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# Introduction to Python

IDE1  
February 2019

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# The Aim of Today

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... is to become familiar with the Python programming language and related scientific computing tools so that you can explore the machine learning concepts being discussed in the module.

This is certainly not a comprehensive introduction to the language. We are skipping parts that you don't immediately need to know.

# The Format of Today

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5 x

15-30 minutes of lecture to introduce a new concept and demo how to work with it.

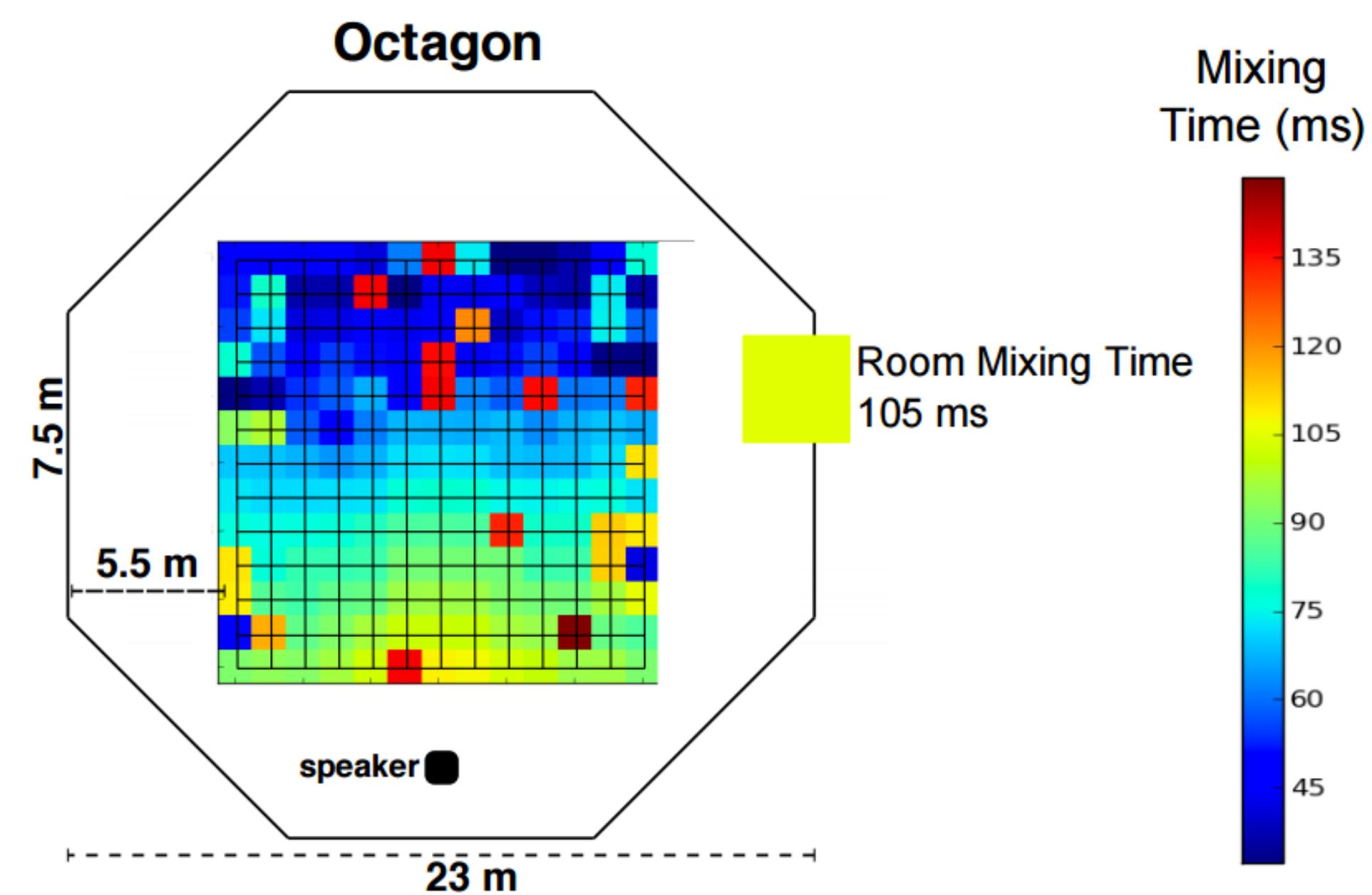
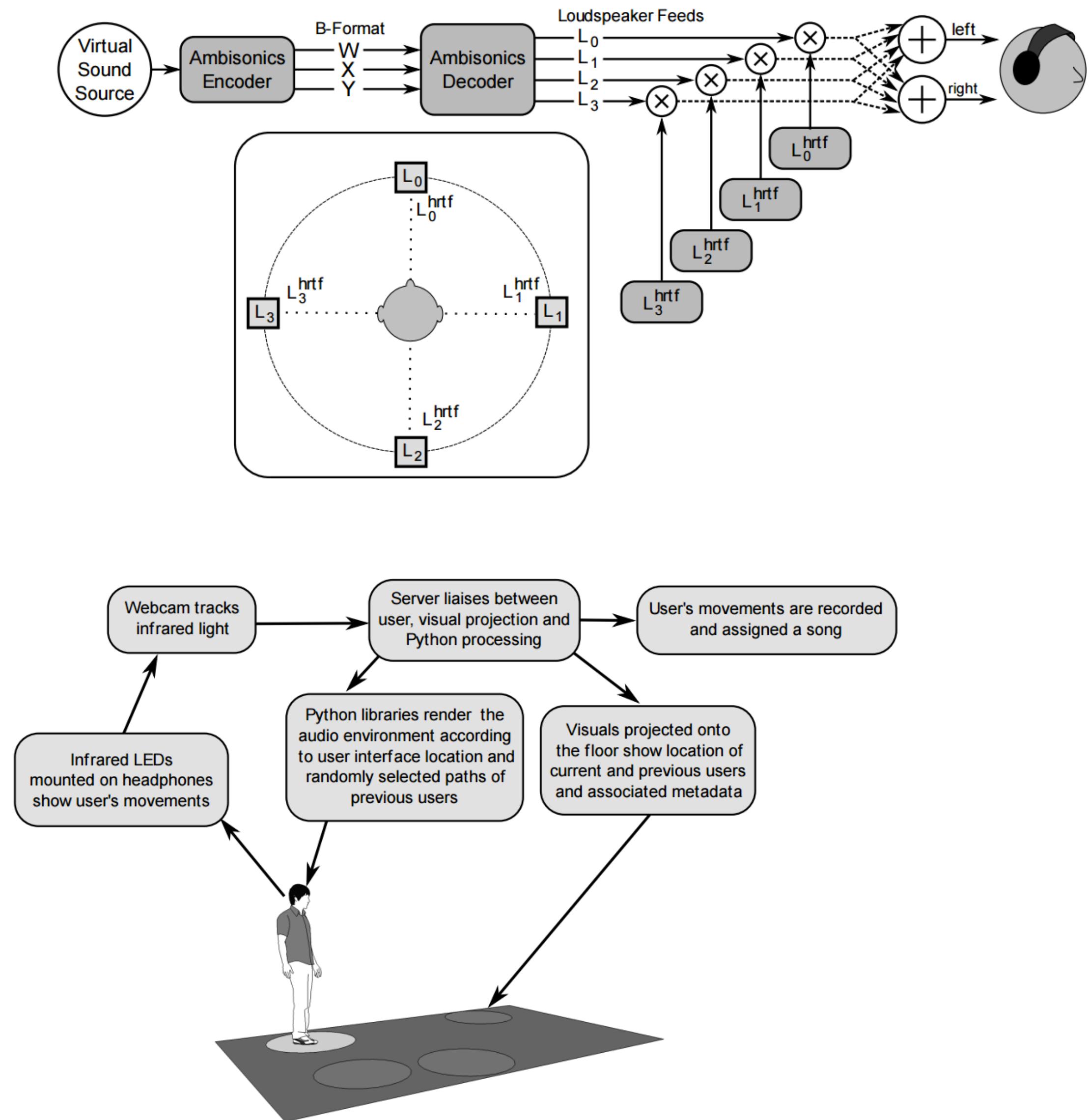
15-45 minutes to work through exercises in small groups or individually.

Please ask many questions during the lectures and when working through the exercises.

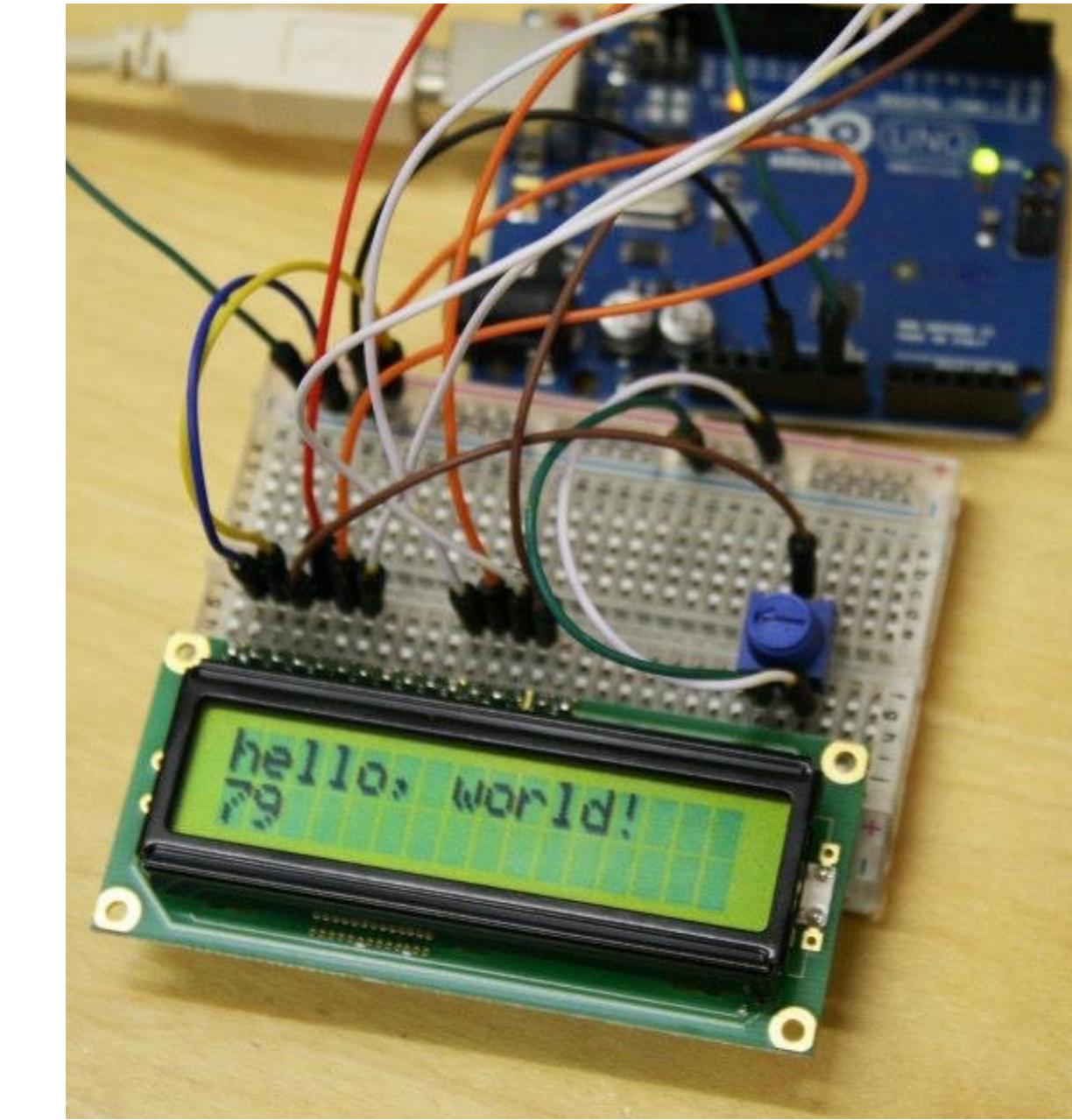
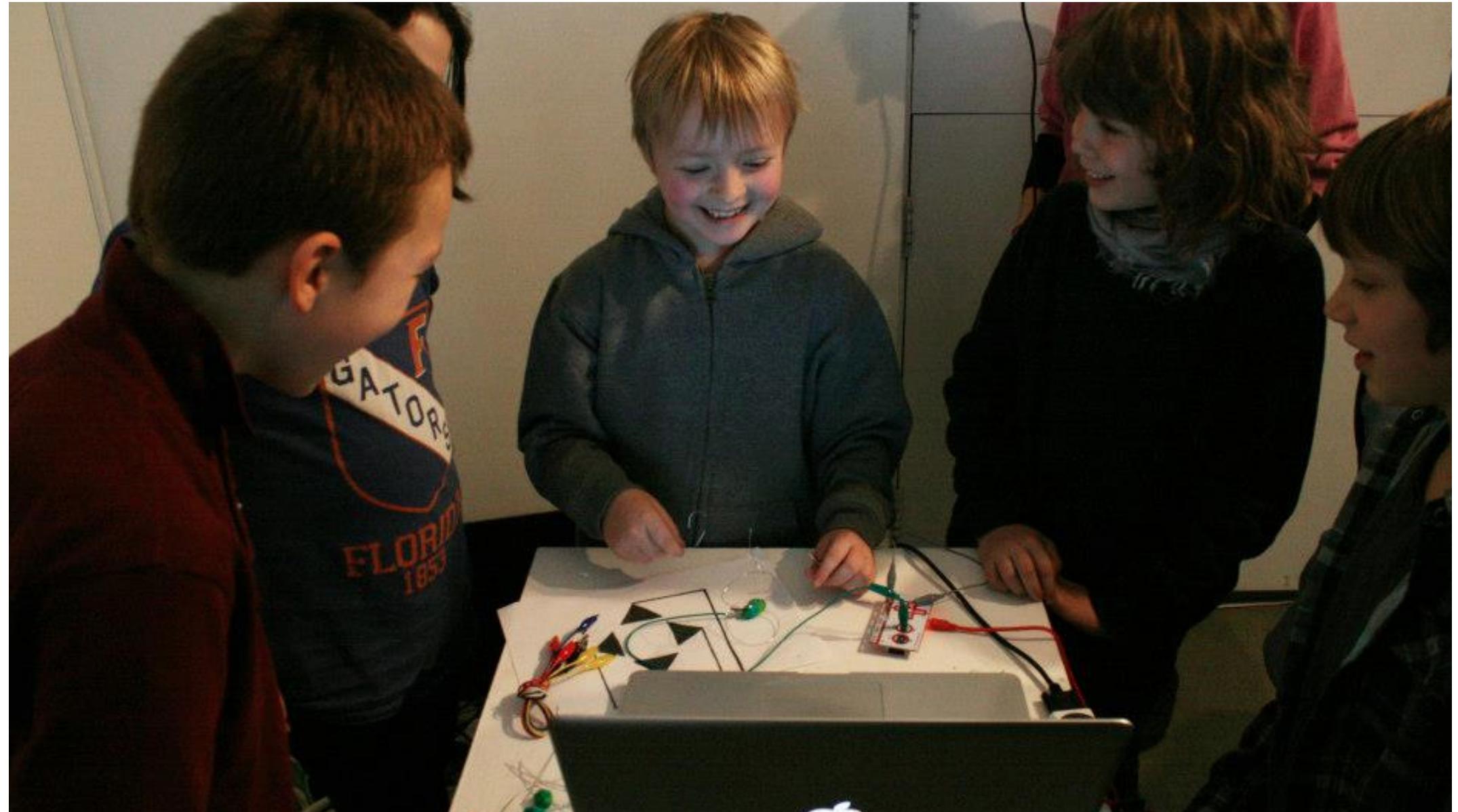
If you have programming experience, please help others who have less. You are also free to move through the exercises at your own pace and leave early.

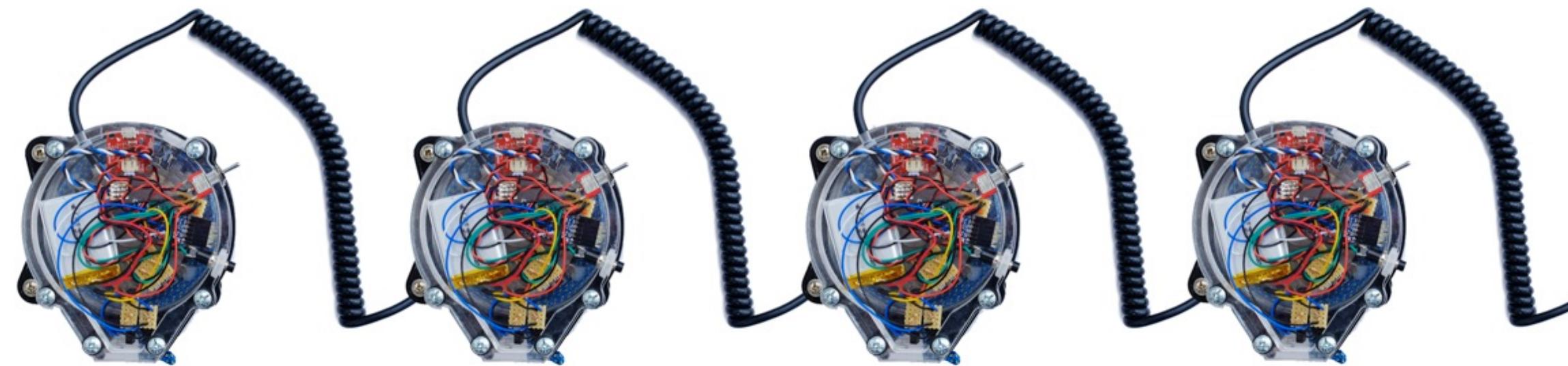
# Introduce Myself

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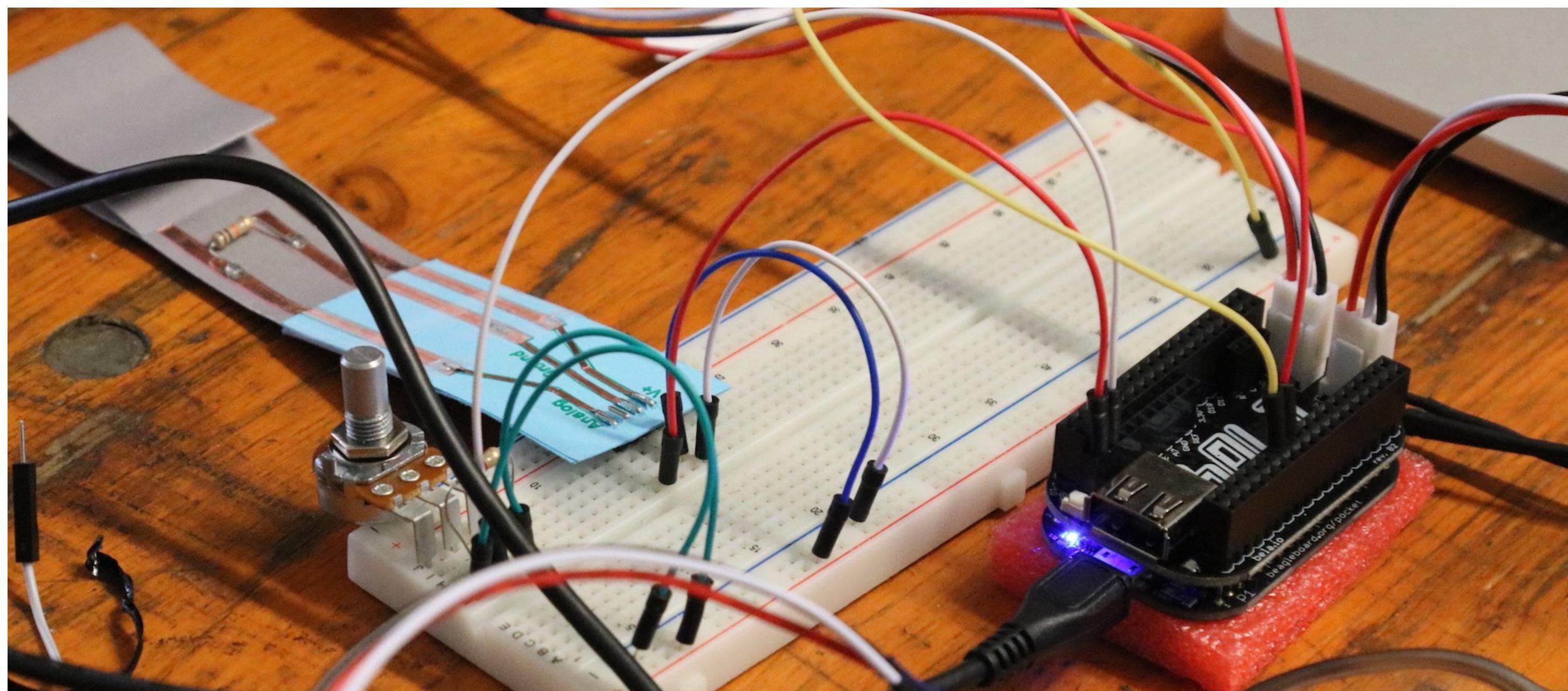
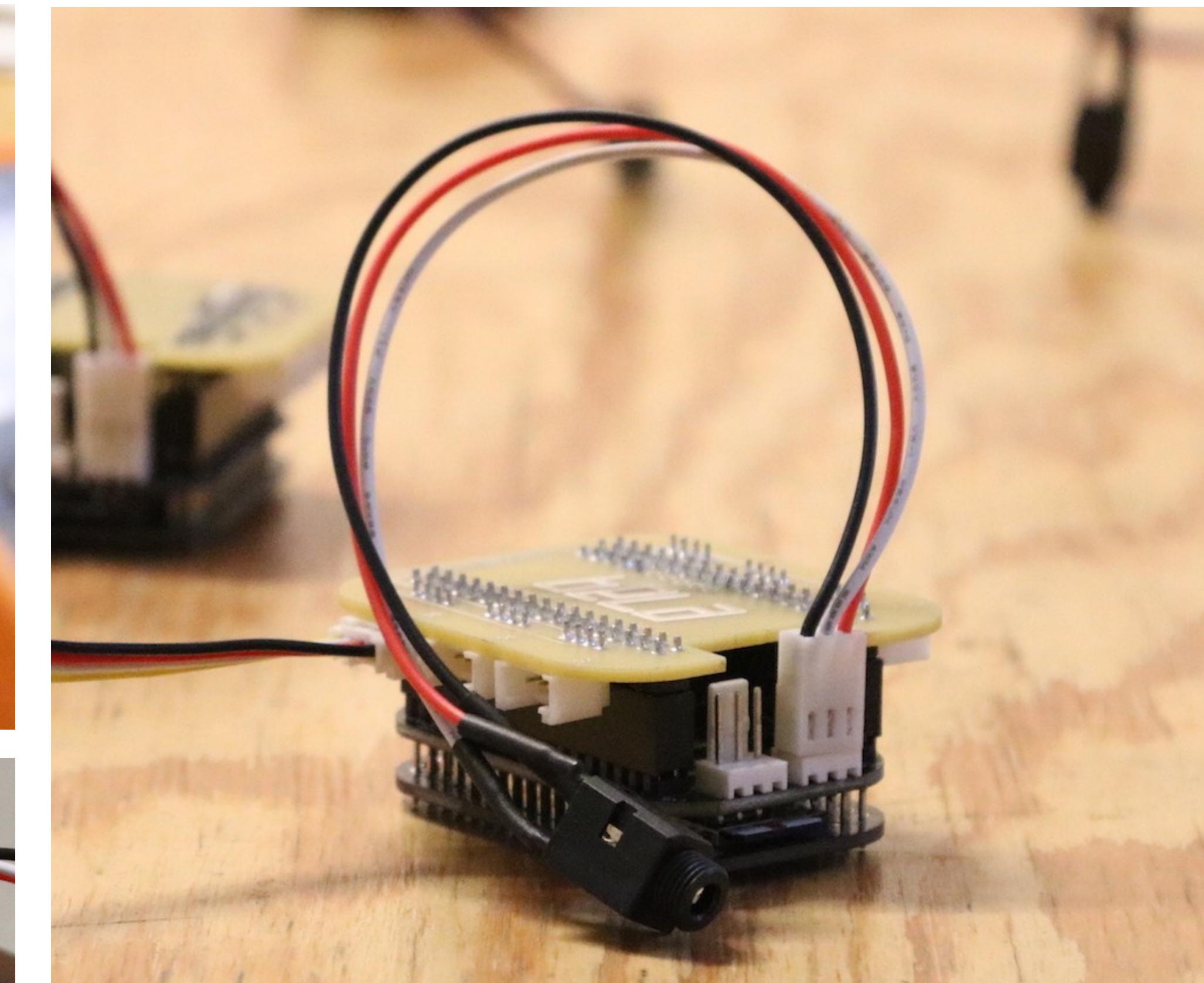
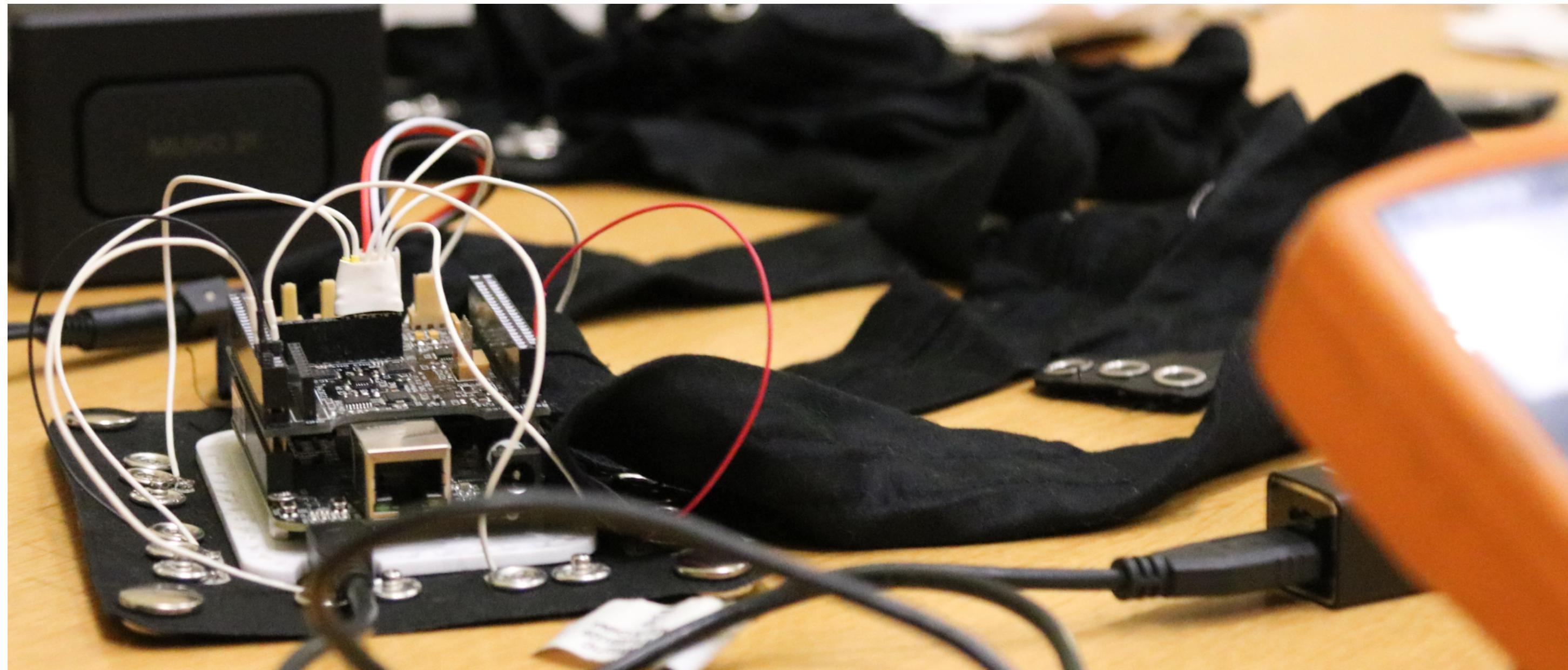
## Spatial Auditory Display for Acoustics and Music Collections





HUMAN HARP





# Wearable computing with e-textiles and audio



Imperial College  
London

# Some Definitions

## Python

- Programming language
- Popular for scientific computing and for web programming
- Interpreted language

## Jupyter Notebook

- Tool to write and run Python code
- Run a server locally on your laptop
- Interact with that server in a web browser

## Anaconda

- Bundled up set of tools for scientific computing with Python
  - (This used to be much more difficult to install)
- Has a GUI can interact with
  - Or can entirely use on command-line
- Use *environments* to quarantine projects

## Interactive Shell

- Command-line tools where you can write and run lines of Python code
- Useful for immediately testing out something

## NumPy

- Python library (or package)
- Best option for working with numbers and arrays of numbers

# Where to Find Help

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## Python Documentation

<https://docs.python.org/3.6/tutorial/introduction.html#>

## Anaconda

<https://docs.anaconda.com/anaconda/>

## Jupyter Notebook

[https://jupyter-notebook-beginner-guide.readthedocs.io/en/latest/what\\_is\\_jupyter.html](https://jupyter-notebook-beginner-guide.readthedocs.io/en/latest/what_is_jupyter.html)

## NumPy

<https://docs.scipy.org/doc/numpy/user/quickstart.html#the-basics>