add? I know you have a different role in this collaboration as well, but I could see you having some interesting insights.

35:08 Victoria

Yeah, it's, um, you know the work that Julian and I do is only one aspect of the work that we are each doing as individuals, so it's also really interesting for me to hear, even though we've talked about it before, to hear him kind of synthesize that and explain it to you. And I feel like as we continue to work together, we discover more about what the other knows.

I'm so grateful for support like this grant because it gives us the space to just relax a little bit in terms of logistics and then go back into that place where we can say, "alright, what are our tools and our collective toolkit? What can we do?" And we've sort of discovered that we've got these interests and these skills and these materials and it allows us to figure out what's possible with our projects together and maybe projects in the future.

36:00 Julian

And Victoria, too, has been really delving into more of the technology side of things as well like with the ITP group, for example, right?

36:08 Victoria

Yeah, so like I said before, the reason that I sought out Julian was because I didn't have a lot of the skills that we've ended up needing. But since working together, I've gained many of them, and others adjacent to them. So, it's been a learning experience for me too and I in the last three years I've become a lot more interested in e-textiles and conductive fabrics and soft circuits and figuring out what's possible with those materials, and it has found its way into my other projects as well.

36:48 Julian

Seems like it was very interesting for the Center for Craft this time around too because a lot of these pieces and a lot of these groups are very textile and electronics focused.

36:50 Marilyn

Yeah, that was fascinating and you know, in terms of the grant review history, the application pool has not always had such a heavy focus on textiles and so for them to be focused on textiles and the applications and then for three selected projects to also all be textiles, it was like, whoa, something's happening here, some sort of connection is happening. It's super interesting to explore and understand further, I think.

Acknowledging the history of computing and textiles being so interwoven together, do you all feel like, as a medium, textiles of the traditional craft media has any sort of properties or inherent material values that lends itself to this kind of interesting position that can easily cross disciplines?

38:00 Victoria

Yeah, I think, especially in a time like now where our societies are reckoning with who gets credit for what and the way our societies are dealing with the way that credit has been given, and how some people have been sort of relegated to the background, I think it's an interesting time for something like textile which has been associated to underrepresented groups also to be coming up.

And it's something that, especially now, Julian and I have been talking a lot about how do we make sure that we can use our platform, and our privilege, to include those stories, and not just the stories with the voices of those types of people.

And for me, independent from this I'm also working on a documentary about textile as it shows up in other industries. Besides, when I say other, I'm sort of comparing it to the ones that we expect which are more like fashion and garments and things like that. And it turns out that textiles are all over, right? Most of us don't know how much we know about textiles, despite that we wear it all the time. But textiles and science, medicine, in all kinds of different industries futuristic and more simple.

So, we hope that we can sort of be a part of the movement for the wider society to pay more close attention to this very important material and understand that it has so much potential with so many different authors.

39:40 Marilyn Yeah. That's awesome. That's super awesome and I wish that I could transport you to the Center for Craft, but maybe we'll have to find a zoom way to do this because I should mention that when we reopen, we had just installed a new exhibition, done by another fellow of ours, a curatorial fellow named Kaylee Perkov, called The Computer Pays Its Debt and it really looks at bringing out women's history in the story of textiles and computing.

So, it feels like that's right in line with shining the light on stories that have not really gotten their due recognition yet so that's great, that's really interesting to see the synergy there. Maybe we'll do a zoom tour in the near future!

40:42 Victoria Yeah!

40:43 Julian That would be amazing.

40:44 Victoria I've been really excited by that show, looking at the different artists participating.

40:54 Marilyn Awesome. Cool. Well, um, okay, I do want to just kind of pause on the grant, and circle back to that and I'm just curious. Do you know what this grant is really going to allow you all to do, or, Victoria, you kind of started talking about this but what will you be able to do that you couldn't do before because of this grant?

41:21 Victoria And, well, I'll start by saying, and then I think Julian can talk more about just like the materials that are really hard for us to get when we don't have funding to do so but I think that we are really excited for the opportunity to put a lot of focus time into our research, historical and material research.

In addition, again to the work for hire and the fabrication and materials, it's just so essential, especially in today's age, for artwork and design work to be informed by research. And so, this is just going to give us the opportunity to access research tools and dedicate real time to doing real research, and then also to creating tools for us to share our research with the wider public so that others can learn from what we're collecting.

42:12 Julian

Yep. And then on the technical end, we need financing to buy all of these valves and regulators and pumps and air compressors. And I'm hoping to be able to consult with some fluid dynamics professionals, or some experts in that field. There's a lot of strange and interesting things that happened when you put a bunch of high-pressure pixels through these tubes. And we can't understand it. And everyone we show tries to wrap their head around it and can't quite do it.

There's a lot of research done in the way that fluid moves through spaces. There's a whole scientific field called microfluidics, where scientists are basically, usually they're using it for creating simulated cells, they can kind of inject water into an oil bubble, essentially, and then use that as a way to see how, like maybe a drug will get inside that cell or any other type of research you would want to do on how a cell could function you can kind of simulate that way.

So there's a ton of research that has gone into predicting how those things will work and different additions to, for example, the wall of our tubing that would make things move differently and have more control over those things so there's so much to look into and things that I'm going to start doing as soon as possible.

44:08 Victoria

We're really grateful for the support.

44:11 Marilyn

And I'm so glad. This is such an exciting project and I've really enjoyed learning more about it!

I just have one wrap up question and that's if you have any advice for artists maybe looking to collaborate with a STEM field or find a partner, like, what would your advice be to someone getting into materials-based research in this way?

44:39 Victoria

I think genuine collaboration is extremely valuable. And if I had, you know, come to Julian and said “this is exactly what I want to do, can you help me?” It wouldn’t have turned out as well. But instead, what happened was we were like okay, we’re on the same page, like in terms of our interest but let’s generate something that’s uniquely from us as a duo.

And so that would be my advice if you’re interested in working with someone. Find someone that you have something in common with but then discover what you want to make together. Not to say that the other way can’t work as well, but it’s just been so exciting to see something developed from two people. I think there’s a lot of metaphors that speak about how much more you get from two people than just one.

45:30 Julian

Yeah. And in the beginning, it happened incredibly organically as well. We got together to speak about some ideas that Victoria had and went off on these tangents about history of computation and what we could do and I made a, like a “tech palette.” It was like a spreadsheet of sensors and actuators, and. And one of the things that was not on that palette, but happened to be in my backpack, because I was thinking about something else with it, was this tubing. I pulled it out looking for something else and she’s like “what’s this” and she was like “I could probably weave that.” It was basically how it started.

And I think that we got really lucky in that we are able to have a very good relationship. We easily agree, and we also are able easily to trust each other. Aesthetically and, you know, functionally like logistically speaking. So, I think that’s really important. Something you can’t really force.

46:43 Marilyn

Awesome. Well it has been really delightful to get this just a small glimpse or insight into your collaboration, I just want to say thank you again for talking with us and if people want to find out more about your project where should they go?

46:58 Victoria

Yeah, thank you so much, Marilyn. We have an Instagram @softmonitor, and we have a website, www.softmonitor.today

47:08 Julian

I started it pretty recently so we’re going to be adding to it.

47:12 Victoria Yeah. So those would be great places, and then we each have our individual social accounts but we're trying to put all of our stuff that we're doing together on these platforms.

47:22 Marilyn Sweet. Good, well I'll be following, and I can't wait to follow along the progress of soft monitor, and thank you both again so much!

47:12 Victoria Thank you so much!

47:08 Julian Yeah, thank you Marilyn!