Wearable Tech Art Project Proposal: **subconscious sense for WiFi networks**

Will Harris-Braun

Concept

layers of reality

"[Wearable technology art] is worn on the body, it exists in the complex multidimensional realities of contemporary social discourse (often simultaneously on line and off), and it engages with a world transformed by varieties of 'media'" (Ryan 1)

- Ryan is describing wearable technology's unique situation between two "layers" of reality: the physical and the digital
- Wearable tech can connect the physical body to the digital layer of reality that's now ubiquitous

"...our physical bodies are shadowed by a 'data body' which follows the physical body of the consuming citizen and sometimes precedes it by constructing the individual through data. Before we arrive somewhere, we have already been measured and classified. Thus upon arrival, the citizen will be treated according to the criteria 'connected with the profile that represents us'" (Ibrahim 4).

- Ibrahim's description of a "data body" is compatible with a concept that reality exists in layers.
- The body exists in the physical layer and having effects in a digital "data layer."
- The problem is that these effects are invisible to the body, as its default senses can't interact there.

Concept

power in protocol

“Our best machines are made of sunshine; they are all light and clean because they are nothing but signals, electromagnetic waves, a section of a spectrum…” (Haraway 13)

- Protocol vs. Implementation
- Networking protocols like WiFi are nothing but agreements: “sections of the spectrum.”
- More powerful than any physical piece of technology

How do we enable our physical bodies to sense these layers so we can both integrate with and defend against their power?

Concept

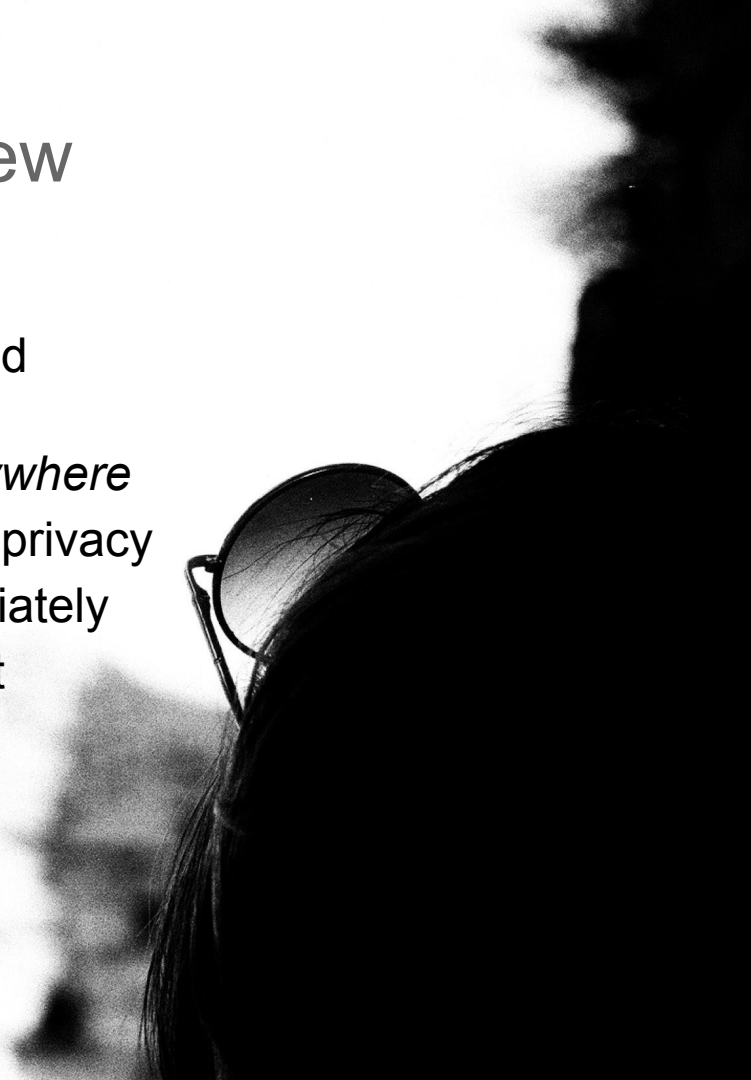
sense and defense

Susanna Hertrich's *Prostheses for Instincts*:
"These devices are connected to data streams that relate to deferred dangers, e. g. stock market data, currency exchange rates, natural disasters (earthquake data) or local crime rates. When a change of incoming data is registered, the devices automatically jump into action and create haptic sensations similar to those caused by our natural instincts: raised neck hair, cold shivers, goosebumps etc. An artificial instinct is experienced." [-2] [-1]

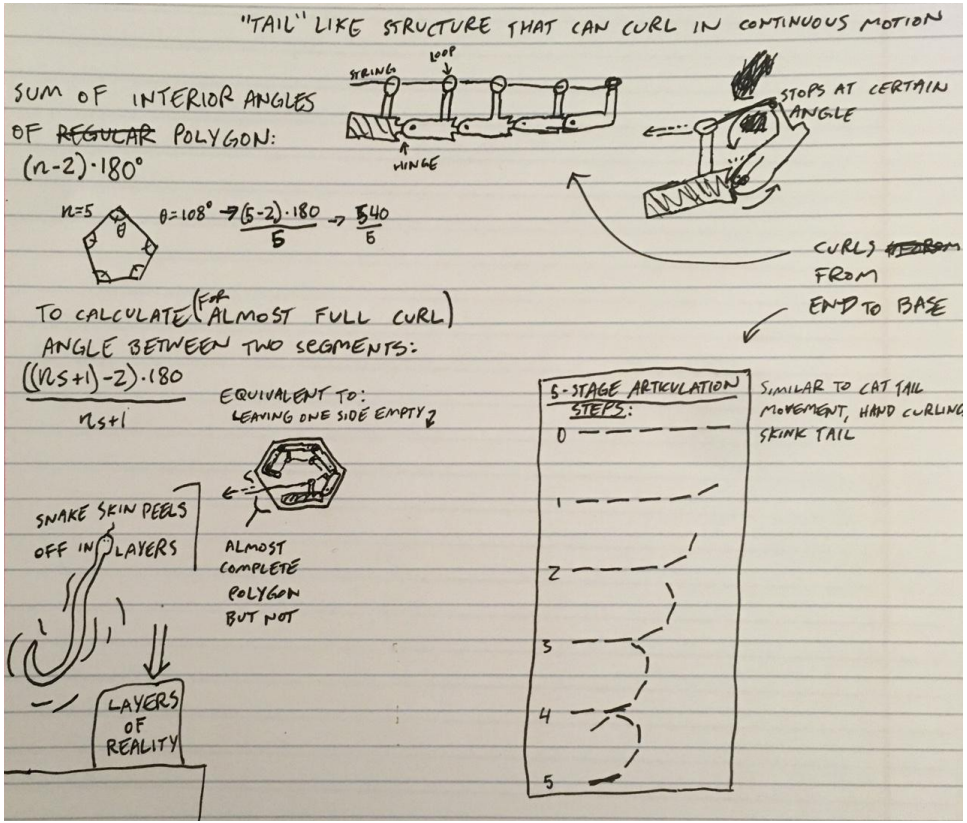
- Connects data layer to physical body
- Take this a step further, making it an externally visible reaction—not just an internal feeling—so the information can operate socially, like a cat or pufferfish looking bigger when scared.

Concept overview

- Humans have unconscious reaction to danger
- But it’s limited to the physical layers of the world
  - Layers of reality—visual, audio, touch + data/tech
- Danger via global digital tech is *new* and *everywhere*
- What’s this kind of danger? WiFi—a danger to privacy
- Danger of being streamed/shared: how immediately your image can be shared out onto the internet
- Bodies aren’t adapted sense this danger
- But technology can extend our bodies to help
- Mimic way animal's fur stands up in danger
- Unconscious reaction to invisible networks



Technical construction physical



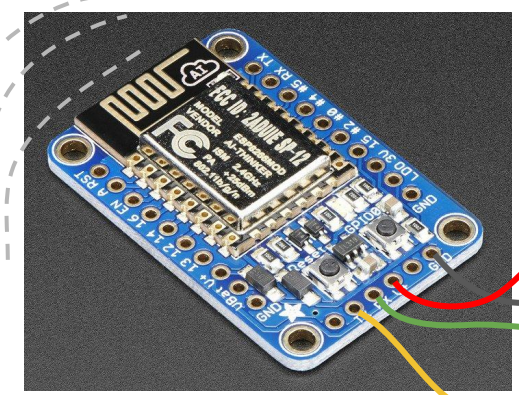
- Made out of interlocking pieces with a joint between each
- Actuated by a string
- Mimics bones and tendons

https://www.thingiverse.com/thing:584405

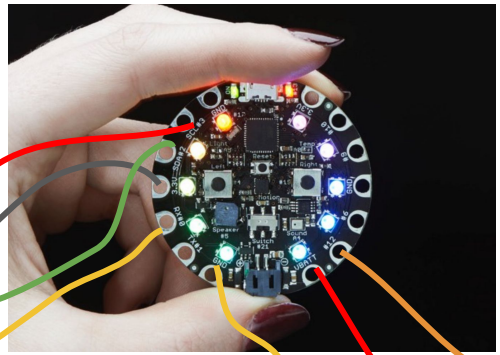
Technical construction electrical

Components:

- Adafruit HUZZAH ESP8266 Breakout (WiFi board)
- Circuit playground
- Stepper motors



[0]



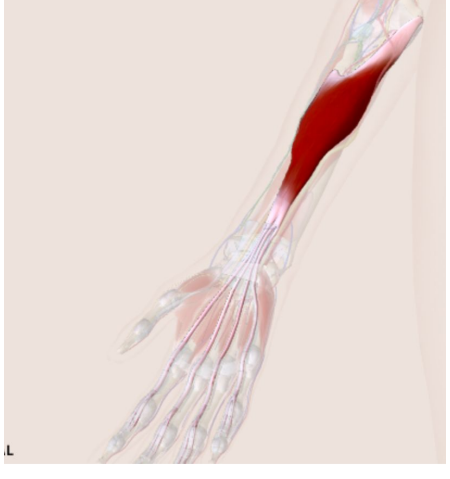
Technical construction code

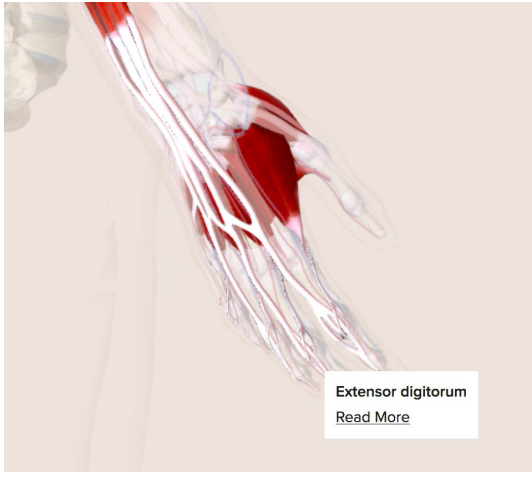
```
// Finding number of WiFi networks
#include "ESP8266WiFi.h"
int numberOfNetworks = WiFi.scanNetworks(); [1]

// Controlling stepper motor to
// precisely curl and uncurl
#include <Stepper.h>
const int stepsPerRevolution = 90; [2]
Stepper myStepper(stepsPerRevolution, 8, 9, 10, 11);
myStepper.step(stepsPerRevolution);
delay(500);
```

Aesthetic reference and inspiration

Human hand movement

- Lots of small parts making curve
- Controlled by extensor and flexor [3]
- More abilities (flexing both directions)





Aesthetic reference and inspiration

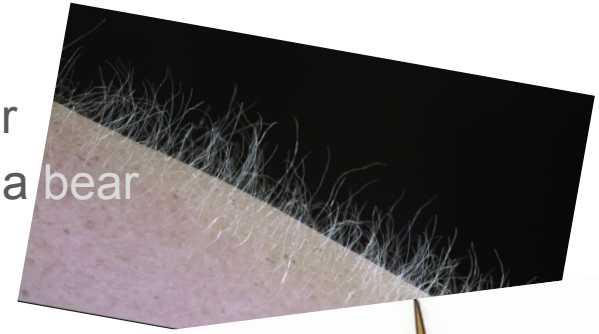
Skink tails in danger:

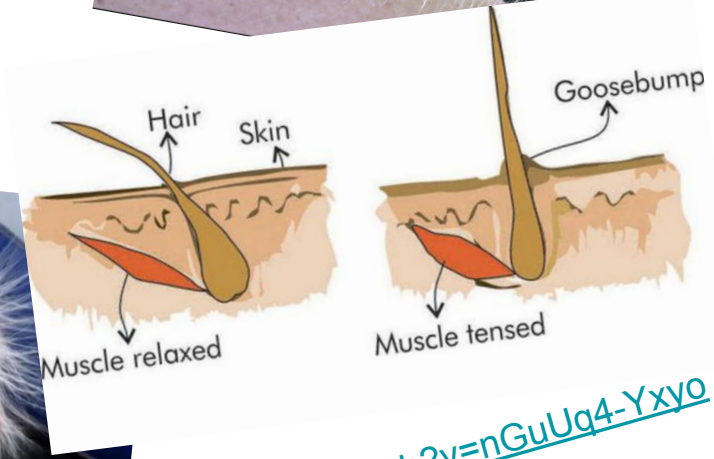
- Wiggling to distract predator [4]
- Can even fall off!
- Brightly colored

Aesthetic reference and inspiration

Cat tails and fur

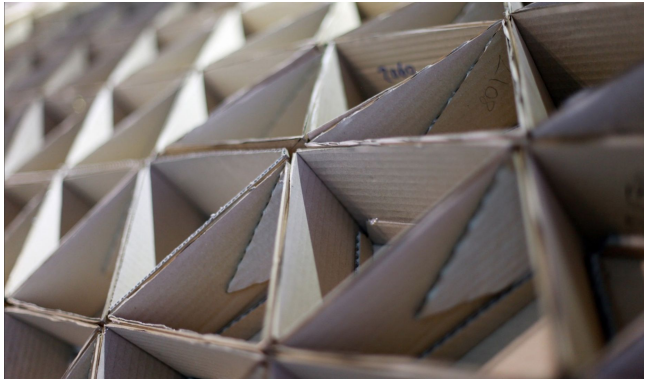
- Puffs up to make cat bigger when scared or in danger
- How they say to make yourself bigger when you see a bear





https://www.youtube.com/watch?v=nGuUq4-Yxyo

Material choices



- Cardboard for early prototypes of mechanism
  - Very fast to see what will work, what won’t
  - Not precise
- 3D-print joints
  - Rapidly iterable
  - can create proof-of-concept of mechanical concept, then narrow down aesthetic of the parts
    - colorful