

# Changing What's Possible - S.2, Ep.6 - Transcript

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## SPEAKERS

Thane Hunt, Dr. Marie McNeely

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**D** Dr. Marie McNeely 00:01

Hello, and welcome to Changing What's Possible: The Disability Innovation Podcast brought to you by Cerebral Palsy Alliance Research Foundation or CPARF. I'm your host, Dr. Marie McNeely. And this season, we are excited to bring you extraordinary stories about how disability technology and innovation come together. In this episode, we are sharing part one of our two part interview featuring hominid x. Our guest today, Thane Hunt is founder and CEO of Hominid X, one of the startup companies in our 2023 Remarkable US accelerator program. In addition, Thane is also a senior systems engineer at Desktop Metal. And Thane, I am really looking forward to learning more about you and Hominid X today. So thank you so much for joining us on the show.

**T** Thane Hunt 00:48

Thank you so much for having me. Happy to be here.

**D** Dr. Marie McNeely 00:50

Well, we're excited to get started. So let's first begin by maybe getting more details about you. Can you tell us more about yourself?

**T** Thane Hunt 00:57

If you only knew one thing about me, I would want people to know that I've always been very focused on inventing new things, solving problems, fixing things and stuff like that, which is kind of a cliché story for engineers. But it's still important to me. I grew up in a big house in Connecticut as one of 17 children. I was kind of the weird technical guy and a house full of very emotionally and artistically intuitive siblings. But that was useful, right both sides of the brain. In a pretty short period of time, I went from wanting to be a chef to an astronaut to a doctor, to a robotics engineer. So I guess looking back, I pretty quickly converged on biomechanics and

robotics as a topic of interest. And then I just went and spent the next two decades thinking about these kinds of problems. 24/7, which took me on a journey through all kinds of projects and companies. Now, as you know, I'm building my own company, which is the most exciting thing I've done so far.

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Dr. Marie McNeely 01:48

I think that is so cool. And as someone who grew up with only one sibling, I can't imagine that sort of a bustling household environment. That is amazing. Yeah, it's wild. It was pretty good. So can you tell us a little bit more about how this interest in entrepreneurship entered the picture?

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Thane Hunt 02:01

I think I just always wanted to run a company. I don't think it registered as entrepreneurship in my head, at least not in the beginning. It was always more a highly specific interest in building things and watching people use them, experience them, even critique them. That's part of it. So for a little while, it seemed like I could do that as just an employee. But later on, it became clear that what I wanted to do required a lot of agency and control to really realize your vision. So I knew I had to get serious and make my own path.

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Dr. Marie McNeely 02:32

That's phenomenal. So what motivated you specifically then to found your current company Hominid X and can you give us some information in some detail on how you got started?

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Thane Hunt 02:41

I always wanted to create and market assistive devices. But just as a backstory, I had a problem with confidence on that for a long time. To be honest, I got 50% of the way to market on half a dozen small products over the years, and the common denominator, and all those false starts was me. But each of them brought lessons and experiences that are now keeping Hominid X going. So that's great. And somewhere along the way, I had mentally placed all of those companies who were quote, unquote, successfully developing assistive technology, I put them on a pedestal, I said to myself, well, you have to be pristine to do anything with medical. So this thinking kept me from giving myself permission to really grab it by the horns and go for it. That worked out though, because as luck would have it, I joined a prosthetics r&d company that was doing all kinds of cool grant funded projects. So that had the benefit of me getting to go to some conferences and trade shows. And that was really where my loss of innocence happened. I saw a few hundred small companies with products in various states of what I call apparent technical readiness, I would look and say to myself, Oh, I do that differently, or you can't sell it looking like that. Right? I mean, there were plenty of awesome companies too not putting anyone down. But it kind of messed me up to be honest to see any examples at all sketchy engineering at a medically oriented trade show. And that was something that got me to take action. It made me feel like no, I can do this, too. So this sounds kind of cliché, but I picked a problem, which in this case was hand grasping and mobility. I invented a solution

which for me as an engineer is like the only little tiny easy part for me, and I found some people to try it. So once I think two people told me they liked it, I filed company paperwork, got a patent and signed us up for a rehabilitation trade show. And that's the way it happened.

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Dr. Marie McNeely 04:23

That's wonderful. And I'm really glad you talked about some of these mental blocks that you battled because I think that almost imposter syndrome can stop a lot of people from taking that next step and making that big leap and starting that successful company. So now that you've got Hominid X really humming along there, can you tell us a little bit more about the company? What is Hominid X mission?

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Thane Hunt 04:43

Our official mission is to and I've said this on so many times, I think I can say it word for word. Our mission is to develop and deliver life-changing assistive wearable products that help and inspire people all over the world. But I do wake up and go to bed with a very specific version of that mission in my mind a little more wordy, I want to help instigate a huge shift in people's collective mindset about assistive technology. That's one of my goals, I think it needs to be less of a rescue mission for people with disabilities and more of a basic matter of human entitlement where some of those humans just happen to have different physical parameters. And I encourage my entire team on a daily basis to try to intuitively believe and accept the fact that there are literally 10s of millions of people who can use products like this. It's not a niche field. And maybe that makes me a bad capitalist to say this. But all of these assistive products should exist under many brands with different features and just work. It's 2023. We can mass produce this stuff and make it look perfect and stylish. So part of our mission is to put an end to this whole pay \$200 for a few pieces of Velcro and hand stitching thing.

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Dr. Marie McNeely 05:44

Definitely. And I think that is an ambitious goal shifting that collective mindset isn't easy. So how are you maybe tackling that are starting to go about it?

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Thane Hunt 05:53

The first thing is just to be kind of a call it punchy. So as you're probably already noticing, I'm very outspoken about the way I see the state of things and what direction I want to take it. And the more people I talk to occupational therapists, doctors, users of our products, we find that they're already 100% value aligned on that. And there's just this little gap between the product development folks and the users and the prescribers and all of that. So by placing ourselves really firmly between those two groups and acting as a liaison, whether it's with our products, or even other people's products, that's definitely a good way to start it, how to finish that goal. That lofty goal I mentioned before, I don't have all those details worked out yet. But as the company grows, I'm going to be able to pull in really great strategic visionary types, and they're going to help me make it happen.

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Dr. Marie McNeely 06:37

Secondly, you've got quite a bit of experience a broad experience working on a variety of prosthetics, robots, smart devices. And I'd love to give our listeners a sense of just the scope of your expertise. So can you describe some of your past work for us?

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Thane Hunt 06:51

Oh, sure. I love talking about this stuff, because it's the wonkiest path. But I got really into building robotic animals in college like dogs and birds that use these soft, fluid powered robot muscles to move around. We were trying to emulate biology when that made sense, but in other places use very non biological things like carbon fiber to achieve better strength to weight ratios than nature can. So those were awesome robots super fun. At one job, I led the technical development of a prosthetic socket for amputees which used all these little solid state cooling devices to sort of air condition the inside of a socket. Because amputated limbs whether it's a traumatic injury, or kind of a surgical say, diabetic injury kind of changes the vasculature of the leg and can result in reduced thermal regulation. So you get all this sweat, and that can cause inside the socket skin issues and make the socket actually slip off while walking. And I can still remember looking at the temperature graphs, proving that our air conditioned socket would have huge, clinically relevant benefits. And I was very proud of that. And it was a grant-funded project in that case. So it felt super good to use tax dollars towards something objectively useful and productive. So if we had more time, there are so many other great projects to talk about. There was a motorized prosthetic elbow I worked on, a little tiny box that could make any USB device wireless, using a really small Linux computer and Wi Fi. One experience that I always want to mention is spending a few months in China helping to ramp up a huge manufacturing line, where we were assembling advanced 3D printers. And that was manufacturing, logistics, cultural exchange, engineering, stress management. I loved it, it was super nice. So I've done a lot of different things. I have people saying, oh, you're a software engineer, you a mechanical engineer, and I just stick to the word inventor these days, because I don't like being in a bucket and inventor has a certain prestige to it. I won't lie. I kind of like.

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Dr. Marie McNeely 08:42

Absolutely, and Thane, I know you've had so many cool experiences over the years, and you've developed a really cool product within Hominid X. I'd love to talk about this one first. It's called Fiber. So can you describe what problem this Fiber product was designed to solve?

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Thane Hunt 08:57

So the statistics vary depending on where you look, but no doubt there are 10s of millions of people worldwide whose ability to grasp objects with their hands is either reduced or completely absent. So normally easy things like eating food, personal hygiene, like brushing teeth, or shaving or something or holding a cell phone become really challenging. Tons of things cause this: cerebral palsy, strokes, spinal cord injury, Parkinson's disease, ALS, MS, Arthritis, tremors can cause some issues, traumatic brain injuries, brachial plexus injuries, that's all probably just a portion of that list. Cerebral Palsy alone gets you to I think around 17 or 18 million people worldwide. And for strokes. That's around 110 million survivors worldwide if

my memory serves me, right, so I can't go through the whole list now. But that gets you to around 128 million people. So those figures are absolutely bananas. It's so many people. For comparison, Apple sold around 150 million iPhones in 2022. So actually, this is an Apple-sized problem, I'll say, again, it's not niche. And there are simple products that help for sure in a sort of mono task sort of way to talk about mono appliances in the kitchen, I think of mono task, assistive tools. So there are straps that help you hold a fork, it's low tech, it's cheap, but it works. It's the old school. And it's kind of tried and true, then you have the fancy robotic braces that can do all kinds of things, but cost really a lot and need to be recharged. So that's something you have to worry about. Fiber was designed to combine the low cost and easy to use aspects of the simpler single task products with at least some of the functional and exciting dynamic aspects of these robotic smart products. We wanted something that looked good created a really bio mimetic and stable grasp that was good for a lot of different holding tasks, would weigh basically nothing and didn't have a battery to recharge or a phone app or anything like that. And we think we got pretty close with even the first generation version. And we're always making improvements. That's kind of the motivation for why we created Fiber.

**D** Dr. Marie McNeely 10:57

Absolutely. And I'm glad you took so many of these factors into consideration things like the weight of someone's holding it on their hand, they don't want something heavy, if they're going to be using it every day for much of the day. So can you tell us for people who maybe haven't seen this product yet? What does it look like and how does it work?

**T** Thane Hunt 11:14

They're not the easiest thing to describe in the world. But I have a little bit of practice. So there are two major parts, there's a cable reel and a rubber strap. So on the inside of your wrist there is this retracting cable mechanism, it works a bit like a seatbelt mechanism where there's a coil spring inside that mechanism that allows you to pull out a long, thin strong cable and have it snap back into the house and when you let go. So now you have this device that looks a lot like a smartwatch, except that you wear it on the opposite direction as you would a watch with the face on the inside of your wrist. So you have the kind of watch piece. And then as I mentioned, there's this rubber strap that fits on to the back of your hand. With a wide strap running along the backs of your pointer and middle fingers. There's a little hook attached to near the end of that strap up near your fingertips. When you want to hold something, you just position your hand next to that object, and you use your opposite hand to grab onto that retracting cable with a little key ring and pull out enough of that cable. So you can pull it across the object and clip it onto those hooks on near the fingertip I mentioned. As the coil spring tries to retract the cable back in with that spring, it pulls the strap running the length of your fingers into a really great curling motion that incorporates your actual fingers to grasp on to the object. As it turns out, fingers are already awesome for wrapping around objects. So fiber doesn't waste that - it incorporates those awesome biomechanics as the actual gripper, it isn't some bypass robot doing the holding, this has the advantage for allowing tactile sensation and creates a strong natural looking and inherently safe grasp. That's pretty intuitive to use for people.

**D** Dr. Marie McNeely 12:43

Absolutely. I think part of the beauty of this product is the simplicity, like you said, it's just kind

of you pull this little thing out, you hook it around once you have your hand wrapped around the object. And it seems like that simplicity is a key element of it being useful in people's everyday lives. They don't want something very complicated. Is that something that you found?

**T** Thane Hunt 13:00

Absolutely. I'm the first one to throw as many motors and smart devices as I possibly can at a problem. I mean, I love doing that I want just an Iron Man suit, really. But actually talking to people and getting out of my ivory tower, I'd call it I said, Well, how many motors would you tolerate? And they'd say not and if it requires any charging, so yeah, this was a big deal. And I still think there's ways to make that stuff work with really high quality engineering. But as a startup, we're keeping it simple for now.

**D** Dr. Marie McNeely 13:26

Absolutely. So it sounds like you got some feedback from potential users, then can you tell us a little bit more about how you incorporated feedback and maybe perspectives from people with hand disabilities in designing this particular product?

**T** Thane Hunt 13:38

I'll be honest with you, at first, I felt a little ashamed to show my ideas to someone who would use them. I spent a lot of time in that ivory tower, I mentioned just guessing and looking at YouTube videos and white papers, which will give you a little bit of insight, but not the whole story. But when I finally did reach out to a single person, I was met with just really nice enthusiasm and support. And that unlocked that process for me. And after the fact I was reflecting that if there's one lesson I've learned over and over again, is that a company developing products needs a highly effective iterative development process. So we use social media, email outreach, even sometimes rehabilitation themed conferences to connect with occupational therapists, and of course, people with grasping disabilities. At which point, I just say, Hey, can I send this product to you for free? And a lot of people won't even accept free, they just think I'm sketchy or something. But a lot of people do, they are interested. So most users once they take a look at it like what we're doing. So after they've had a chance to try the product, we're able to really focus the conversation around the specific little nuances rather than spending all of our time kind of pitching the basic idea to them or even justifying a product's existence. So that kind of interaction is where the magic happens. So the next part is that part of our brand is that we strive to implement feedback and have an updated product in the mail within 48 hours of getting that feedback. Oh wow. Sometimes it's not possible but I always try to make it happen. So I think this excites people it feels good to be listened to I love being listened to. So we get a lot of buy in. And I don't call it loyalty. But just support from doing that it doesn't always go well. But it's never a failure. In the cases where the product doesn't work for someone, we at least ended up learning about how people from different backgrounds use assistive tech or we discover an incorrect assumption about what people want in a product like this. So I think if you ask someone what their ideal product is, that hits them with a blank canvas problem. And even though they have this insight, they might lead you in the wrong direction. So I think that sometimes you need to actually provide a first guess. And I think it's easier to show people something and ask yes or no to this, and then take their

feedback after you've got that initial buy in so sure, 20 years ago, this manner of product development would have been insanely expensive. But with modern manufacturing, it works perfectly.

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Dr. Marie McNeely 15:46

Oh, that's amazing. I love that quick turnaround time. So I'm curious Thane, did you discover anything that really surprised you during this feedback and iteration phase?

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Thane Hunt 15:56

Basically, everything super focused on as an issue ended up being a non issue. One example, there's a metal key ring on the end of the string. So I always thought that you needed a big loop. So you could get your finger through on your opposite hand, because maybe your opposite hand also has some mobility issues. And the immediate feedback I got was, well, she said, I would use my teeth to actually pull this across. And it's not fun. If it's this big metal ring, it should be this rubbery thing. I mean, I had already ordered 2000 of these key rings. So that was pretty good. So it was just little tiny details that you just subconsciously make an assumption about and then someone tries it. And within 10 seconds of trying it, they look at you like Oh, I found a deal breaker. And that's why I'll never try to develop anything again without bringing people in on day, zero day negative one.

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Dr. Marie McNeely 16:40

Absolutely. I think having those insights, those perspectives to help check your assumptions is really critical. And I love that you've incorporated users into the development process. How else does Fiber really differ from other solutions that would be available for people who have these kind of grasping or hand disabilities?

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Thane Hunt 16:57

There's a lot of differences. But like we talked about before, there are a variety of objects on the market already that help people hold things. And like I said, on one end of the cost spectrum, we've got the cheap low tech solutions, they're typically less than \$100 bucks are made of fabric, attachment Velcro, and are for one activity like pulling up a zipper on a jacket, for example. So examples of these sorts of products are universal cuffs, which are like little pockets, you strap your hand for holding utensils. And on the other end of the spectrum, you've got the so called Smart options the robotic braces with a ton of little straps and points of adjustments, some motors, batteries, a smartphone app, or whatever. These are much more functional, but are super cost restrictive. And the insurance reimbursement outlook for these products is not always great in the United States. They're also heavier and require very tech savvy user and make your disability even more obvious if that's something you care about because they're bulky and cover most of the hand. So Fiber, like I said before, combines best of both worlds. It's relatively inexpensive, allows for a ton of different grass patterns as the user's skill level grows. It's inherently soft, comfortable and safe to use, weighs less than some smartwatches and doesn't require a battery an app or even much training. And to some extent

form follows function. But we're really dedicated to making it look good, or at least not bad. I would say it's pretty low profile. It's made of modern injection molded rubber materials. And we're working even now on offering new color options. So in terms of functionality, aesthetics, cost and practicality, I feel very strongly that Fiber has met and exceeded its goal of being the highest value assistive grasping device on the market today, and will never stop improving it so I think it's only gonna get better.

**D** Dr. Marie McNeely 18:30

Absolutely. And it sounds like this product Fiber has a lot of potential to help people. For listeners who are already intrigued after hearing just part one of our interview, what is the best way for them to learn more about you and more about Hominid X?

**T** Thane Hunt 18:44

They can go to [www.hominidx.com](http://www.hominidx.com) Or they can look us up on LinkedIn, Instagram, Facebook, Tik Tok, all those places we're there.

**D** Dr. Marie McNeely 18:52

Excellent well listeners, definitely get connected with Hominid X, check out that website. And Thane we really appreciate you joining us to share your insights and experiences with me and our listeners today.

**T** Thane Hunt 19:03

Thanks so much for having me. It's been fun.

**D** Dr. Marie McNeely 19:05

Well, again, it's been a pleasure to chat with you and listeners. Great to have you here with us as well. Make sure you subscribe to the show and join us again in our next episode to hear even more about Hominid X including details about a second product they have developed. And we look forward to connecting with you again in our next episode of Changing What's Possible.