We have a working data acquisition process for gathering data from MYO armband:

* Run nodejs server (myo-control-tcp-socket) on computer connected to MYO through Bluetooth
* Connect to nodejs server through matlab, which pulls data into a nx8 matrix
  + Can run on same computer or other computer on same LAN. (Note: Unreliable on BU routers, need 3rd party router to work)

**Current File Naming Convention:**

3x8x5\_NFIPNSnSpO

3 sec x 8 gestures x 5 sets

N = Normal

F = Fist

I = Inward

P = Peace Sign

Sn = Snapping

Sp = Spread

O = Outward

Plotting data for each of the 8 electrodes we segmented out the time series data for the time allocated for each gesture. (ex: vertical lines every 3 seconds).

**Time Series findings:**

* **Normal**: Almost zero on all except, is noisy on electrode 5, 6 – which makes sense logically as it is reading muscle activity on bottom of arm, with arm held out naturally those muscles will be active to hold up arm against gravity.
* **Fist**: Electrodes 1 and 3 seem to produce the most distinguishable gesture
* **Inward**: Electrode 2 produces most distinguishable gesture
* **Peace**: No distinguishable gesture from time series
* **Snapping**: Similar to peace
* **Spread**: Can use 5 with 7 or 8 (identical) to distinguish gesture
* **Outward**: Use same as spread, but in 7 or 8 there will be much lower deflection

Inward Outward distinguishable by electrode 4 and 7.

**Signal Processing / Machine Learning:**

* ICA using EEGLab in Matlab
* Hidden Markov Model in Matlab

**Current gesture progress:**

* Fist and spread are interfering
* Inward we can get a pretty clear detection

**~~We are having an issue of inconsistent readings with myo (would not connect with my arm)~~**

Current HMM state assigns:

Normal: 3

Fist: 6

Inward: 4

Seated hand on knee: 2

Peace/Spread: 5