

URL: <https://stv.stanford.edu/clips/embodying-innovation>

Neuroscientist David Eagleman demonstrates the flagship product of his startup Neosensory: a vest lined with motors that can translate sensory data into vibrations that the body can feel. In conversation with Stanford Professor of the Practice Tina Seelig, Eagleman explains how his invention can help those who can't hear experience sound, for a small fraction of the cost of a cochlear implant.



## Transcript

- I think that all the particular sensors we have for electromagnetic radiation and air compression waves and molecules floating in the air and so on.. I think these are all plug and play receptors and that the brain is sort of a general computational device.. And you can plug whatever you want in here and the brain will just figure out what to do with it.. And when you look across the animal kingdom, you find all kinds of weird and interesting peripheral devices that are plugged into animals, whether that's heat pits or magnetites so they can align to the magnetic field of the Earth or electro-reception or you know, any kind of thing that, like the star-nosed mole has this nose with 22 fingers on it that it feels around, it constructs a three dimensional model and so on.. You've got all these peripheral devices and so the thing that got me really interested awhile ago is this sort of, can we build new peripherals? Can we build a new, sort of thing where we're plugging information into the human brain via an unusual channel.. So one of the things that we did in my lab, you probably know about this of course, is we built this vest, I actually brought a demo along here so I could show you guys.. We built this vest where we can, I can capture sound so as I'm speaking, this is picking up what I'm saying and then, what I do is I wear this vest that picks up on the.... - [Woman] Most speakers keep their clothes on.. - Yeah, not this one.. By the end of the talk, it'll be the full monty..

Anyway, so what's going on is, the sound is getting picked up and translated into patterns of vibrations on my body, each of these are vibratory motors.. And so, what's happening is as I speak, the sound is getting captured and turned into patterns of vibration and deaf people can come to understand the world this way.. And they can come to hear the world through patterns of vibrations on their torso.. And so, if it sounds wacky, it's essentially like the way a blind person can read a Braille novel and you know, cry and laugh based on the information coming in through their fingertip right? So it's the same sort of thing.. Essentially we're taking the inner ear, the cochlea, and putting it on the torso.. And the part that's been of great interest to me is you know, there are 53 million deaf people in the world who are severely or profoundly deaf and so we can just cure that now, for under a thousand bucks whereas the only other solution for deafness is a cochlear implant, which is \$100,000 and an invasive surgery.. So this is something that's gonna change the whole world..