SENSORY SUBSTITUTION
Sensory substitution is like *mathematically mapping*
Relies on neuroplasticity & pattern-recognition
VISUAL-TO-AUDITORY
20 to 20,000 Hz

**Sound**

**Light**

[Diagram of the electro magnetic spectrum showing wavelengths and frequencies.]
THE EYEBORG

- Nicole Kidman and Prince Charles sound similar because their eye color is alike.

- The dial-tone of a telephone sounds green.

- When attending a funeral, Harbisson wears purple, turquoise, and orange clothes. Together, these colors sound like a minor, somber chord.

- Harbisson hears colors that are invisible to human eyes, such as infrared and ultraviolet. (He can even hear the sky and know if it's a good day to sunbathe!)

- The colors of the outfit he wore at TED sounded a C major chord.

- The song "Baby" by Justin Bieber sounds pretty in pink.

- The colors Sol, Fa, Sol#, Lá, Do, Re, Ré, and Mi are shown on the color wheel.

- Listening to Mozart is a yellow experience.

- TED red sounds like an "F".

- "THE EYEBORG" text is displayed at the bottom right.
Color is basically **hue**, **saturation** and **light**.

I can see light in shades of grey, but I can't see its saturation or hue.

Hue → Sound Frequency; Saturation → Volume

...**chip on the back of my neck** – held onto the bone by pressure, & I **hear through vibrations** in my skull

I can do the **infrared spectrum** – I see color that is invisible... I also see **ultraviolet light**, which is good to detect because it damages skin.
Suppose I look at a dark plum ... this corresponds to a note ... anywhere between E and F in microtones.

Mozart is yellow. So is Bach. But Beethoven is more purple and blue.

I create sound portraits by pointing the device at the different skin hues on the face, so I can create the chord of a face.

I have also done the opposite, creating color portraits from voices. The very colorful one was Hitler because his speech used many tones. Martin Luther King was more one tone and ended up being very purple and blue.
AUDITORY-TO-TACTILE
Versatile Extra-Sensory Transducer (VEST)

32 tiny motors

External Sound → Real-Time Compression → Sound-to-Touch Mapping → Vibration Output

Prototype Exterior (Back) → Worn Under Clothing → Brain learns to interpret the data!

Prototype Interior (Inside)
32 tiny motors
$47,285 pledged of $40,000 goal

288 backers
Thanks