

Projects 2023-2024



We can improve symptoms of dystonia (involuntary muscle contractions) by delivering pulses of vibration to the wrist at precise moments relative to brain activity recorded with EEG electrodes.

Current hardware setup is not portable, making it hard to test the theory in the wild.

The goal here is to create a **portable vibration bracelet** and see if it can deliver the same vibrations than the non portable version

@ anne.roudaut@bristol.ac.uk

Vibrating bracelet for dystonia

software

hardware

design

study



Inflatable robots work well as safe and engaging art installations, but they are almost always incapable of sensing their environment or people's interactions with them.

Investigate the practicality of using **capacitive touch sensing** techniques to detect touch for large inflatable robots. Assess the accuracy, reliability and cost of the capacitive sensors.

Note you won't need to build the robot itself as we have a few lying around :)

@ jed.preist@bristol.ac.uk
@ anne.roudaut@bristol.ac.uk

Capacitive Sensing for Inflatables

software

hardware

design

study



The goal is to create a **connected tooth brush holder** that can detect when users (and how long) are using their toothbrush.

When not used regularly, the pot provide a number of possible external motivation feedback to help users to brush their teech.

Particularly framed around adhders who lack of intrinsic motivation for executive tasks

@ anne.roudaut@bristol.ac.uk

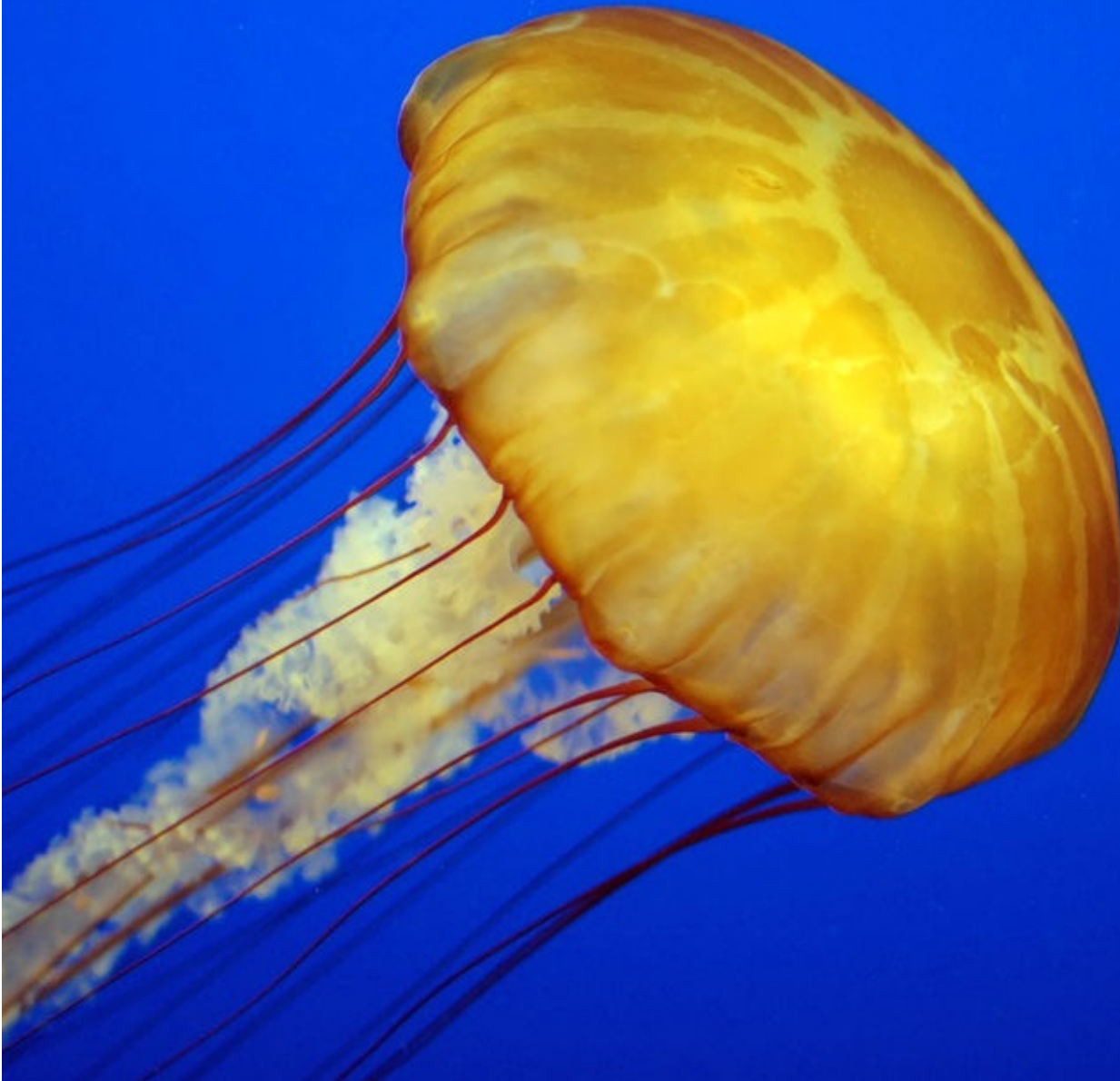
Better Oral Hygiene for ADHDers

software

hardware

design

study



Animals with soft body tend to appear less threatening than those with hard body, even if this one is visible or not (internal skeleton). Is there such a phenomena occurring with robots?

The goal is to build **large simplistic robots with different body types** and test how human perception is affected.

- one with just the hard skeleton
- one with a "skin" (fabric cover) hiding it
- one without skeleton (air-actuated)

@ anne.roudaut@bristol.ac.uk

Internal/External robot skeleton

software

hardware

design

study



There are many competitions in the world that fuel engineering innovation. One example is robot wars.

The goal of this project is to systematically explore how **contests have fuel innovation in engineering fields**. Then to understand what make a good contest by interacting with the robot war team at Bristol. Ultimately providing guidelines and ideas for the next generation of contests.

Note: would be perfectly adapted for a student already engaging with robot wars

@ jed.preist@bristol.ac.uk

@ anne.roudaut@bristol.ac.uk

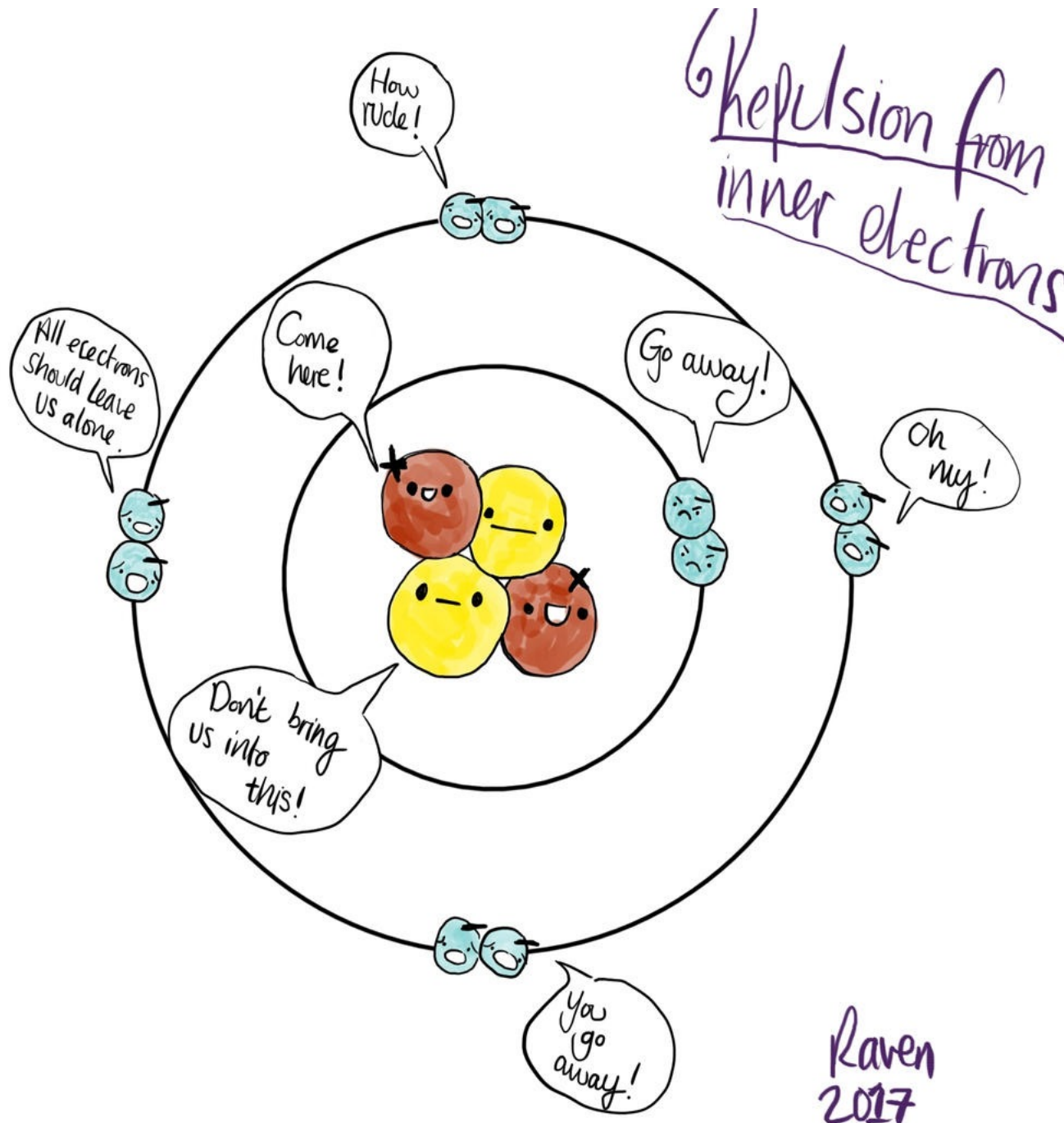
Fueling innovation via contests

software

hardware

design

study



This project aims at creating better dissemination of research tools. The goal is to create an **AI tool that can generate comic strips to explain complex physics and chemical process.**

The idea would be to start from a sketch provided by experts on how something work, and use AI tools to generate comic friendly visual support.

You will have access to a chemical engineer who can provide sketches as input for the tool.

@ anne.roudaut@bristol.ac.uk

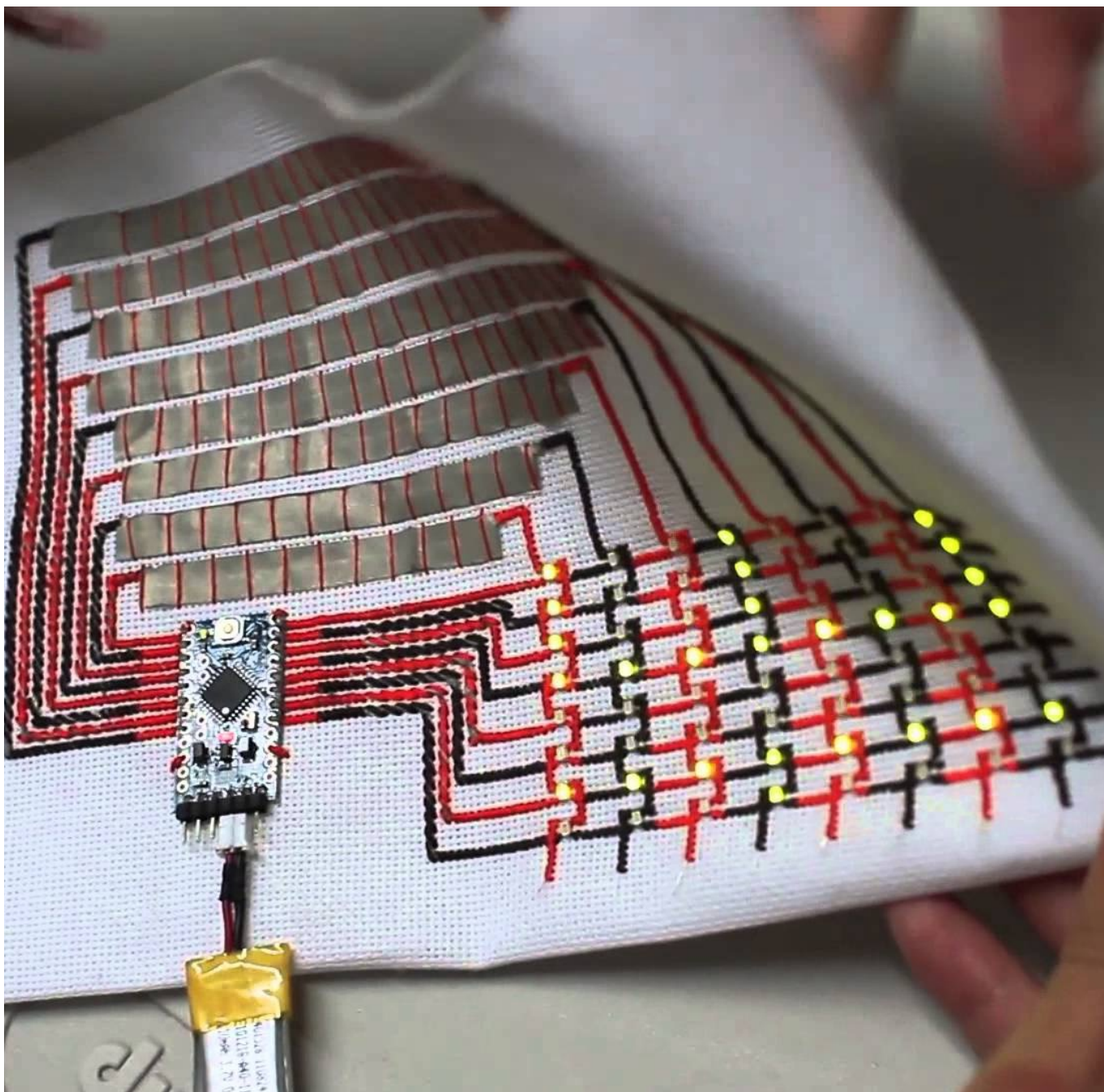
AI Comic tutorials

software

hardware

design

study



Embroidered circuitry offers a lot of possibilities for **wearable electronics**. However, current embroidery tools assume that you are working on a flat surface, which may not be the case for clothing.

Investigate techniques and make a tool for **mapping** embroidered circuits **across seams** in fabric.

@ jed.preist@bristol.ac.uk

@ anne.roudaut@bristol.ac.uk

Embroidery Mapping

software

hardware

design

study



The goal is to use the **teslasuit to analyse body posture**.

You will familiarise with the tesla suit and what data it collected. Then program a software to analyse body posture.

This project is part of a larger project where the suit will be use to help understanding the success of equine-based therapy.

Ellen Weir
ellen.weir@bristol.ac.uk

Anne Roudaut
anne.roudaut@bristol.ac.uk

Body posture analysis

software

hardware

design

study



Create a small robot, either physical or in VR, that acts as a pet similar to Tamagochi.

Investigate how the robot can use **gesture** and **posture** to **communicate feelings** such as happiness, hunger, boredom.

@ jed.preist@bristol.ac.uk

@ anne.roudaut@bristol.ac.uk

TamagochiBot

software

hardware

design

study



Deceptive patterns exist on digital platforms and websites we use every day. What kind of **tool** can be build to **identify** and **understand** how these patterns **impact** how we consume this digital information.

To Do's:

- Build an Identidier tool
- Evaluate it

Eszter Vigh
eszter.vigh@bristol.ac.uk

Anne Roudaut
Anne.roudaut@bristol.ac.uk

[This Photo](#) by Unknown author is licensed under [CC BY](#).

Detective Deceptive: Pattern Identifier

software

hardware

design

study



How can we use active ink to create **digital tattoos** that can change colour?

Make a prototype using flexible E-ink display embedded within silicon material to mimic the skin (we won't physically inject people with E-ink lol!)

Interview tattoo artists and use participatory design to draw in expertise on uses and demonstrations for interactive tattoos

@ anne.roudaut@bristol.ac.uk

Digital Tattoos Prototype

software

hardware

design

study