

A hand holding a banana with a power cord attached to its stem, set against a pink background.

SEX TECH SPACE

ISSUE 02

SEX TOY ENGINEERING

A MODERN PUBLICATION ON THE INTERSECTION OF TECHNOLOGY AND SEX

1.

alison falk

EDITOR'S LETTER

2.

julia lopez

ENGINEER DIARIES

3.

janet lieberman

PROTOTYPING

4.

véronique v.

**I HAVE A SEX TOY IDEA,
NOW WHAT?**

5.

kyle machulis

BUTTPLUG.IO

6.

rachel braun scherl

ORGASMIC LEADERSHIP

7.

sarah petkus

SHE BON

8.

von

**ORGASMIC AUDIO
ENGINEERING**

9.

cunni

**THE SMART ORAL
SEX TOY**

10.

ohnut

**THE BUMPER
FOR BUMPIN'**

11.

lovely

THE SEX "FITBIT"

12.

other great brands

AND EVENTS



Editor's Letter

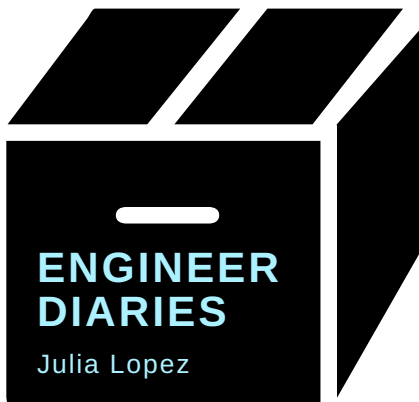
As I meet new people and discuss my efforts with this publication, I am in awe in how the majority of the time others will immediately disclose personal information regarding their sex life, their experience with toys and other products without me ever asking. Some of the time it is not even relevant and they typically end by saying "I've never talked about that before." I have to remind them I am not a sex educator but I am happy to listen and honored that they were able to trust me with only the first few minutes of meeting. It's in these moments I

realize how technology is the catalyst for getting people comfortable with dialogue around one of the most common yet feared topics in our society.

In this issue I am honored to present you with articles and interviews with individuals working to be that same change. I've learned that the pool of talent for those dedicated to the mechanics of safe and diverse sex toy engineering is small. Let these people be your inspiration and know there is space for you here.

-Alison Falk





GIVE A BRIEF DESCRIPTION OF YOUR EDUCATION/PATH OF HOW YOU GOT INTO SEXTECH/SEX TOY ENGINEERING.

I went to undergrad for mechanical engineering with the intent of going to grad school for a PhD in bioengineering. When I did enter a PhD program for neural prosthetics, I hated it. I was between lab rotations when I also had a relationship end. Because of the breakup, I had the realization “oh, great, and my vibrator is probably dead too.” I started thinking about the battery life of sex toys when it clicked that there are people who are engineering these products. A week later, I quit my PhD program and pivoted to the masters in medical device design. One of my friend’s reactions to me pursuing a career as a sex toy engineer was “There is nothing in the world that makes more sense than this” because I’ve always been sex positive, and aggressive about female representation in STEM.

WHAT ARE THE GOALS WITH SEX TOYS DESIGNED BY PEOPLE WITH VULVAS FOR PEOPLE WITH VULVAS

All design falls short if it doesn’t bring in a diversity of body and experience. We’ve seen these shortcomings with facial recognition, motion detection, VR, and more. Developing sex toys is a valid technical field that is also affected if varied anatomies and experiences aren’t considered in the design and testing of these products.

There are so many variables to consider that sometimes are left unrealized if it isn't something you have personally experienced. There are things that change depending on if you're doing solo play or couples play. If you are designing for solo play for a vulva, it's really beneficial to have had that experience you are designing for.



A LOT OF THOUGHT GOES INTO THE PRODUCTS YOU CREATE - TAKING INTO ACCOUNT ALL 5 SENSES INCLUDING GREAT LITTLE BOOKS THAT ARE PERSONABLE AND SUGGEST FUN WAYS TO USE THE TOY. WHAT ARE THE DIFFERENCES IN THE RESPONSES TO YOUR PRODUCTS VS THOSE BOUGHT FROM OTHER COMPANIES?

There is an entire Unbound team that puts massive creative energy into every product detail. Because even the smallest details in Unbound's products are engaging, it sets our community up to be comfortable to engage back. Once we started designing our own products, and had the freedom to put joy and delight in every layer of an experience, it resulted in customer responses that were overwhelmingly joyful and clever. Our customer reviews are hilarious and this development has been really fun to witness.

HOW DOES THIS CHANGE THE USER/SHOPPING EXPERIENCE? WHAT DO YOU THINK IT IS THAT MAKES YOUR EXPERIENCE STAND OUT FROM ALL THE OTHERS?

It gets people talking. By creating an experience that is worth sharing, we are normalizing the category. It is a goal for us to make sex toys mainstream and for it to be as accepted of a shopping experience as buying lingerie.

WHAT IS YOUR FAVORITE DESIGN THAT YOU'VE COME UP WITH SO FAR? WHAT WAS THE INSPO PROCESS FOR THIS? WHAT IS YOUR FAVORITE PART OF THIS PROCESS? WHERE DO YOU GET YOUR INSPO FROM?

Palma has been a labor of love. We received extremely positive feedback from our non-motorized sex toy jewelry collection as well as extremely positive feedback from Squish, our haptic vibrator. We married those two categories to create Palma- a vibrator ring that has a responsive accelerometer to adjust vibration intensity and program patterns. Palma debuted at TechCrunch Battlefield, a tech competition that people may be familiar with from Season One of Silicon Valley. Customers can expect Palma to be available for purchase in early 2019.

We pull our inspiration from fashion, art, nature, basically anywhere that we can find beautiful things. We also have years of feedback from customers about third-party product that gave us the data to design our own products.

My favorite part of the design process is when we receive our first manufacturer sample. I believe manufacturing samples are more elevated and robust than something I can produce by hand- but this could also be that I'm always going to criticize my own work at a higher level than someone else's. But when we receive the sample from the manufacturer, I have that moment of "Alright. This finally gets to be real."



I call this "Don't ever speak to me or my son again"

The size difference between
our in-house Alpha
prototype and manufacturer
Beta prototype

WHAT ARE THE BEST MATERIALS / KEY COMPONENTS THAT MAKE A GREAT SEX TOY?

Stable materials with low porosity are ideal for sex toys. Materials that degrade or materials that bacteria can grow inside aren't healthy for your mucous membranes. ABS plastic, borosilicate glass, stainless steel, and platinum-cured silicone are all very stable and have low porosity. If the material has a medical-grade label, that means that the material recipe was injected in cells or implanted in animals for biocompatibility tests, and that the raw material was mixed in a clean room to minimize exposure to contaminants.



The Unbound Lab featuring a 3D printer, prototype circuits, and a soldering iron.

WHAT ARE SOME OF THE PROGRAMMING LANGUAGES/SOFTWARE USED?

C++ for consumer products in general. I test motors using arduino circuitry. A lot of the arduino code for motors, buttons, and LEDs exist. Sex toy development is a rewarding and approachable avenue for someone to learn tech.

WHAT ARE THE SKILLS THAT ONE SHOULD PRIORITIZE IF THEY WANT TO BECOME A SEX TOY ENGINEER?

It is important to be able to talk about sex, masturbation, and toys maturely. You need to be able to speak to customers professionally so they can be open and honest in their experiences, and you can then make the best product possible from that feedback.

Research is crucial. I have had dozens of people who make small-talk about an idea that they're excited about and I have to break it to them that it already exists.

For design, I do iterations of 3D computer modeling and 3D printing. I have an understanding of circuitry to test vibration motors and perform component selection. I'm further developing my own skills in circuit design so I can quickly and inexpensively make alpha and beta prototypes. Manufacturing and supply-chain management is probably the least glamorous but most important. An idea is only an idea until you actually can execute it. For manufacturing, have a mindset of "how are all the ways that this detail can be misinterpreted and what can I do preemptively to mitigate it?" Be globally minded and know how different holidays can affect manufacturing timelines.



@Miss_Engineered



@juliaconfabs

PROTOTYPING

EXCERPTS FROM "How I Engineered a Beloved Vibrator: an Introduction to Prototyping" By Janet Lieberman, ORIGINALLY PUBLISHED ON KICKSTARTER.COM

"I was taught to think of prototypes in four main categories: sketch, works-like, looks-like, and alpha/beta. Although sketch models really shine in the beginning and betas don't come up until the end, the types of prototypes are intermixed throughout the development process, and I encourage makers to think about the purpose for employing each one."



SKETCH

Sketch prototypes are the 3D equivalent of paper sketches, and can help answer simple questions quickly. Sometimes they're made from foam core, or by scavenging parts from other relevant products.

I printed at least 75 wing prototypes, mostly for less than \$1 each of material. Flat profiles have the shortest design and print times—I could design, print, and test several per hour—so I learned what I could from them, then moved on to the third dimension.

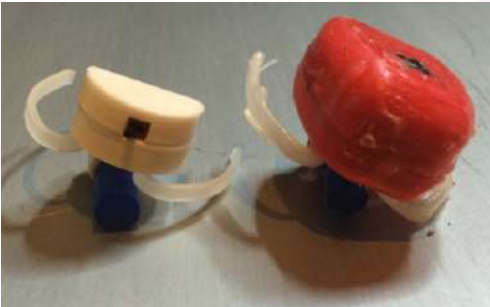


Some of the Eva wing prototypes

WORKS-LIKE

Should function like the finished product, so you can start to better understand what's going to be required of it in use. Aesthetics are not part of that, so most works-like prototypes look awful. Depending on the product, they might give you ideas like “Man, friction’s gonna be high in this part of the system - better be careful or the gantry will never move!” or “Man, I’m always making contact with this same spot - better be careful there’s nothing pokey there!”.

The works-like models each took less than two weeks to design and test, and they each cost under \$100.



Two rounds of works-like prototypes

LOOKS-LIKE

Each prototype took about a day to design, three hours to print, and used about \$10 in materials. They allowed us to guide the appearance of the product before knowing exactly how all the parts would go together. Because we didn't need to use them to communicate with investors or buyers, we never had to go beyond FDM prints for appearance models, but they can get very intricate and expensive.



Earlier aesthetic models for Eva

ALPHA & BETA

Alpha and beta prototypes combine the functionality and form into a single design. They're as close as possible to the final devices, going past appearance and performance to include design for manufacturing.

At this stage, any details that don't match the plan for production should be conscious decisions and monitored carefully for potential effects on performance. Also, this is when you start making multiple identical prototypes to catch potential variation problems. Your final product will need to work regardless of part variance, every time you assemble it, for any person who uses it, in any way they want to use it.


Alpha or beta prototypes cost us about \$600 each, with two weeks of design time and two weeks for shipping and assembling parts. We made 55 total alpha and beta prototypes for Eva—fewer than any other product we've released to date. Someone who isn't me might have trouble distinguishing alpha 1 from beta 3. But they revealed critical insights, like when a change we'd made for aesthetics had a huge effect on how well the product stayed in or that ABS wings will break off after a few uses. We also used alpha prototypes and testimonials from early testers for our crowdfunding video, which then helped fund production and the last rounds of betas. That \$33,000 accounted for the majority of our development costs, but we couldn't have had a successful product without it.


"Prototyping is about learning the boundaries of the problem you're trying to solve. To be efficient, you want to start by trying a lot of different things and failing often, which helps you map out those edges quickly. At the beginning, you're finding the broad requirements that will ensure you make a good product. At the end, you're spending the time and money to find the nuances to ensure you make a great product."




*Naked beta 1 prototype, beta 1 prototype with silicone,
and beta 1 SLA mold for silicone*

[*Read the full article here.*](#)

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 www.dameproducts.com

I have a sex toy idea...

NOW WHAT?



1. **Research:** know your stuff and where you're going. Learn the industry jargon so you can communicate effectively.
2. **Prepare emotionally and mentally:** It hurts sometimes, but it's worth it. You'll have great ups too and you'll make an amazing difference in people's lives.
3. **Build your network** and start today.



@missvvmystery



@missvvmystery



<https://missvvmystery.com/>

1.

As someone without a tech/engineering background what was the first step you took after having your idea that actually helped it begin to materialize?

Google was my best friend, honestly. I needed to set up a plan. In order to know what I precisely wanted to bring on the market, I started with lots of research in the field. Books, sexologist, focus group, competitive products, materials, functions, the industry itself and so on. We call this a market study. From there, it makes it easier to establish what exactly my product was going to do different than the competition and the WHY behind every decisions. Knowing your audience, your target customer, will also make it easier to sell and adopt the right approach with your marketing. Overall, it was sometimes difficult to get stats information. I remember calling governmental institutions to get info and get: What? Sex Toys? No we don't have these datas, Madame. We have lingerie, but not sex toys. I was faced with that reaction many times during the process and still today, just like you can imagine!

2.

How did you find a team to engineer/develop your product?

I searched through associations online, phone calls, and network events. I then got quotes and chose by what seemed the most logical for a startup: lowest price. Back then, I knew nobody that could help so I was guessing with everything.

I had issues with some team members and nightmare stories. One tried stealing my invention behind my back even with an NDA. Others were seeing a beginner startup founder and taking advantage of my naivety. I could go on and on with stories like that. But I also have great stories about some partnerships. If there's one thing I learned, it's that the lowest quote isn't necessary the right person for you. Everybody will say they can do it. Everybody's there to make money out of it. Ask for portfolios, references, actual people who dealt with them and who you can call.

Don't be shy to put your foot on the ground and establish your needs from the start and a clear plan of action with financial previsions and at the end: follow your guts. Don't be afraid to try. Worst case, you'll learn.

3. Did any of the engineers have previous experience developing a product for someone with a vulva?

No! I was bringing my research and had a sexologist helping me with questions I had. My focus group composed of women were testing the prototypes (thank God 3D printing exists) as well to make sure the design was right. The Chinese factory had experience with previous sex toys. I'm realizing while answering that question that I dealt with only men in this project. All the engineers, designers and technical team were men.



4. Did any of the engineers not having a vulva cause any setbacks in the time it took to complete the prototype?

Since I dealt with men on the technical aspect of the project, no one else than me had a vagina as well as my focus group! Every time, I needed to get the sample by mail or go to my engineer's office to make tests. Sometimes, it was straight up in the bathroom with a condom and BAM let's test this right now! The Québec team was laughing and a bit uncomfortable, but we needed to make sure our Bluetooth signal was right! When I was in China, their jaws dropped. They were so happy and proud to tell me that the signal was working and on point. So I said: All right! Let's test it now! Give it to me so I go in the bathroom and try now with a condom. They became silent and their jaws dropped. It turned out that while doing this test, the signal wasn't working inside me properly. I made them understand how real tests were important and they understood after.

5.

Were you able to get any funding to help develop your idea into a physical product? If not, why not?

In the beginning I had financial help from family angels I also had my personal credit cards, and loans. I did a crowdfunding but it was such a failure! I needed to raise a good \$400K, but I asked for \$40K not to freak people out and ended up with \$16K! I made so many mistakes in the process and learned from it all! I'm actually able to share that story and tell people not to repeat my mistakes so they have better chances to succeed. I also got scammed with "pay now and get the money later" with fake supporters. I didn't listen to my gut so I ended up losing money. Investors tend to be scared by our industry for so many reasons. Having great lawyers with references once again will make you save time and money on the long-term run. Get yourself ready with firm communication before launching the crowdfunding. Be careful with the payment method (Paypal told me they could keep my money due to sexual matter of sex toys), give many updates to your crowd and have great videos. LISTEN TO YOUR GUT AT ALL TIMES. If you're not feeling it, don't sign it. No deal is better than a bad deal.

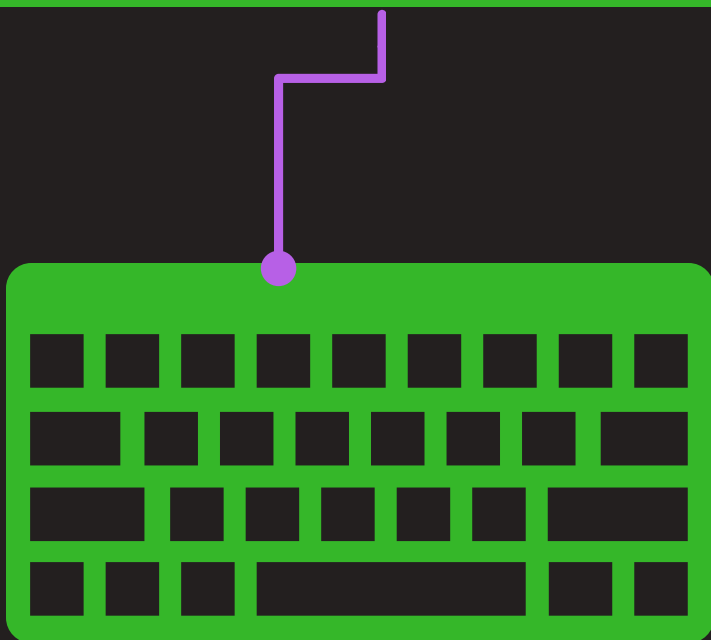


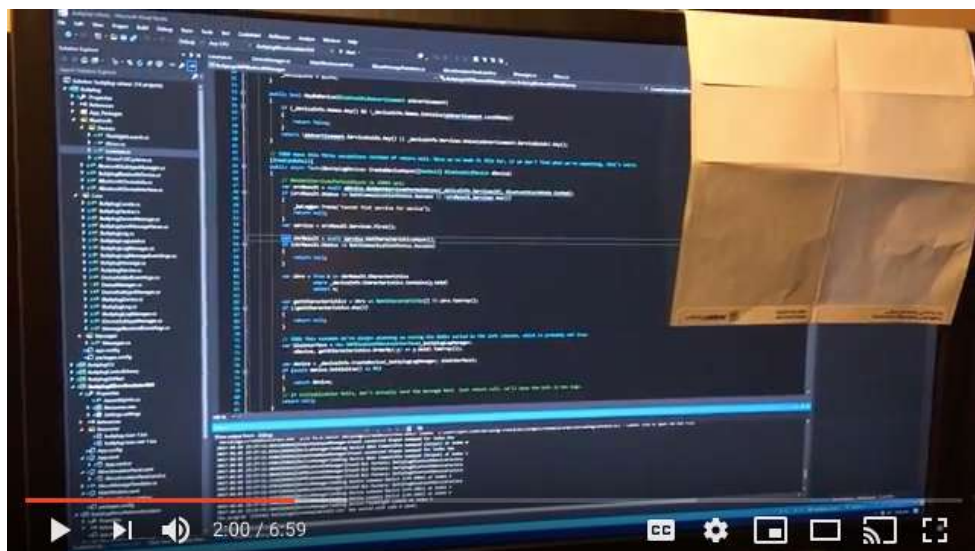
The majority of toys are designed for hetero able-bodied people. Buttplug.io was created to customize the functionality and UI of toys in order to meet the needs of diverse communities.



buttplug.io

Kyle Machulis





What is the purpose of you creating this framework?

Buttplug is made to remove the need for developers to know the inner workings of Bluetooth, Serial, USB, and other connection mechanisms that sex tech uses. The hope is that developers can take the hardware they have (which may even be just a rumble gamepad for video games, since that's a computer controlled vibrator most everyone has), and make new applications to control it without having to worry about how their OS talks to the hardware. We're also trying to support legacy hardware, like the Interactive Fleshlight, RealTouch, etc... Many people have older hardware that is no longer manufactured but that they still use, and that small but dedicated user base doesn't get much support.

How long have you been working on integrating technology with sex and what was the moment in your life that changed your career trajectory towards this path?

I started working with sex tech back in 2004, as a way to get people interested in engineering that might not be otherwise. Before the days of the Maker Movement, engineering was more a career path, less a hobby. Using sex tech as an educational vector seemed like a good way to pick up attention and interest, versus requiring people to have a degree to understand the basics of things like programming, mechanical engineering, etc...

I wouldn't really say this has ended up as a career for me, as I've not really made THAT much money off of it. It's ended up being a long term creative endeavor that has at least influenced my career, though.

You've been engineering sex toys for over a decade, can you give any insight to what the sex toy engineering community is like now?



It's hard to say there's much in the way of a community, really. Most sex toy engineering is either professional, or DIY and anonymous.

Professional sex tech engineering isn't a huge field. You aren't usually going to see companies hiring for this stuff out at job fairs or whatever. A lot of it is even done via contract work, so many sex toy companies don't even have an engineering department. Even if they do, sex tech is such a low margin business that they're not exactly looking to share information or be open about their practices.

Outside of that, there's always been communities of people building for their own needs, especially in areas commercial companies won't cover (marginalized communities, fetish communities, etc). Due to the stigma of working on products with sexual contexts, they usually want to stay anonymous, to minimize the possible effects on other parts of their life. However, this usually means whatever they do share becomes transitory. They'll write posts on a message board, or a blog post, and at some point, circumstances change, services go down, etc, and that information is lost.

This means there's a ton of work left to do and places to explore in sex tech. It's all about either finding or building communities of like minded people with similar interests, which is what I'm trying to do, and what I'm hoping others will too. This work isn't necessarily technical, either. Sex tech is far more about the sex than the tech, and the sex part is about people. What the field needs more than anything is people who are willing and interested in trying things out, sharing experiences, and helping build new and better things, however they're able.

You mentioned that a lot of people are already scared of their own genitals, that adding a sex toy in the mix can seem intimidating for some. How do you feel what you are doing will reverse these types of behaviors in our society?

Commercial sex technology has to aim for a broad swath of the population in order to sell as much of a product as they can. However, sex is a deeply personal topic. What I'm trying to do is allow people to build their own interfaces to already available products, so they can hopefully fit their needs in with the hardware that's already available. I've started by aiming at a fairly niche group (mostly software developers interested in making software to control sex toys in different ways), but it's something I'd love to see happen in other directions too.

At what point did you decide to merge your interest in sextech with your professional identity and why do you feel that it was important to do so?

There came a point when writing my sex tech blog (<https://metafetish.com>) that I realized the industry didn't really have any "faces", so to speak. Companies were just represented as brands, there were some sex researchers and toy reviewers that had put identities out there, but there wasn't really any sort of "name" in sex tech.

That also meant a general lack of trust in the ideas of sex tech, as companies come and go so those brands don't really stay established, and none of the researchers/reviewers/educators I'd talked to were specifically interested in the technology side. I decided to try taking that on myself, as a way to establish an identity tied to the field, for better or worse. It's been a lot of work, but so far it seems to be mostly better.



What is the general response you receive when other developers and engineers learn about what you do?

Mostly shock or surprise. This isn't an area of technology a lot of people work in, or even know exists. Even non-sexual haptics, which is its own field of study, is still fairly misunderstood outside of phone vibrations, video game rumble, etc... Touch is different to work with as a sense than sound or sight, and it's just not something that really has the same relation to tech as those other senses.

Also, technology is a fairly staid and sterile place. Talk of innovation is usually phrased in terms of capital potential, not quality or depth of experience. Presenting people with a usage of technology that is (or at least, should be) focused on that kind of intimate experience really throws people off.

What experience do you recommend one having before learning your framework?

While the hope is that, at some point, people with minimal programming experience can use the framework, right now that's not really the case. Things are still fairly new and a little rough, so it definitely helps to have some programming experience under your belt before approaching Buttplug.



What are some resources to learn buttplug-csharp/js?

Most of our documentation is still in the works, so the frameworks can sometimes be a bit difficult to grasp still. There are tutorials posted on the code repositories for these projects:

C# <https://github.com/buttplugio/buttplug-csharp>

JavaScript <https://github.com/buttplugio/buttplug-js>

Discord <https://discord.buttplug.io>

Message Board <https://metafetish.club>

YouTube <https://youtube.buttplug.io>

Twitter <https://twitter.com/buttplugio>

The discord and forums are great places to see what other people are doing with the software, and to ask questions. The YouTube channel has videos on how different sex toys work, interfaces/games/applications I've built with Buttplug, and other topics relating to sex tech.

Orgasmic Leadership



Rachel Braun Scherl, author of *Orgasmic Leadership*: a story of both business advice and perseverance from a leader who is well-versed in the world of women's sexual health and wellness and many of the leaders/companies leading the way.

What is the best way one can enter the sex toy industry as a technical expert or programmer?

Fortunately, there are now dozens of female health companies – not just sex toys, but devices too. I see two big areas of opportunity – where everyday entrepreneurs are building their expertise and their companies. The first is innovative design that is specifically focused on solving a problem – either in a superior way vis a vis current options or a way that offers significantly better benefits: easier use, less painful, easier access, lower cost, more private, among many others. The second is finding useful and efficient ways to analyze and translate the collected data into actionable implications – specifically how can the data lead to better outcomes, for sexual experience, reproductive health and overall health.

What are the characteristics as a sextech expert that you have found to be missing in the marketplace?

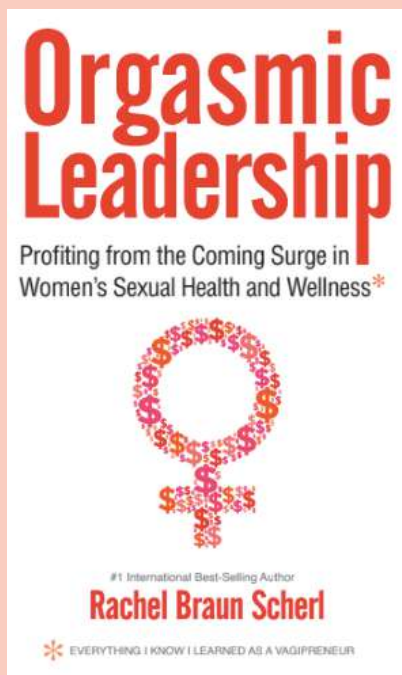
In my experience, many entering into female sexuality (excluding the brilliant women who are constantly designing, studying and redesigning solutions), don't bring a broad enough view of the female anatomy and experience. There is an adage that says marketers can market anything and designers can design anything. I don't find this true in female sexual health. The people who are doing this well spend hundreds and thousands of hours understanding their own anatomy, speaking to users, developing and redeveloping prototypes to get to great solutions. With great design, thinking, messaging and marketing, we are bringing sex toys out from behind an old-fashioned curtain of shame and discomfort to a place of high-touch, high-tech, candid conversations, improved experience and outcomes.

What are the struggles you faced in having your product developed by people who don't understand the adult industry? or What struggles have you faced when working with engineers/technologists?

Female sexuality encompasses a complex set of systems. The leading model of female sexual response is a combination of physiological, psychological, sociological, contextual and behavioral systems. As a result, any solution or product for sexual enhancement needs to think about female sexuality in all of its complex glory. Oftentimes, engineers face a product development challenge in that they look at female sexuality as just another problem to be solved – as opposed to the multi-dimensional, layered, nuanced reality it is. It is critical to really understand at a very deep level how women think, feel and respond.

If one develops a sex toy app, what is the best way to take that to market?

I would study the companies that have come before and what has worked and what hasn't. First off, great design is key. Secondly, branding, communication and community building are critical to the launch, trial, awareness and business-building. Social media and Public Relations have proven to be the most reliable forms of outreach – especially given the limitations in terms of access to a broad range of media outlets and channels.



[Download chapter 1 free here.](#)

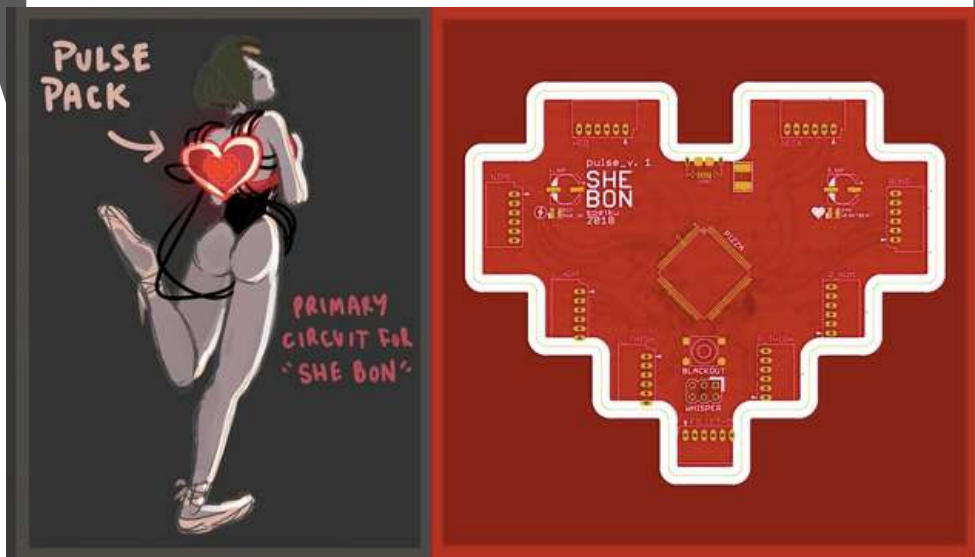


@rbscherl



@rbscherl

SHEBON



FOR SOMEONE WHO IS NOT FAMILIAR WITH DESIGNED OBJECTS, CAN YOU EXPLAIN WHAT SHEBON IS AND ON A HIGH-LEVEL HOW IT WORKS?

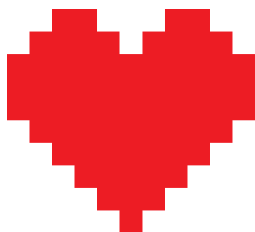
SHE BON is a platform I've built to support networking multiple wearable body augments together; all of which I've created to sense and indicate my personal level of physical arousal. I've been calling it my suit of "amour".

The core of the system is a heart-shaped backpack that contains the *brain* of the project, a circuitboard of my own design which I call the "Pulse". The board's capability is similar to the Arduino MEGA micro-controller, however broken out to serve my platform's specific needs.

Each of the augments I've created are worn on remote parts of the body and plug into this backpack around its outside edge via RJ45 cable. This turns the backpack into somewhat of a wearable breakout board. The augments report sensor data regarding the user's physical status to the "Pulse" via a serial connection, and receive instructions based on that data regarding how to respond.

There are a total of nine separate augments. You could think of each as an independent designed object, all containing their own dedicated "brain" circuitboard to control the peripherals they include. The purpose of each augment is to provide a form of input as well as output. The input involves harnessing bio-data with sensor(s) appropriate for the part of the body in question, where the output is all about conveying the sensor data in a way that is performative.

The primary goal of the SHEBON project is to act as an extension of my body that helps me communicate aspects of my physical state that would otherwise go unnoticed. While the main function of the system is indication, I've added an extra goal to the design of each peripheral, being that the method of indication can stimulate the wearer, but only as a *coincidental* byproduct.



WHAT MOTIVATED YOU TO CREATE SHEBON?

As an artist, much of what I create is in response to something about the world, or my place within it that I don't particularly like; a coping mechanism. As such, the goal of SHE BON is to encourage (and normalize) a general dialogue about sexuality amongst people, because I feel that was missing from my life.

Coming into my own as a sexual being has been an unpleasant struggle. I think that the largest contributing factor to this is that my youth was completely devoid of any examples of adults maintaining a healthy dialogue with one another about sexuality. I never witnessed the sort of communication between partners that demonstrated a mutual understanding of expectations, needs, or perspectives; the likes of which would have given me a framework or context for what an intimate experience ought to embody. The empty space left by the absence of these examples was then filled by the media: movies, the internet, and the social culture of Las Vegas, the city I live in.

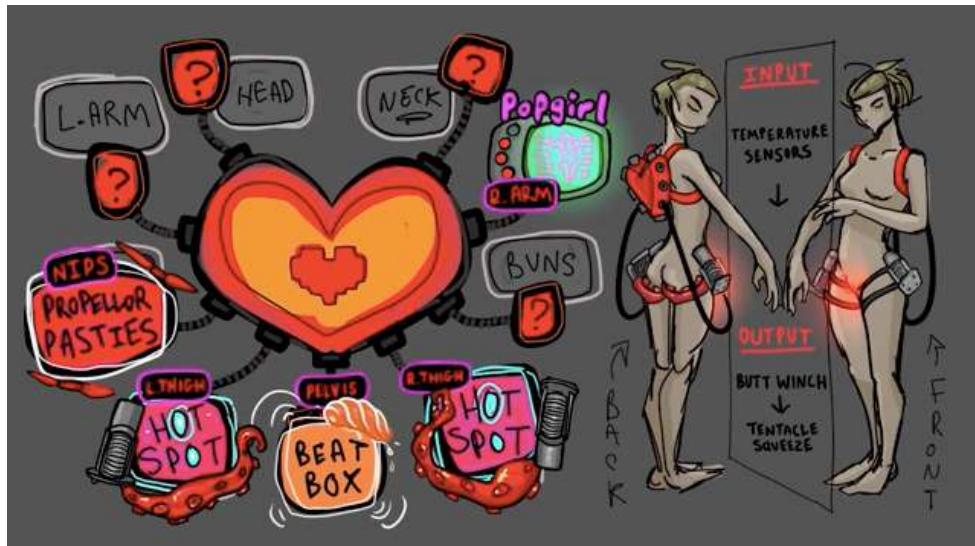
I think my experience could have been better if there were more real communication present in the world about sexuality; not as a novelty or a risqué divination, but an acknowledgement that sex and sexual desire is a normal part of the human condition (for everyone).

I hope to express my sexual identity through the custom technology I build and as a result, create the change I'd like to see take place in the world.

WHAT DO YOU HOPE TO ACCOMPLISH BY DOCUMENTING THE CREATION PROCESS OF SHEBON ONLINE?

The larger goal of this project is to encourage communication. I think that by documenting the technical process of creating SHEBON, I may also temper a discussion about sexual nature, using the engineering problems I encounter as a sort of gateway or catalyst.

Regardless of absurdity, the technical challenges involved in creating my devices are just as real as those present when creating any other *practical* utility. I think the unconventional design hurdles help open up a larger discussion about the content underpinning them.

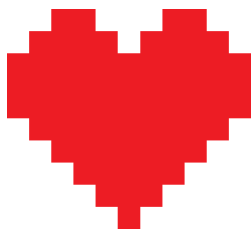


As an example, one of my devices is a belt that contains two hip-mounted winches. The winches actuate, separating the flesh of my *butt* to produce an artificial thigh gap. My goal and challenge in doing so was to mechanically reproduce the sort of separation sensation one experiences when they're having their *ass* squeezed. Utilizing winches to pull this off involved some actual math to determine the amount of torque my motors would require in order to lift the weight of my *bum* without hurting me.

While working on this device, there was an open discussion about how to achieve the practical goal of constructing a device that reproduced the "ass grab" sensation. Importantly, this discussion organically fueled further debate as to what makes an "ass grab" feel one sided as an uninvited form of contact, and at what point, and for what physical reason the act becomes enjoyable to both parties involved.

The technical dialogue prompted sympathetic consideration towards the experience of both parties on either side of the physical act. This level of empathy is exactly what I am hoping to achieve more of with each technical hurdles my augments hope to conquer.

I think documenting these occurrences on-line will help keep the nature of the project open and transparent, and as a result feel more welcoming and relatable to those experiencing it from other parts of the country/world.



WHAT WERE SOME OF THE TECHNICAL CHALLENGES WITH CREATING SHEBON?

The most interesting and constant challenge has been using the human body as a mechanical mounting point.

Many of the devices I've created make use of functional systems that I've never implemented before, even in a *normal* capacity. The roughest part of this project has been attempting to adapt things like gear boxes, pulleys, and winches to a surface that is inherently squishy and can't become solid or stationary.

It's also important to point out that these wearables are spec'd to serve my needs as an individual, so much of the trial and error takes place directing on my own flesh.

I've found that while attempting to engineer unique devices that function in close proximity to the most vulnerable parts of my body, I also enter territory where I'm likely to hurt myself if I'm not careful! The element of safety comes into play very quickly since the secondary stimulation created by my augments often sits on a thin line between pleasure and injury.



As an example, I created a mechanical pair of pasties that needed a spatial constant in order to accurately read fluctuations in nipple diameter, as well as spin a planetary gear box on the surface of my breast. The gears function to spin a propellor on the outside of the pastie as indication of nipple growth, however the gears which produce the rotational spinning motion also work to kneed and massage the nipple on the opposite side of the propellor.

Much like the mass surrounding my hips and waste, the breasts are a squishy pliant surface that is difficult to get accurate readings from, or mount things to. Once I decided that the functioning gears that spin my propeller would also stimulate the nipple, I was faced with the added challenge of keeping the nipple a safe distance away from the functioning gears that would easily shred soft flesh caught between them!

THERE ARE LOTS OF STIGMAS AROUND WOMXN'S SEXUALITY AND TABOOS SURROUNDING THE FEM-PRESENTING BODY, CAN YOU TALK ABOUT SOME OF THE NEGATIVE AND POSITIVE FEEDBACK YOU RECEIVED AFTER PUBLISHING YOUR WORK ONLINE?

Contrary to my expectations, the reactions have been largely positive! (which is great!) When I allow myself to ponder why this is, I can assume two possibilities:

The optimistic side of me says that there actually is a common desire within us all that craves to feel a sense of peace and belonging in the world regarding our sexual nature... and I just might have found a way to speak to that desire. (Also, that the general populous is socially mature.)

The overly analytical and outright cynical side of me suspects that, since I am somewhat disconnected from the social expectation of what it is to be a "female", I might have also become weirdly immune to the criticism I believe I'd otherwise receive if I prescribed to more traditional standards.

The only trollish criticism I've received from the weightless voices shouted from the nether, is that I'm not attractive enough to be talking about sexuality in public (lol). However, I feel that if I were somehow more palatably feminine, my sexual independence would be perceived as threatening, and I'd receive the same trollish criticism from the other edge of the sword.

Bottom line, it seems the heart of the negative feedback beats from within a body that is threatened to know that someone else's sexual enjoyment isn't about them.

On a completely separate note having nothing to do with female sexual taboo, I also receive criticism about SHEBON not being able to measure arousal *effectively*.

I think pointing this out is part of what the project is about. SHEBON is less a utility made for accuracy than it is a point of departure about the reality of sexual nature.

WERE YOU ABLE TO START ANY MEANINGFUL DISCUSSIONS?

Yes! I've found that by being open and vulnerable about who I am and what I think, I've welcomed others to be so as well. Working on this project has directly improved my quality of life and helped me feel better about some of the darkest parts of my own human experience; all due to the conversations it has sparked.





photo by Dannah Gottlieb

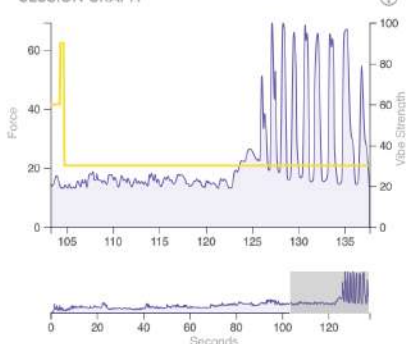
ORGASMIC AUDIO ENGINEERING

Von is the first artist to use orgasm wave patterns in pop music. A female auteur, Von produces, writes, engineers, mixes and performs all of her own material. Hailing from a small town of traditional values, being modest, reserved, and prudent were all characteristics that were enforced, yet she never adapted. Growing up, there was barely sex-ed, let alone a space for productive, sex positive conversations. Von had always been defined by her sexuality in some way without her consent, and making music was the first time she felt unashamed by it. Von reclaimed it for herself.

Session Analysis

This session is shorter than your average session length by 0s. You used an average vibration level of 38%, with peak vibration of 90%.

SESSION GRAPH



Show Vibration



"I teamed up with the sex tech company, Lioness, to extract my own orgasm wave patterns and use them in the production for my first single: "Action". Via Bluetooth the Lioness delivers contraction data to an iOS App, where consumers can see a comprehensive analysis of each of their sessions. I inputted a random wave pattern from one of my sessions into Serum, a wavetable synthesizer, and was able to manipulate the wave pattern as a sound wave. The ratio of contraction pressure over time is mapped to amplitude over time to create sound. I can add another oscillator underneath this initial oscillator, manipulate the envelope of the sound, or map LFO's to certain parameters to shape the exact sound I want.



photo by Nina Gofur

This can also be done in video. The ratio of contraction pressure over time can be mapped to frames per second to oscillate between video effects. I teamed up with a dear friend and incredible animator, Alex Baumann, to map my contraction pressure to visual parameters for an animated music video for my upcoming song "Too Many."

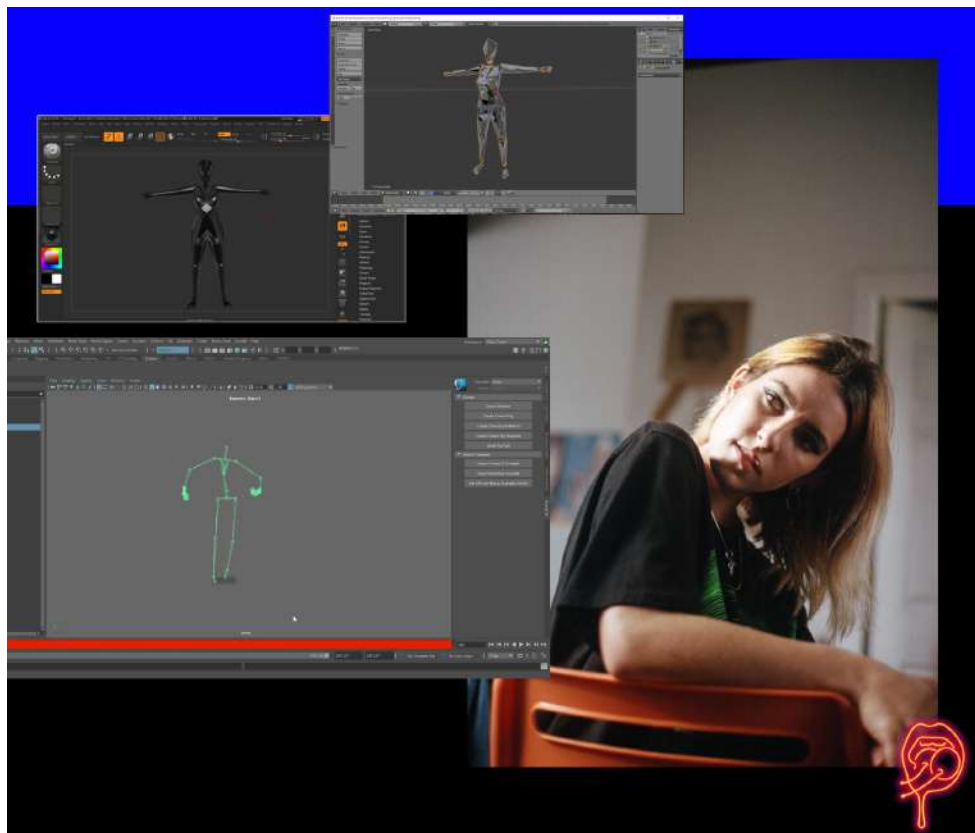
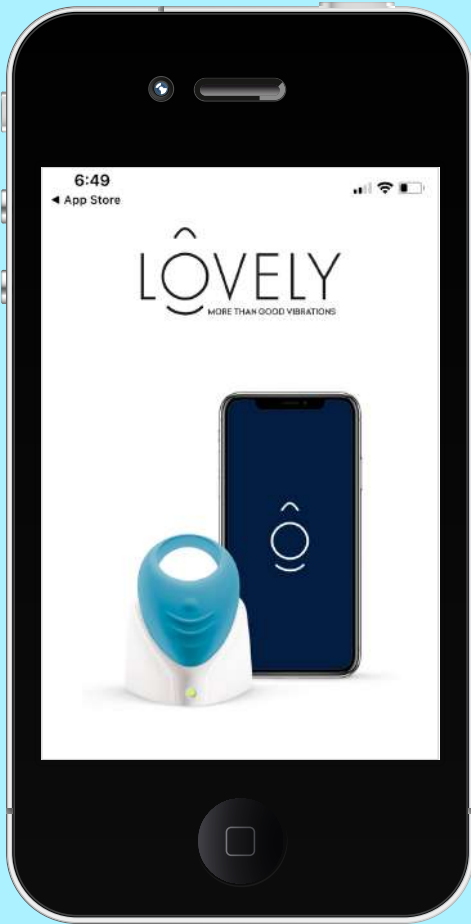


photo by Nina Gofur

At the end of the day I still make pop music- you wouldn't know the songs are made with my orgasm wave patterns unless I told you. My hope is for these songs to reach people who wouldn't necessarily click the 'this pop star turned her orgasm into music link'. The only way to normalize masturbation and dialogues about sexual health/education is to include as many people as possible in the conversation."

THE SEX "FITBIT"

lovely



Lovely is a new wearable that is part tracker and part sex toy. It's simple and sleek design is a silicone based ring with a vibrating upper half. Boasting two hours of battery life and wireless charging, Lovely fits right in to the market of fitness trackers. Called the "Fit Bit for your dick" by Mashable, it uses sensors to measure movement, position, calories burned, top speed, and even thrust count. It then sends that information to an app via bluetooth.

The Lovely application then collects this data and offers personalized recommendations for new positions and techniques for exploring different stimulation experiences.



<https://ourlovely.com/>

Ohnut

THE BUMPER FOR BUMPIN'



@ohnutco



<https://ohnut.co/>

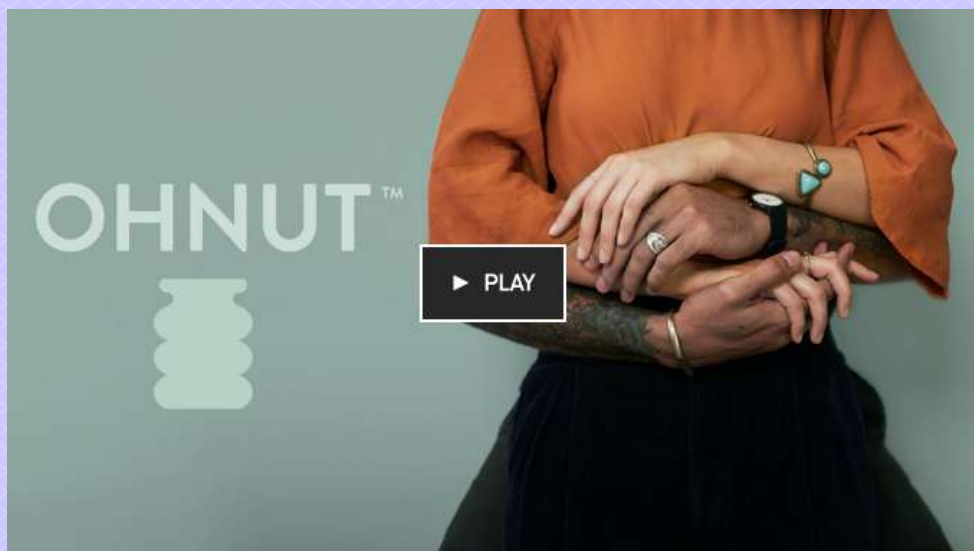
Ohnut is the revolutionary wearable that allows couples to explore comfortable penetration depths during sex (aka: a sex buffer!). Ohnut's linking feature (patent pending) gives users the ability to stack 1 to 4 soft rings onto a penetrating partner, acting as a buffer. Without fear of pain, there's a new dynamic of confidence and security, which brings joy back into the bedroom! Ohnut is championed by surgeons, pelvic floor physical therapists, and sexual health educators all over the world.

Ohnut is also the first wearable of it's kind to offer a solution that doesn't solely put the onus on the woman to navigate her condition. By having her partner involved in the equation, she can feel less alone in her quest to feel comfortable in bed, understand herself physically, and seek support from professionals. In a cultural moment where we're finally holding men accountable for their actions, Ohnut offers an opportunity to get them intimately involved in this important conversation.

"75% of women will have painful sex in their lifetime. Many women don't tell their partners and internalize blame, countless doctors are powerless to help - and most partners want to help... but don't know how. All of this creates distance." - *ohnut.co*



Made of body-safe polymer, sextech founder Emily Sauer, has found a way to engineer a product that can heal this pain holistically. See their kickstarter campaign below.



cunni

THE SMART ORAL SEX TOY



How did you come up with Cunni?

While Sotiris and I went shopping for sex toys, he pointed out how many toys were designed by men and were iterations on the same concept: vibrating, silicone shapes. Always the product designer, he pointed out how odd it was that an industry as massive and ubiquitous as sex tech was still fairly emergent in terms of innovation in design. The most reliable way for me to have an orgasm was through oral sex, and I suspected many people shared that preference. Our survey later confirmed 80% of female-bodied participants enjoy oral, yet there was a conspicuous lack of toys that realistically replicated that sensation. That was our greatest challenge from a design point of view.

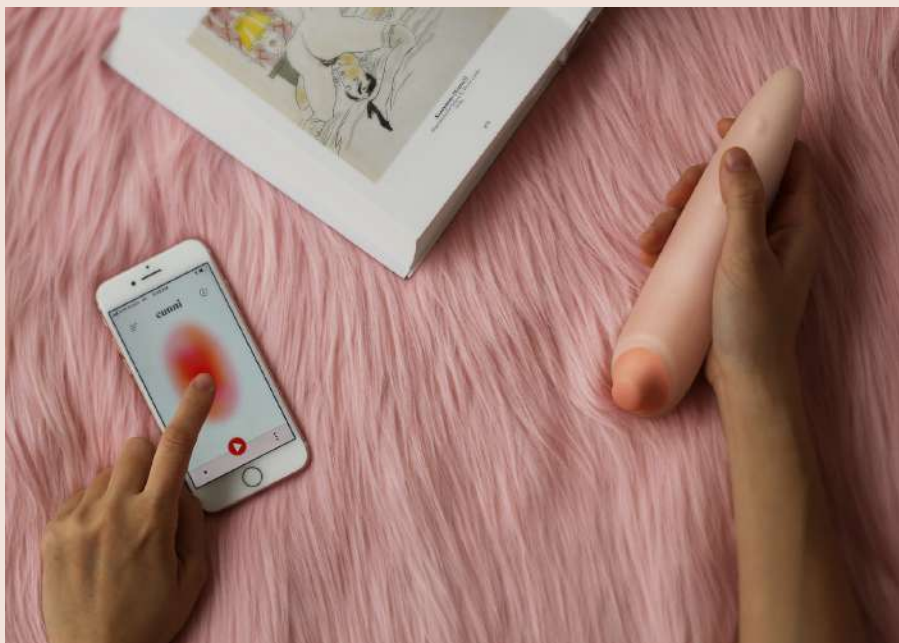
Sotiris is an award-winning product designer with a background in engineering. He had come from a design agency in the UK to design drones in Hong Kong, which gave him a strong understanding of complex mechanisms and motion. He worked closely with prototypers, electrical engineers, and our manufacturing partners to create a first prototype to give to our alpha testers. I'm a graphic designer and art director with a lifelong sexual curiosity and interest in politics of the body, and naturally I became the voice of Cunni. Neither of us had any formal degrees in sexology, but we were a real-life couple developing it together and we felt it made us relatable. However, a portion of the funding will go to partnering with professionals for the app where it concerns sexual education and making sure the toy is as inclusive and accessible as possible.

Why oral sex?

Cunnilingus intersects with complex aspects of pleasure, body shame and social messaging. Because oral sex is considered less intimate than penetrative sex, it's often part of young people's early sexual explorations. However, there's a major gap in who receives the oral, with women twice as likely to go down on men. This gap was explored in Peggy Orenstein's TED Talk "What Young Women Believe About Their Pleasure", and she poignantly described how women minimize their own pleasure as a result of this early inequality. This wasn't even because young men are selfish lovers! Instead, young women expressed a sense of shame around their genitals and weren't allowing their partners to go down on them. We wanted to create a toy that empowers oral sex and would in turn help destigmatize female pleasure and reduce body shame.

How does Cunni recreate oral sex on people with vulvas?

We designed a new mechanism never before used in sex toys to create a "tongue" with a human-like range of motion. That means any pattern you trace on the app could be recreated by the toy, allowing the user total freedom of exploration. The "tongue tip" itself is a tri-layer silicone form to replicate that firm-yet-soft lingual sensation, fully encased with the handle in medical-grade silicone. While the app gives you full control over the toy, three buttons along the handle let the user adjust speed, preset patterns, and optional rumbling vibrations--if the user prefers.



What set's Cunni apart from other toys?

I always hear "jokes" about reaching for vibrators if women actually wanted to orgasm. This is a very heterosexual sentiment; female-bodied partners in het couplings orgasm the least. Vibrators are amazing, but one can't tell their partner to "vibrate harder". We saw a lot of messaging where men used vibrators to get their female partners off during penetration, prompting Sotiris to ask, "so they just let the toy do all the work?". Could sex tech bridge the gap between solo pleasure and partnered pleasure?

The answer is yes, with the intersection of sex tech and "transformational tech", or technology that enhances human psychological well-being, cognitive function and physical capabilities, and our conversations had turned towards the mental aspects of pleasure. Our research showed that less than a third of women felt comfortable communicating their preferences in oral, while 59% of men didn't know what their partners liked. We wanted to elevate the app from a control panel to a valuable tool for facilitating communication. In addition to users being able to save and remix their custom patterns, they could also send their favorites as a GIF--a huge boon to visual learners. We envisioned an in-app communication resource where you could answer questions about your pleasure and level of comfort, and the app would suggest techniques and language for you to express your desires. This creates the foundation of sexual self-understanding and encourages users to advocate for their pleasure in partnered sex as well.

How does Cunni advocate for inclusive pleasure?

It's important for us to create a toy that could be used for non-binary, trans, and differently-abled people as well. First, that meant adjusting our language. The key is to always be listening and learning, particularly as cis people in a hetero relationship. Secondly, we wanted to check that our toy could be safe for neo-vulvas. One of our alpha testers said that Cunni was a revelation for her, but we want to do a lot more testing and consultation with doctors when we're funded. We're also offering an optional "comfort sleeve", an attachment to Cunni that we are developing to give users a more comfortable grip and extra reach. Even aspects like the blush colour I chose can be alienating, so we've planned to offer more choices as a reach goal on Kickstarter!



What have been your greatest challenges?

It's incredibly costly to develop this technology, especially when it's an IoT device with completely original mechanisms. There had been an overly-broad patent choking teledildonics innovation with huge licensing fees. We announced Cunni the day after that patent expired, but it means we are still pioneers in this realm. Until now, we've bootstrapped the project and hope crowdfunding on Kickstarter can get us to the stage where we finalise the design of the toy, conduct more testing and take it to market. If that doesn't work this round, we will seek angel investment or participate in an incubator. We have no doubt that Cunni is an exciting and empowering new technology and there will be multiple avenues to its success--we just need to find the right one!

There's also a need for us to educate the audience in what Cunni can do without having the finished toy itself, which has been a major barrier to getting into mainstream media channels. And as everyone in the industry knows, advertising on social media is nearly impossible with Instagram and Facebook discriminating heavily against pleasure products--particularly as it applies to female pleasure. It's thanks to progressive publications like Sex Tech Space that we will eradicate those antiquated views. Pleasure is a fundamental right, not a privilege.

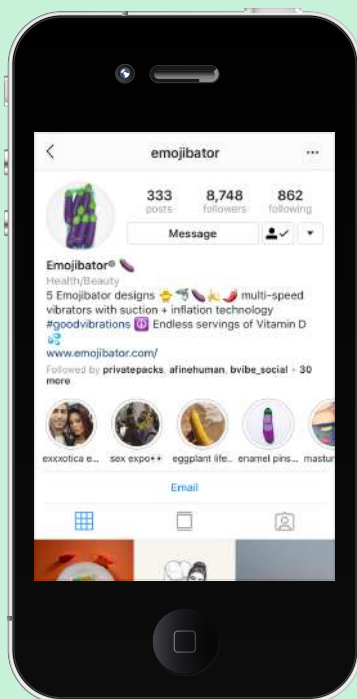
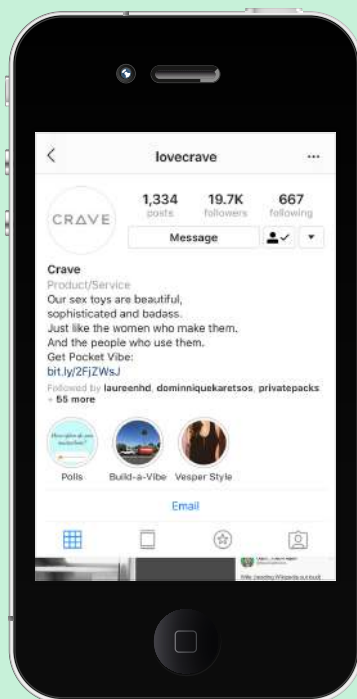
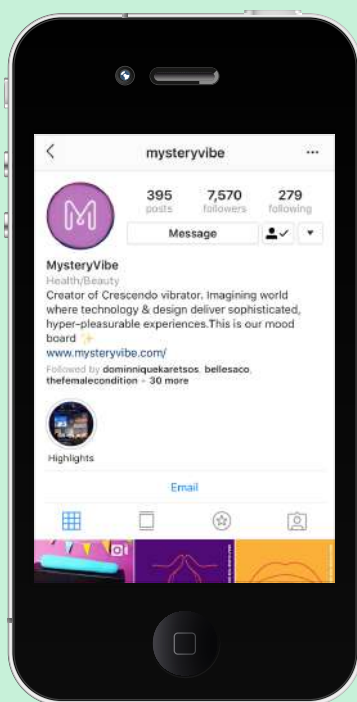
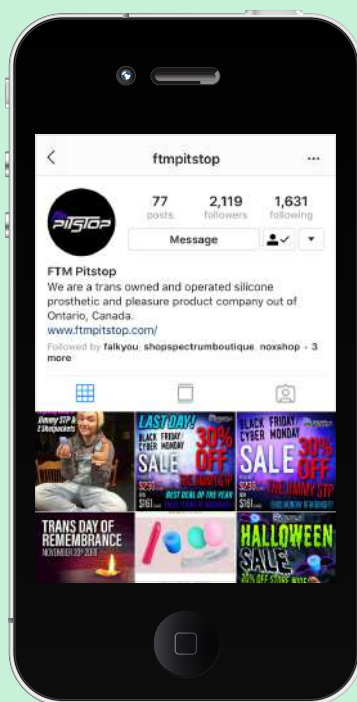


<https://www.cunni.me/>



@cunni.me

Check out these companies also engineering great products!



EVENTS

Girls on Film

WHAT: An evening celebrating female sexual energy with talks, films and inspiring female artists! Alex Fine of Dame Products will be speaking on a panel.

WHERE: Wythe Hotel, Brooklyn, NY

WHEN: 5th December 2018

WHY: Women have been used in cinema as the sexual object for a century. We want to counteract this by showing work by female directors reclaiming their own sexuality and experiences, while further exploring the often unseen female gaze.

2019 ShowStoppers event at CES 2019

WHAT: An evening celebrating female sexual energy with talks, films and inspiring female artists!

WHERE: Wynn Hotel, Las Vegas, NV

WHEN: 6-10pm on January 8, 2019

(MysteryVibe will be there showing off their brand-new wearable vibrator for penises, Tenuto!)

