Steve Welch

Hello and welcome to Silent Designers, a podcast the under the radar design activity which goes on in so many organisations, even though it's not necessarily seen as design or even done by designers. Each month we will have an expert to share their knowledge and the impact that design has had in their particular domain. I'm Steve Welch from Innovate UK, and I'd like to introduce my co-host, Katherine Wildman, founder of B2B copywriting agency Haydn Grey.

Kath Wildman

Hi Steve, Thank you for the introduction. In today's episode of Silent Designers, we're going to be exploring the theme of healthy living and tech, and we're going to be talking to Ahmed Wobi He is the co-founder of Tonus Tech, an award winning writer, director and national basketball champion. Ahmed, thank you so much for joining us today.

Ahmed Wobi

Thank you, Katherine, and nice to meet you.

Steve Welch

Yes. Ahmed, thanks for joining us. Let's start easy. Can you tell us about yourself and the area of innovation you work in?

Ahmed Wobi

Yes. So I work in the area of health technology, and I used to be a doctor initially, I studied neurosciences and afterwards I transition towards health tech. And specifically with Tonus Tech, we look at mobility and longevity. So the area that we're focusing on is trying to keep people moving better for longer, using sensors and artificial intelligence.

Kath Wildman

Extraordinary. Can you tell us how do you use design in this area and why is it important to your innovation?

Ahmed Wobi

Yeah, So design plays quite a large part in both the solution of the products that we are designing because it has a combination of hardware and software. The hardware itself is a mix of multiple sensors that are used on the lower limbs. And we need to work out how to create these sensors from scratch, but also how easy it would be for people to use them. That process was not straightforward, but I think often a lot of these design processes will take you on interesting journeys and specifically in working out how to develop the product with the hardware, the software combination. We had to think a lot about what would be easy, what would be attractive, what would be comfortable, accessible and all of these sort of concepts came up in the process.

Steve Welch

So the mobility you're working on is that for athletic performance or as therapy for people with challenges?

Ahmed Wobi

So we approached it from a general health and wellness perspective, that core technology itself can be used for all, so it can be used for performance athletes, but it also can be used for everyday people who are just interested in keeping themselves fit and healthy. And it can also be used in a medical context. So if anyone has any ability altering conditions, whether it's like an arthritis or even more disabling, such as a paralysis. Any type of mobility issue, the software and the hardware can be useful. So we tried to reach out to everyone who wants to move in a better way for themselves.

Kath Wildman

Extraordinary. Can I ask about the application of AI with the sensors? How, it's in the news all the time isn't AI but how, what was the thinking behind that and how does it work?

Ahmed Wobi

So the way that we use AI, there's an awful lot of data that is produced when you have a sensor involved. We use multiple sensors, so each of the sensors, usually it's two on each leg, one on the lower back, produces information about the orientation and the speed and position of a limb and other things around like acceleration. When you have the sampling, all of each of those sensors that occurs hundreds of times a second very, very quickly, you get millions of data points for each person when they're moving. The AI is very good at classifying specific movements. So what it does is, for example, you can put the sensors on whether they're in the leggings or directly on the skin. And if you do multiple exercises like a squat or a lunge or a walk or a run. When you have all those data points gathered together, the AI will be able to detect the difference between a run or squat or a lunge, and then it can work out what is the optimum version of that movement for each individual person, because we all have different anatomy, and we all move in different ways. So that's what the AI is very powerful at doing. It's good at looking at patterns in large volume data sets.

Steve Welch

Interesting. Are you able or interested, I don't know if it's part of your thinking, but does that also translate across different patients or clients? So your system is also gradually learning more across different varieties of people?

Ahmed Wobi

Exactly. So at the moment our main focus is on older adults because that's sort of where we see our potential use case. However, it can be used for anyone and the current training data has a lot of older adults who have used _ the sensors. So the library or the dataset is mainly focused in that way. And if you were to look at younger people, it would have a different sort of algorithmic library base case.So our focus is sort of skewed our library in a specific direction. And the testing that we've done has been in certain medical conditions. So we haven't looked

at everything. And that's, I guess, good when you're first starting out. But eventually we would like to find out.

Kath Wildman
Is there a reason why you're focusing on the older population? _ I know this, we're living longer aren't we?

Ahmed Wobi
Exactly.

Kath Wildman
Is that the reason behind it?

Ahmed Wobi
Absolutely. When we were formed as a company, we came out of Zink VC which was our business builder that is mission based. And our particular mission was around the concept of longevity and healthy ageing, and we thought that was a great opportunity and it hadn't been explored as much, particularly within the mobility market. And mobility through conventional interventions has been partially affected, but we were looking to develop a customised solution that would be easy and accessible but would also produce significant gains. So that's why we were looking at older adults and we think that as long as people are living longer, unfortunately the quality of that life is not always great. So how can we improve that? And one of the evidence bases based interventions is looking at mobility and helping people move.

Steve Welch
And how did you arrive at this? Was the need for this something you learned perhaps earlier in your medical or academic time?

Ahmed Wobi
Absolutely. When I initially did my studies at university, I focused on patients that had tremors. These were patients that had Multiple Sclerosis and one of the therapies that we used was deep brain stimulation, which is where you sort of introduce an electrode into different parts of the brain to sort of counteract the body's natural electrical signal and the aim is to sort of find this balance where you can help people move, whether it is in Multiple Sclerosis or Parkinson's Disease or other neurological conditions that affect movement. Outside of that, I'd also seen a lot of patients who are struggling with movement in the hospital scenario and just how they anecdotally in everyday life through friends and family. So I knew that it was something that was very common. I myself had had injuries to my knees, both when I was after playing sport and had needed surgery, so I knew that it was something that affected a lot of people. And I personally seen how limited the interventions were. So it was something that I think I had a little bit of personal and academic experience with and with my co-founders, we thought it was an area that had a rich potential.

Kath Wildman
I think we have to come back to this, the fact that you're a national basketball champion and how extraordinary. You've just touched on your own experiences. Are there other aspects of playing sport at such a professional level that you can bring in? I suppose the rigour, the training, the discipline that's involved?

Ahmed Wobi
Absolutely. I think I learnt a lot from being in a, I guess a formal or higher level sporting environment. Basic things around teamwork, communication, leadership. You have to be able to make very quick decisions knowing how other members of your team will react. And I think that translates to life in general, but also to academia and entrepreneurism, as well as design, because there is a sort of iteration idea of going back to concepts and trial and error and then testing and testing and working on what works well and leaving what doesn't work. Yeah, So I think all of those aspects definitely helped me in my further careers.

Steve Welch
Your background as doctor turned Start-Up curator is obviously clearly a very interesting route. How do you think academics generally could make better use of design?

Ahmed Wobi
That's a great question. I think there is embedded design culture within some streams of academia. However, I think often there are overly rigid boxes which have come from a good place because of a lot of the work that is done is is driven by an evidence based focus. So that can lead to almost train tracks when it comes to sort of creative thought. However, I think there is room for early discovery that I think that a lot of academics don't necessarily have access to, because in a self-limiting way it is sort of driven by a higher outcome or a higher goal that is often led by the institution. So I think if we were able to introduce that, the more kind of creative aspect of design thinking, particularly early on in studies, whether it's pilot needs or formative researched areas, I think that would greatly benefit a lot of academia. I think we're seeing some of that now, particularly around the use of artificial intelligence because it lowers the threshold for early exploration. And I think large sort of datasets can be experimented with very early on prior to further experimentation.

Steve Welch
Everything you're saying there about people's, if you like, established thinking patterns and needing to break out of that, I sort of, I guess is it feels maybe it's a cliche to say it, but almost more important than ever now because AI is enabling a lot. But also I guess I'm thinking that we need to work harder therefore, at making sure the humans are doing the bit that the humans are good at. And often it's that early creative leap which the machine can't quite do for us yet. I'm hoping it'll be a while, but that ability to sync in new ways, bringing together unlikely components or just thinking in new ways of bringing ideas in from other sectors. So it really feels that the opportunity is there and I like that you pointed out that AI may be simplifying that early process.

Ahmed Wobi

Absolutely. I totally agree of the lowering of the threshold. I think a lot of sort of simulation has become apparent now, which was very difficult maybe ten years ago. So people before they even embark on real studies, are able to simulate a lot of things using artificial intelligence. And that I think that's a great way of sort of building these sort of design and creating opportunities early on in academic academia.

Steve Welch

And on that list of things to think about, and this is perhaps a bit of a vague question for which I apologise, but we've seen in some cases that there is a danger in how AI models are trained in that they, they start building, let's say the small p prejudices of the people providing the data and can almost embed some of the more negative human approaches. Have you any thoughts on that or how people can more routinely strive to stop that happening?

Ahmed Wobi

It's such a great question. I don't think there's an easy answer. I think the ideal solution would be to eliminate any sort of bias or prejudice outside of artificial intelligence first. Often we see that the data models are trained, have that are trained, have similar biases to the people that train them, even if it is an unconscious bias. So if we can sort of at a core, broader philosophical level address those first, that I think would _ sort of slow down in the sort of work stream towards the AI models themselves being more robust. I think also regularly checking the actual sort of datasets themselves and what's being produced with an inclusive and diverse set of both end users and scientists or academics. So I think people who come from a mixed background, whether it's from age, race, ability, etc., would be able to see and observe such biases at an earlier stage rather than developing something, waiting till it's done, and then looking at the final product and then kind of having to walk backwards. So I think embedding more people into the design process from a diverse range of backgrounds earlier on, but also if as a society were able to kind of implement those ideas, which I understand is not an easy thing to do, but I definitely think that that's how eventually we will be able to overcome this issue.

Kath Wildman

Looking to the future Ahmed, if I was to talk to you again in two, three years time, where do you think this technology is going to have taken us?

Ahmed Wobi

I hope that it is reached the point of sort of global acceptance from a thought perspective where people are able to be comfortable with the idea that the clothes that they wear are able to follow how they move, and also give feedback to themselves about how they're moving to help people, both from a health and fitness perspective, to understand in the same way many people now have wearables in their watches that give them feedback, and they understand about that heart rate a bit more and they understand more about their steps. I'm hoping that's the sort of paradigm shift that we can see with clothing and then we can take that a bit further,

maybe in a more than two or three years, maybe five to ten years, where we will start to understand that movement is a form of a biomarker and it can be very indicative of early stage disease and monitoring disease that we can prevent through simple intervention. So I think that's sort of my hope and I think it will happen. I'm just not sure how quickly we will be able to adopt that that sort of a sea change.

Kath Wildman
We're coming towards the end of our time today _ Ahmed. I'd like to thank you very much for being here with us and I know that Steve has one more question to ask.

Steve Welch
Well, you sort of asked the hardest questions already, but I think this might be the trickiest one. If you were to narrow everything down to one _ thing to think of, if you had one piece of advice to someone wanting to incorporate design thinking in what they do, what would that be?

Ahmed Wobi
I think the key is to focus on your end user, whoever that may be. You really need to understand them and you need to get from them all the information because they have all the answers. Sometimes it might be indirect. You might need to observe them, but you need to learn as much as much as you can about them because they are the ones who you are designing for.

Kath Wildman
Ahmed, thank you so much for your time and for sharing your insights and advice with us today.

Steve Welch
Yeah, and thanks from me too. This is such a big and interesting subject. I appreciate your time.

Ahmed Wobi
Thanks Kath and thanks Steve. It's been a pleasure being on.

Steve Welch
And you're very welcome. This podcast has been produced by the Design in Innovation Network, which is sponsored and supported by Innovate UK. So if you want to find out more about what we do or want to meet and talk to interesting people, just sign up to the network and we'll see you next time on Silent Designers.