Notes for Decoder Set Up / Use:

1. Setting up PlexNet: Turn on Plexon MNAP, Server, and sort client. On both computers start PlexNet (Tilt computer as REMOTE, Plexon computer as SERVER). For REMOTE check PlexNet Server: 128.120.197.147, Port: 6000 (TCP/IP) These settings are shown on the SERVER, make sure they match. If REMOTE does not match you can change these settings using the “PlexNet Server Address and Port…” button. Press **Connect** when both are running. (Both computers need to be connected to the internet for this)

* If PlexNet is not connecting try restarting both computers.

1. Programs that will be used on this computer: Python3.7 (**TiltControlOnlineDecoder**), SI Programmer (Open TiltControlBMI, press Download, press Execute)
2. Programs on Plexon Computer: Server, SortClient.
3. Using TiltControlOnlineDecoder:
   1. currently needs to select units with channel\_dict variable. Dict Keys are channels, listed numbers are used for Units. 0 is for Unsorted ts.
   2. pre\_time, post\_time, and bin\_size should be set and kept constant for animals.
   3. Baseline\_recording = True if this is the first recording / no template made. Set this to False if you have a template to load.
   4. Under class tiltclass(): def tilt(): You can change the delay for how long you want in between tasks. Currently set as: delay = ((randint(1,100))/100)+1.5, which is 1.5 -2.5 seconds.
   5. **Tiltclass**: this class controls the tilts and has information about the timing between tilts and how the tilts interact with the BMI. Generally, the tilts will have the delay (above) inbetween tilts, but also account for pre / post time windows of data. After the tilt and post time window, it will gather data, and format it into PSTH format (similar Labach paper)
   6. **Notes**: Currently, it will only sort units that are specified in the channel\_dict. Other units will still be stored in the .plx file for offline use.

Templates:

Templates are saved as a .txt file by the program.

To Create a template from a live animal run **TiltControlOnlineDecoder** in Python 3.7 as normal and change Baseline\_recording = True, in the code.

To Create a template from a previous recording, run **MAPOnlineDecoder** with Baseline\_recording = True, and use Softserver to playback that animal’s .plx file while the decoder is running. Check to make sure that you have your channel\_dict correct for the animal you are going to run. Make sure that the Softserver has the same settings as the plexon server and that under View/Generated Data Properties: The loop button is **Not Checked**. At the end of the recording, press Ctrl + C and it will ask you for a name to save the template as a .txt file.

To Load a template for an animal, run **TiltControlOnlineDecode** with Baseline\_recording = False, when it asks “What template file would you like to open:”, type the name of the .txt file with no parenthesis or “.txt”. Also you do not need add a space before the name.

(EX: What template file would you like to open: csm009week1day1bmi) this will open the template: csm009week1day1bmi.txt

Code Problems / Solutions:

Error: Units are seen as Unit 0.

Fixes: Often caused if the res = client.get\_ts() is not being called to clear the buffer between events.

Error: Everything classified as same event.

Fixes: def psth() was clearing the unit\_dict before it was used for decoder. Fixed by adding logic statements to the def so that it doesn’t clear until done with both psth calls or if baseline\_recording == True

Error: During tilt, gets ‘event’, but does not decode?

Fixes: Add print statement for collected\_ts to diagnose what is not happening.

Try to restart everything / restart computers and then pray

TODO / Known Problems:

Error: When using ctrl + C during decode, sometimes does double punish or reward tilts.

Fixes: Need to add another Boolean to keep track of if that has already happened. ( I think I fixed this and it was caused by an indent error)

Odd/Niche Problems:

When testing with nothing going in, its possible to have channels that are continuously firing, they can fill up the buffer with garbage. You can go to PlexNet, Data Transfer Options, and turn off problematic channels.