

Name: Yeo Meng Han
Matric Number: A0251772A

Question 2:

```
run sudo yum update to apply all updates.
[ec2-user@ip-172-31-19-215 ~]$ pcluster describe-cluster --region ap-southeast-1 --cluster-name MyCluster01
{
    "creationTime": "2023-11-16T06:32:28.607Z",
    "headNode": {
        "launchTime": "2023-11-16T06:37:10.000Z",
        "instanceId": "i-091f0dce93ee71841",
        "publicIpAddress": "18.139.228.26",
        "instanceType": "m5a.large",
        "state": "running",
        "privateIpAddress": "10.0.9.35"
    },
    "version": "3.7.2",
    "clusterConfiguration": {
        "url": "https://parallelcluster-aecfdc77e0f16718-v1-do-not-delete.s3.amazonaws.com/parallelcluster/3.7.2/clusters/mycluster01-n8yvqcoj6j8m9piy/configs/cluster-config.yaml?versionId=8mX81MDgM6R_lb1cMLWsWRDoUhy7rvrT&AWSAccessKeyId=AKIAKX62EWTVNU4U6TSTM&Signature=sevMddCJ1oppBU1h%2F%2FVvPD%2F18Nk%3D&Expires=1700120319"
    },
    "tags": [
        {
            "value": "3.7.2",
            "key": "parallelcluster:version"
        },
        {
            "value": "MyCluster01",
            "key": "parallelcluster:cluster-name"
        }
    ],
    "cloudFormationStackStatus": "CREATE_IN_PROGRESS",
    "clusterName": "MyCluster01",
    "computeFleetStatus": "UNKNOWN",
    "cloudformationStackArn": "arn:aws:cloudformation:ap-southeast-1:547215547739:stack/MyCluster01/e9c7f9a0-8449-11ee-a458-0a7697dc05bc",
    "lastUpdatedTime": "2023-11-16T06:32:28.607Z",
    "region": "ap-southeast-1",
    "clusterStatus": "CREATE_IN_PROGRESS",
    "scheduler": {
        "type": "slurm"
    }
}
[ec2-user@ip-172-31-19-215 ~]$
```

```
(env1) [ec2-user@ip-10-0-9-35 ~]$ date
Thu Nov 16 07:00:52 UTC 2023
(env1) [ec2-user@ip-10-0-9-35 ~]$ squeue
-bash: squeue: command not found
(env1) [ec2-user@ip-10-0-9-35 ~]$ date
Thu Nov 16 07:01:03 UTC 2023
(env1) [ec2-user@ip-10-0-9-35 ~]$
```

Question 3:

```
(env1) [ec2-user@ip-10-0-9-35 ~]$ squeue
-bash: squeue: command not found
(env1) [ec2-user@ip-10-0-9-35 ~]$ date
Thu Nov 16 07:01:03 UTC 2023
(env1) [ec2-user@ip-10-0-9-35 ~]$ ls /data/picasso/
20181101 20181102 envlist.hkl envlist.khl.lock geom.csv sort.sh.txt
(env1) [ec2-user@ip-10-0-9-35 ~]$
```

Question 4a:

```
eval $cmd1
(env1) [ec2-user@ip-10-0-9-35 PyHipp]$ cd -
/data/picasso/20181101
(env1) [ec2-user@ip-10-0-9-35 20181101]$ ls
181101.edf chs_mountains.txt mda_list.txt mountains P11_1.edf session01 sessioneye
(env1) [ec2-user@ip-10-0-9-35 20181101]$ find . -name "firings.mda" | cut -d "/" -f 3 > firings_channels.txt
(env1) [ec2-user@ip-10-0-9-35 20181101]$ ls
181101.edf chs_mountains.txt firings_channels.txt mda_list.txt mountains P11_1.edf session01 sessioneye
(env1) [ec2-user@ip-10-0-9-35 20181101]$ nano firings_channels.txt
(env1) [ec2-user@ip-10-0-9-35 20181101]$ find . -name "channel*" | grep -v -e eye -e mountain | sort > chs.txt
(env1) [ec2-user@ip-10-0-9-35 20181101]$ rm chs_mountains.txt
(env1) [ec2-user@ip-10-0-9-35 20181101]$ rm mda_list.txt
(env1) [ec2-user@ip-10-0-9-35 20181101]$ ls
181101.edf chs.txt firings_channels.txt mountains P11_1.edf session01 sessioneye
(env1) [ec2-user@ip-10-0-9-35 20181101]$ sed 's/.*/\\/' chs.txt > extracted_channels.txt
(env1) [ec2-user@ip-10-0-9-35 20181101]$ To compare firings.txt and extract_channels.txt: comm -23 <(sort extracted_channels.txt) <(cut -d '/' -f 2 < firings_channels.txt | sort) > missing_channel.txt
-bash: To: command not found
(env1) [ec2-user@ip-10-0-9-35 20181101]$
(env1) [ec2-user@ip-10-0-9-35 20181101]$ ls
181101.edf extracted_channels.txt missing_channel.txt P11_1.edf sessioneye
chs.txt firings_channels.txt mountains session01
(env1) [ec2-user@ip-10-0-9-35 20181101]$ nano missing_channel.txt
(env1) [ec2-user@ip-10-0-9-35 20181101]$ rm missing_channel.txt
(env1) [ec2-user@ip-10-0-9-35 20181101]$ sed 's/.*/\\/' chs.txt > extracted_channels.txt
(env1) [ec2-user@ip-10-0-9-35 20181101]$
(env1) [ec2-user@ip-10-0-9-35 20181101]$ comm -23 <(sort extracted_channels.txt) <(cut -d '/' -f 2 < firings_channels.txt | sort) > missing_channel.txt
(env1) [ec2-user@ip-10-0-9-35 20181101]$
(env1) [ec2-user@ip-10-0-9-35 20181101]$ grep -F -f missing_channel.txt chs.txt > missing-sort-chs.txt
(env1) [ec2-user@ip-10-0-9-35 20181101]$ nano missing-sort-chs.txt
(env1) [ec2-user@ip-10-0-9-35 20181101]$ cat missing-sort-chs.txt
./session01/array03/channel074
./session01/array03/channel078
./session01/array03/channel089
./session01/array03/channel091
./session01/array03/channel092
./session01/array04/channel116
./session01/array04/channel117
(env1) [ec2-user@ip-10-0-9-35 20181101]$
```

Question 4b:

```
(env1) [ec2-user@ip-10-0-9-35 PyHipp]$ nano sort-waveform-slurm.sh
(env1) [ec2-user@ip-10-0-9-35 PyHipp]$ cat sort-waveform-slurm.sh
#!/bin/bash

# Submit this script with: sbatch <this-filename>

#SBATCH --time=24:00:00  # walltime
#SBATCH --ntasks=1   # number of processor cores (i.e. tasks)
#SBATCH --nodes=1    # number of nodes
#SBATCH -J "waveform-sort"  # job name

## /SBATCH -p general # partition (queue)
#SBATCH -o waveform-sort-slurm.%N.%j.out # STDOUT
#SBATCH -e waveform-sort-slurm.%N.%j.err # STDERR

# LOAD MODULES, INSERT CODE, AND RUN YOUR PROGRAMS HERE
/data/miniconda3/bin/conda init
source ~/.bashrc
envarg=`/data/src/PyHipp/envlist.py`
conda activate $envarg

python -u -c "import PyHipp as pyh; \
from PyHipp import mountain_batch; \ mountain_batch.mountain_batch(); \
from PyHipp import export_mountain_cells; \ export_mountain_cells.export_mountain_cells(); \ pyh.Waveform(saveLevel=1);"

conda deactivate
/data/src/PyHipp/envlist.py $envarg
(env1) [ec2-user@ip-10-0-9-35 PyHipp]$
```

Question 4c:

```
[env1] [ec2-user@ip-10-0-9-35 PyHipp]$ nano fsallfs-slurm.sh
[env1] [ec2-user@ip-10-0-9-35 PyHipp]$ cat fsallfs-slurm.sh
#!/bin/bash

# Submit this script with: sbatch <this-filename>

#SBATCH --time=1:00:00    # walltime
#SBATCH --ntasks=1      # number of processor cores (i.e. tasks)
#SBATCH --nodes=1        # number of nodes
#SBATCH -J "fsallfs"    # job name

## /SBATCH -p general # partition (queue)
#SBATCH -o fsallfs-slurm.%N.%j.out # STDOUT
#SBATCH -e fsallfs-slurm.%N.%j.err # STDERR

# LOAD MODULES, INSERT CODE, AND RUN YOUR PROGRAMS HERE
python -u -c "import PyHipp as pyh; \
import DataProcessingTools as DPT; \
wfall = DPT.objects.processDirs(dirs=None, exclude=['*eye*', '*mountains*'], objtype=pyh.Waveform); \
wfall.save();"

aws sns publish --topic-arn arn:aws:sns:ap-southeast-1:018084650241:awsnotify --message "Job done"
(env1) [ec2-user@ip-10-0-9-35 PyHipp]$
```

AI_Thinking

```
[env1] [ec2-user@ip-10-0-9-35 PyHipp]$ nano consol_fsjobs.sh
[env1] [ec2-user@ip-10-0-9-35 PyHipp]$ cat consol_fsjobs.sh
#!/bin/sh

temp1=$(squeue)

cmd1="sbatch --dependency=afterok:"

counter1=0
for i in "${temp1[@]}"; do
    if [[ "$i" == "queue1" ]]; then
        id1=${temp1[$counter1-1]}
        cmd1="${cmd1}${id1}:"
    fi
    counter1=$((counter1+1))
done

cmd1=${cmd1::-1}
cmd1="${cmd1} /data/src/PyHipp/fsallfs-slurm.sh"

echo $cmd1
eval $cmd1
(env1) [ec2-user@ip-10-0-9-35 PyHipp]$
```

AI_Thinking

Question 4d:

```
chs.txt    firings_channels.txt  missing-sort-chs.txt  P11_1.edf  sessioneye
(env1) [ec2-user@ip-10-0-9-35 20181101]$ cwd=`pwd`; for i in `cat missing-sort-chs.txt`; do echo $i; cd $i; sbatch /data]
/src/PyHipp/rplhighpass-sort-slurm.sh; cd $cwd; done
./session01/array03/channel074
```

```
(env1) [ec2-user@ip-10-0-9-35 20181101]$ cwd=`pwd`; for i in `find . -name "channel*" | sort`; do echo $i; cd $i; sbatch]
/data/src/PyHipp/sort-waveform-slurm.sh; cd $cwd; done
./mountains/channel002
```

Question 5:

Question 6a:

```
[base] ~ source ~/.bash_profile
[base] ~ conda activate aws
[caws] ~ scp -i ~/MyKeyPair.pem -p "ec2-user@<18.139.228.26>:/data/picasso/20181102/waveform*" ~/Documents/EE3801
ssh: Could not resolve hostname <18.139.228.26>: nodename nor servname provided, or not known
scp: Connection closed
[caws] ~ scp -i ~/MyKeyPair.pem -p "ec2-user@18.139.228.26:/data/picasso/20181102/waveform*" ~/Documents/EE3801
The authenticity of host '18.139.228.26 (18.139.228.26)' can't be established.
ED25519 key fingerprint is SHA256:buYoSauOPnMFhvac+DDLHvc1VfXUKao9ej97bni2Zho.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '18.139.228.26' (ED25519) to the list of known hosts.
waveform_ed79.hkl
[caws] ~ scp -i ~/MyKeyPair.pem -p "ec2-user@18.139.228.26:/data/picasso/20181101/waveform*" ~/Documents/EE3801
waveform_ed79.hkl
[caws] ~ [2023-11-16 15:55:00] Screenshot
```

Cluster file size

```
firings_channels.txt missing-sort-chs.txt
[env1] [ec2-user@ip-10-0-9-35 20181101]$ du waveform_ed79.hkl
344    waveform_ed79.hkl
[env1] [ec2-user@ip-10-0-9-35 20181101]$ cd ../20181102
[env1] [ec2-user@ip-10-0-9-35 20181102]$ du waveform_ed79.hkl
260    waveform_ed79.hkl
[env1] [ec2-user@ip-10-0-9-35 20181102]$ [2023-11-16 15:55:00]
```

Local check file size

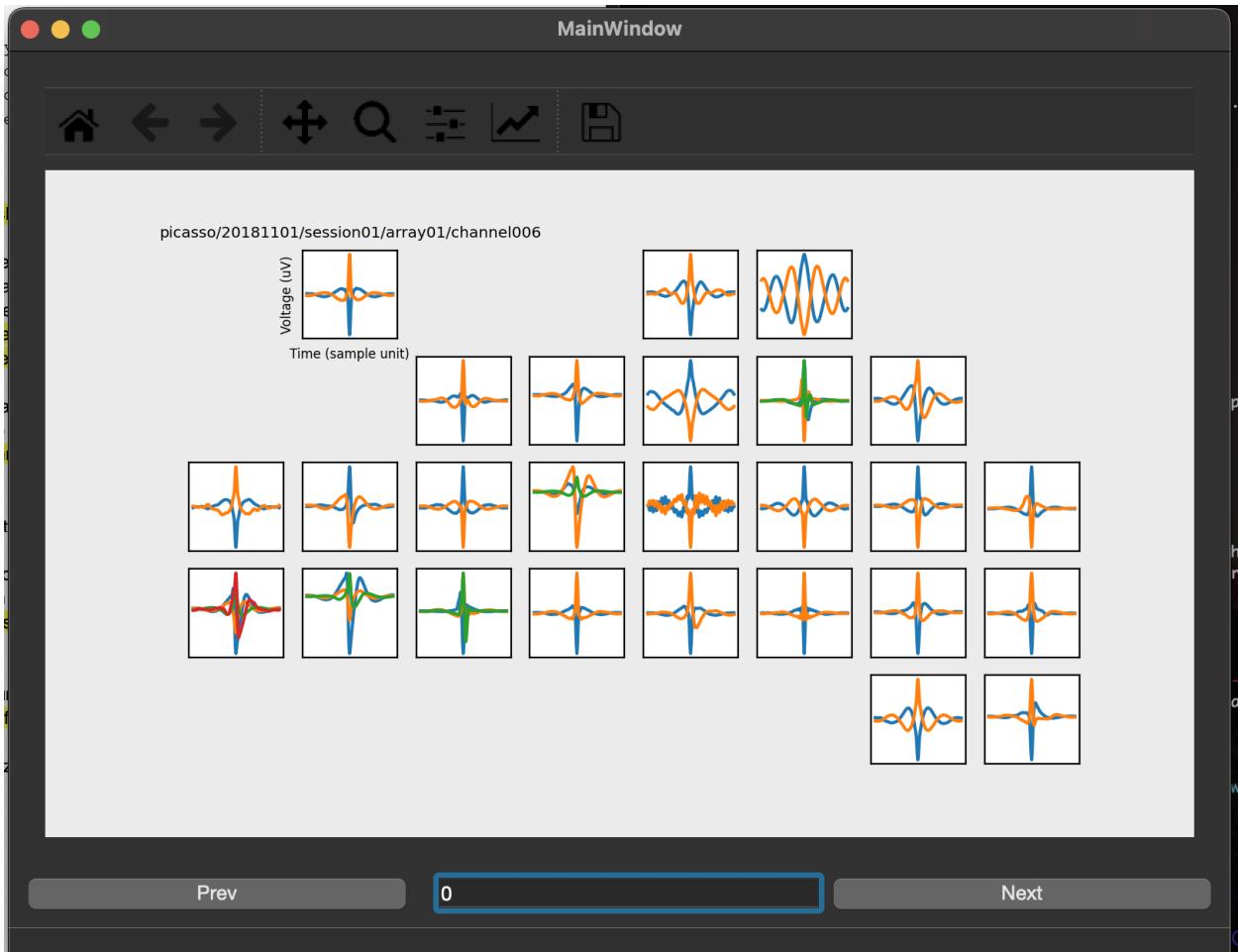
```
2023" "Nov 16 15:37:09 2023" 4096 688 0 w
[caws] ~ EE3801 du waveform_ed79_0.hkl
688    waveform_ed79_0.hkl
[caws] ~ EE3801 du waveform_ed79_1.hkl
520    waveform_ed79_1.hkl
[caws] ~ EE3801 [2023-11-16 15:55:00]
```

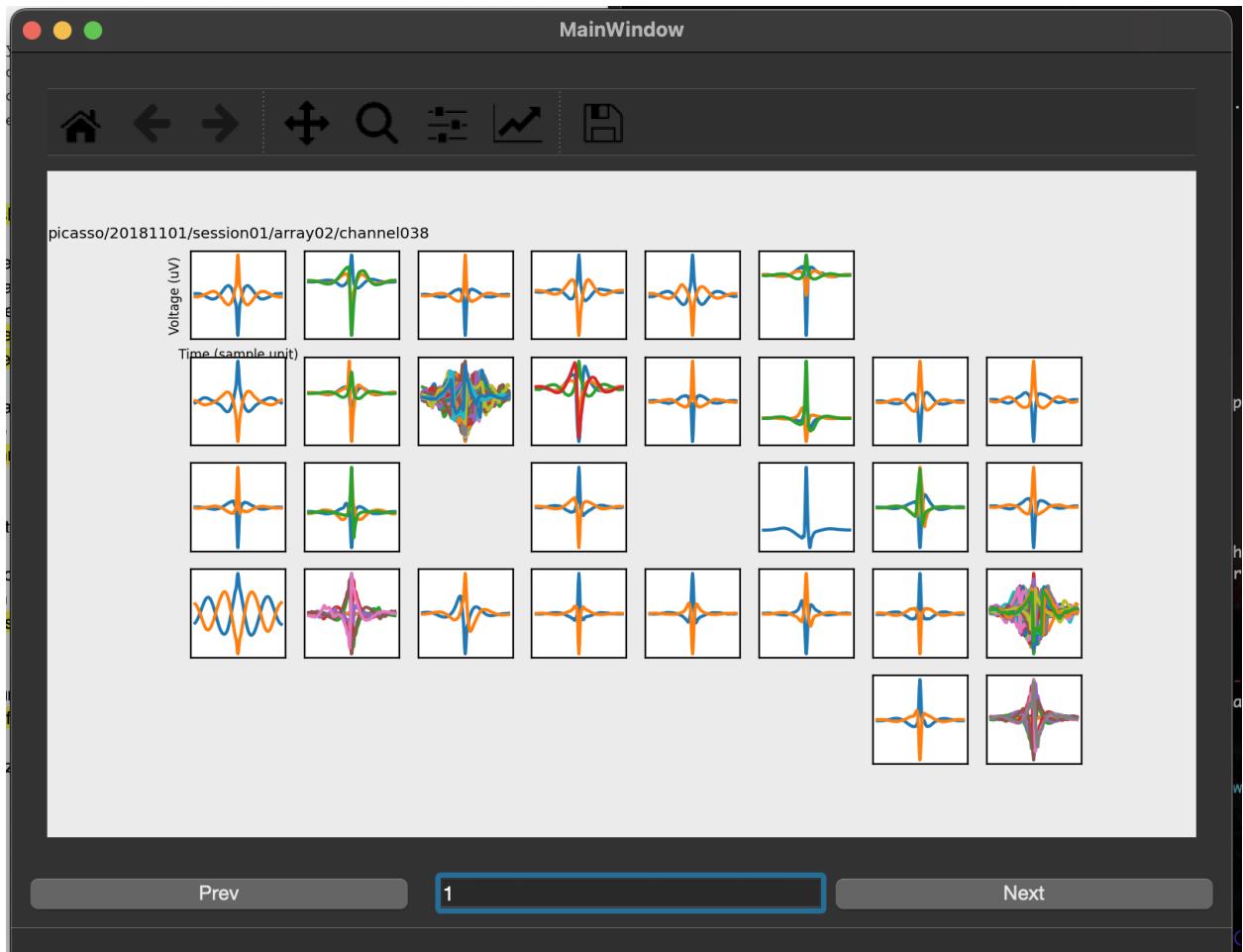
Question 6b:

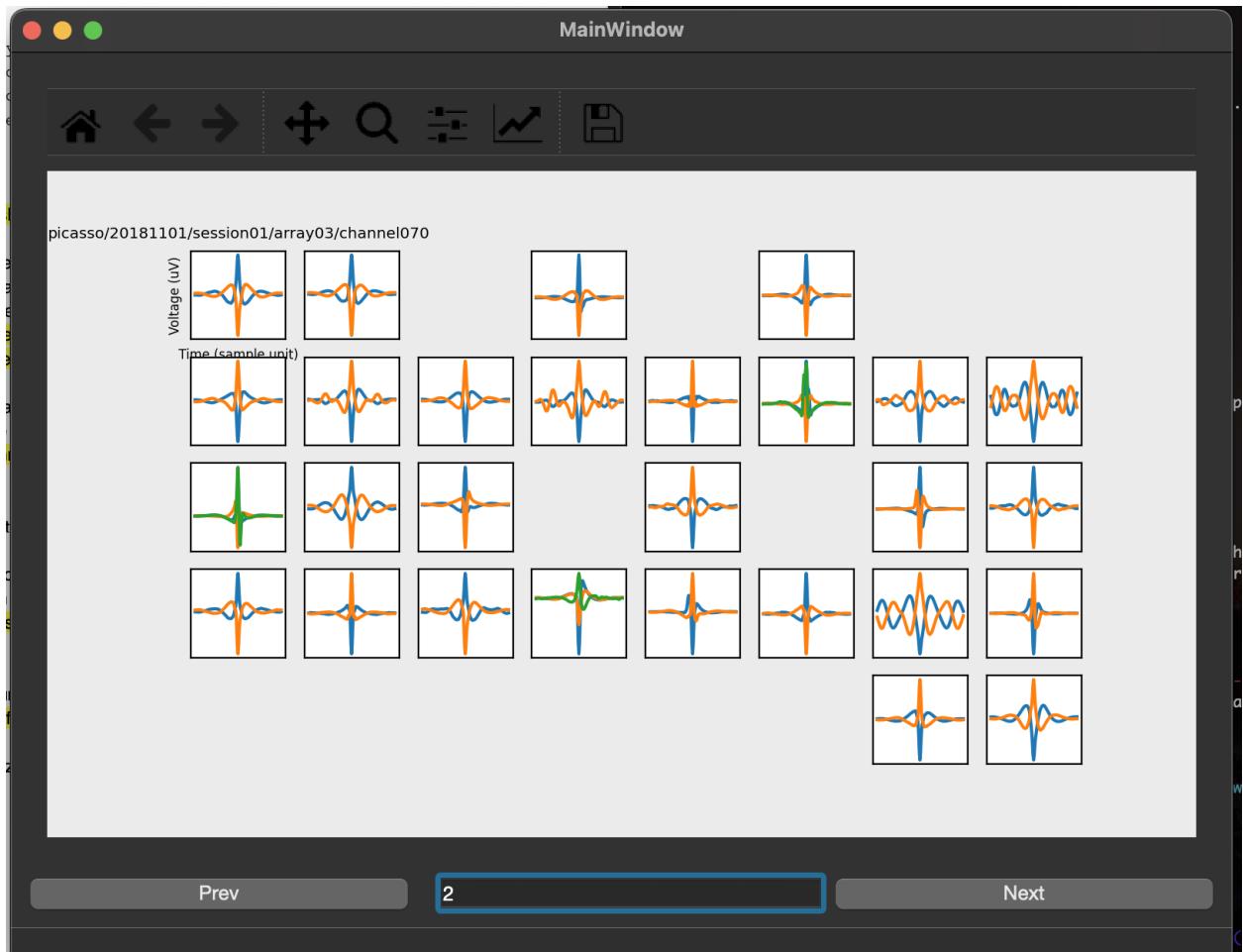
```
import PyHipp as pyh
import PanGUI

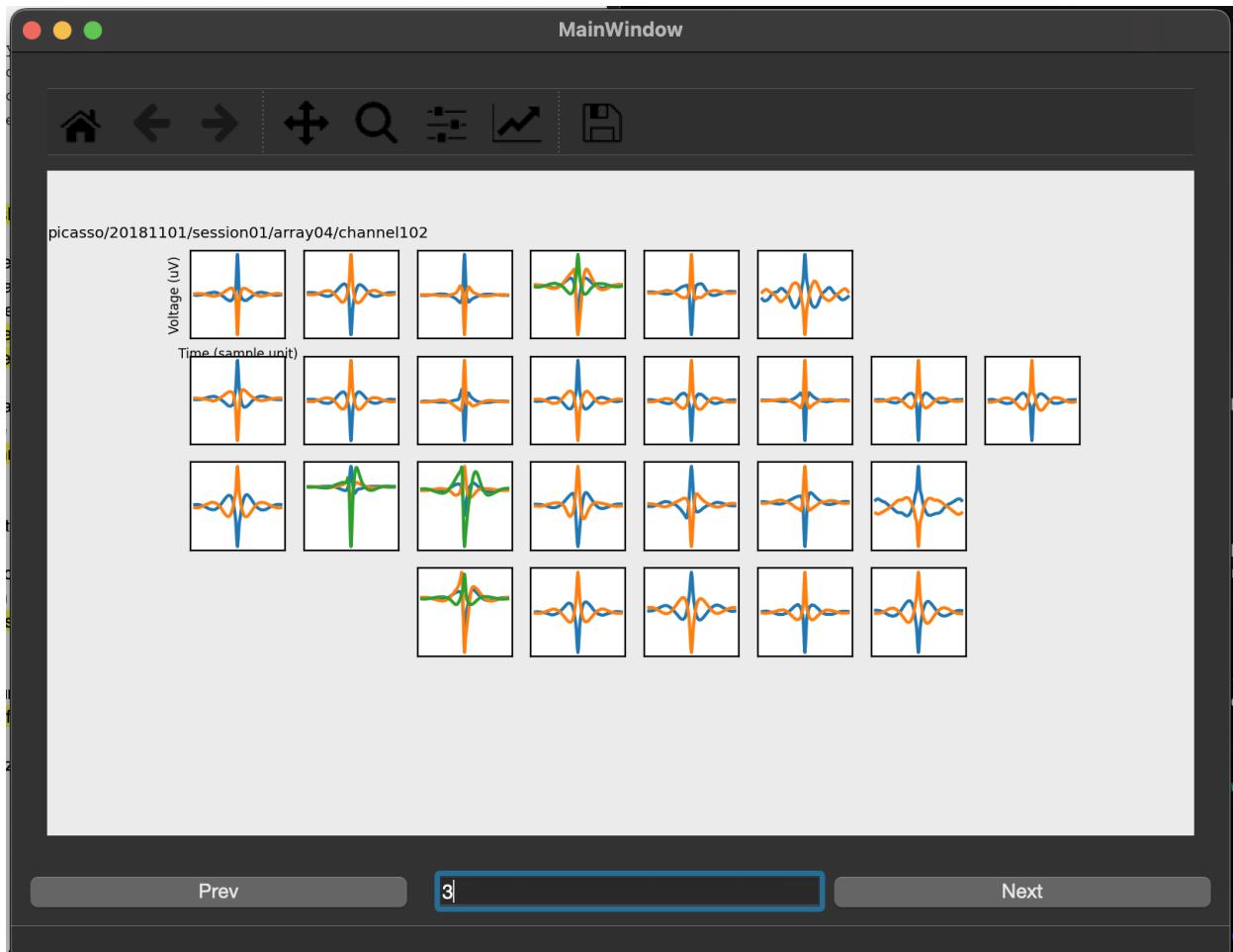
# waveform
wf = pyh.Waveform(loadFrom='waveform_ed79_0.hkl')
pwf = PanGUI.create_window(wf)
# waveform
wf = pyh.Waveform(loadFrom='waveform_ed79_1.hkl')
pwf = PanGUI.create_window(wf)
```

20181101









20181102

