

Hi guys! I believe everyone has taken home a working wrist sensor kit alr. For the final demo, we need to collect data for the eight dance moves + 1 log-off special move to train the ML model. Here are some guide on how to do that.

1. Before you start, if you face issue constantly with Bluetooth connection or you fear that your battery has been used for quite a while and may die before final demo next week, you can check with Nic on whether you would want to replace the battery before start to collect data. As replacing the battery may affect the calibration, this step has to be done FIRST to ensure that the data is consistent. Our sensor kit uses AAA battery and all you need is a small screwdriver for the battery pack.
2. After settling the battery issue, you can start to collect data. Firstly, you need to pull the latest version of our code from Github. And you need to have all the dependencies installed(eg. Pandas, scipy, etc). If you have error in such dependencies, please check with me and try to install them.
3. After pulling from Github, you will need to go into the “internal_comms” directory and find the sub-directory corresponding to your name. Under that directory you will find a “client.py” file. You need to open the file and make sure that at the start of the code, your “clientFlag” variable is set to 0 and your “preprocessFlag” is set to 1. Then check that right below only your “bt_addr” is uncommented and other “bt_addr” are all commented out
4. Save the changes. Then open the directory in your computer’s command prompt/terminal and run “sudo python3 client.py” to execute the file.
5. If everything works fine (Bluetooth etc.), you will see a few lines being printed out including MAC address found and etc... Wait until you see no error message popping up and “You can start moving” is being displayed. You can wait a little bit longer just to make sure and only move until you see the buffer status line getting constantly printed out. If you have any issue in the above process (eg. Error in connecting device ...) you need to ctrl+c and off-and-on your wrist sensor before you run the program again. Sometimes you might also need to restart your vm/ubuntu
6. If everything works fine so far and your sensor is collecting values, you can start to do the dance moves alr. There are 8 dance moves and you can find them on Luminus. Make sure you do them in a constant pace, ie. No jerking or sudden movements. PLEASE also make sure that you do the moves correctly and **consistently**. Any inconsistency in dance moves

will significantly affect the accuracy of ML. Make sure how you dance stay the same for data collection and actual demo.

7. Typically, we need about 200 data points for each dance move (sorry I know that's a lot lol). One data point is collected when you see on your command line saying something like "buffer filled. Preprocessing. X" where X is the number of current iteration. You can choose how many you want to collect for each run according to your own preference. Take note that in order to avoid data contamination, I will automatically discard the first and the last data point for each run. So your effective data points from each run should exclude those two. E.g. if you want to collect 20 for a run, you need to do until X is about 22 or 23 to stop.
8. After you finish collecting the data, you can just hit ctrl + C to exit the program. You can see a "Preprocessing.txt" file being generated under the same directory as the "client.py" file that you run. This is the file that contains the data that you just produced. **PLEASE** rename the file everytime you finish a run otherwise data from new run will be appended to the back of the existing file and then we lose track of the previous file's last data point(in this case you might have to delete it and redo altogether). You can call it "[YourName]_[DanceMove]_[RunNo]_[NoOfDataPoints].txt" or anything similar that has these information embodied.
9. Please categorize the files and put those from the same dance move to under one folder named after the dance move. After you finish all eight dance moves. Put the 8 folders under one overarching folder with your name as the folder name and zip the folder to send to me.
10. If you have any issue along the way, feel free to drop me a message in the tele group or PM/call me if you prefer. Thank you!
11. If you are using a Bluetooth extension/dongle for laptop. The process to set up is first to disable your laptop's own Bluetooth under system settings. Then log in to your vm/ubuntu and click the "Devices" option on the top menu bar. Click "USB" and you should see a device with name like "Broadcomm Bluetooth" Click that device and wait. If you see no error message, click the top right part of the ubuntu desktop to see your system settings. If you see Bluetooth there with the status as "on", you are good to go. If you have error messages like "Fail to attach ...", try to unplug and plug-in the dongle and do the whole process again. Sometimes you might also need to restart vm/ubuntu or even your whole machine