

Programming

Designing the code for the instrument is a good place to start. Decide what sort of functionality is desired. There are many resources for learning how to program and here are some links to get started.

LINKS

NerdMusician on Youtube

<https://www.youtube.com/@NerdMusician>

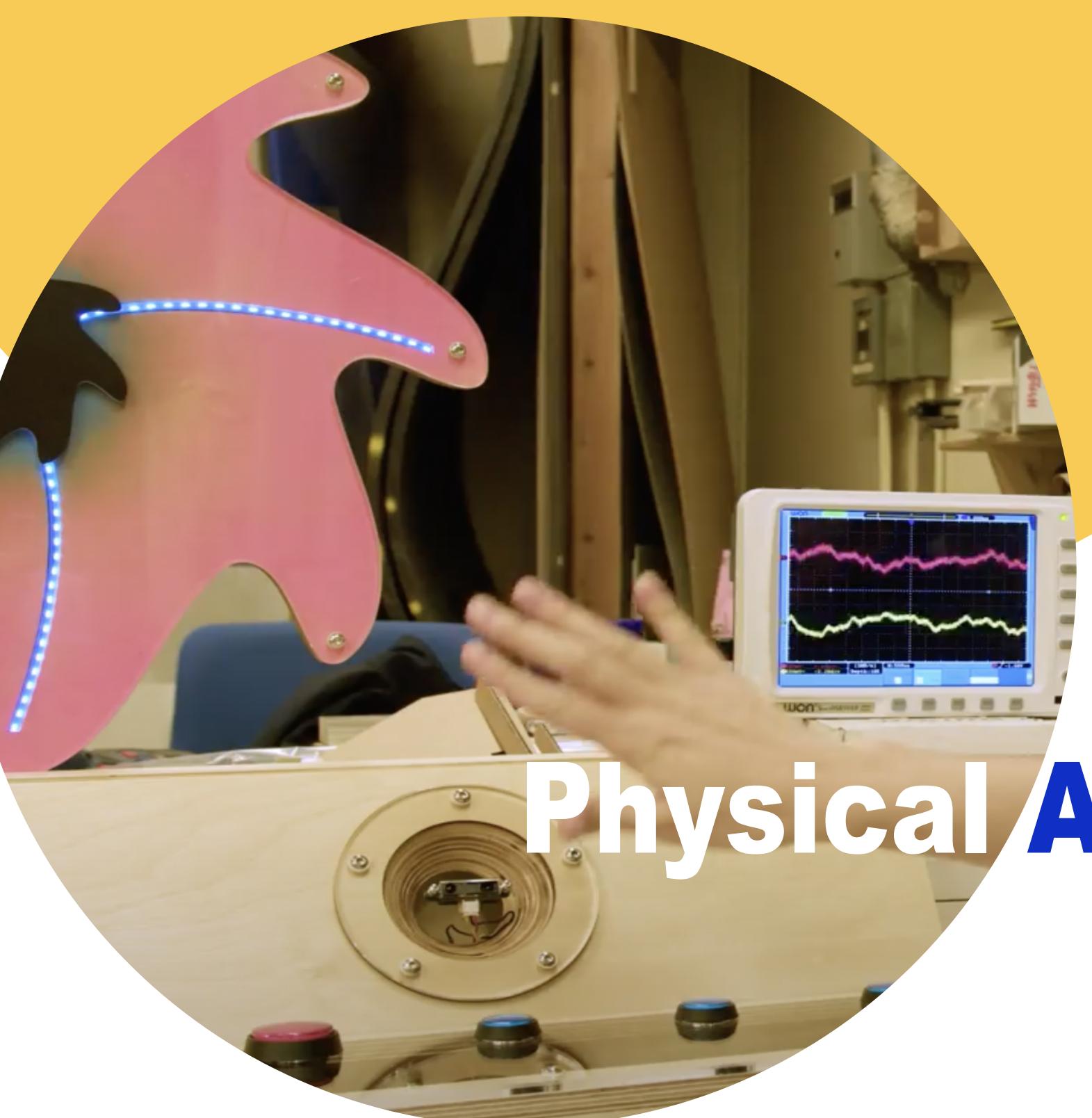
Arduino MIDI tutorial

<https://docs.arduino.cc/tutorials/generic/midi-device>

```
void setup() {
  pinMode(inst1Pin, INPUT);
  pinMode(inst2Pin, INPUT);
  pinMode(inst3Pin, INPUT);
  Serial.begin(9600);
  Keyboard.begin();
}

strip.begin(); // INITIALIZE NeoPixel strip object
strip.show(); // Turn OFF all pixels ASAP
strip.setBrightness(50); // Set BRIGHTNESS to about 1/5 (50)

void buttons() {
  if (digitalRead(inst1Pin)==LOW){
    change = buttonPressed - oldButton;
    if(change > 0){
      for (int i = 1; i <= change; i++){
        Keyboard.press(KEY_DOWN_ARROW);
        Keyboard.releaseAll();
      }
    }
    if(change < 0){
      for (int i = 1; i <= abs(change); i++){
        Keyboard.press(KEY_UP_ARROW);
        Keyboard.releaseAll();
      }
    }
  }
}
```



Physical Appearance

This is a great place to get creative! What is your device going to look like? You can simply put it a carboard box, repurpose an old calculator. Do as you like. Look here for ideas and cool lights you can add to it.

LINKS

Creative Design

<https://www.instructables.com/Moog-Style-Synth/>

Guide to programable lights

<https://learn.adafruit.com/adafruit-neopixel-uberguide>

Electronics

Putting together the electronics can be a lot of fun! Any sensors and other hardware will determine how your code works. Proximity pitch uses an infrared distance sensor. There are lots of options, explore electronics with these links!

LINKS

Adafruit is a resource for electronics and informative guides

<https://www.adafruit.com/>

Added Functions



Proximity Pitch uses an oscilloscope to show how different instruments produce different sound waves. There is a lot you can learn from making your own digital instrument! Have fun!