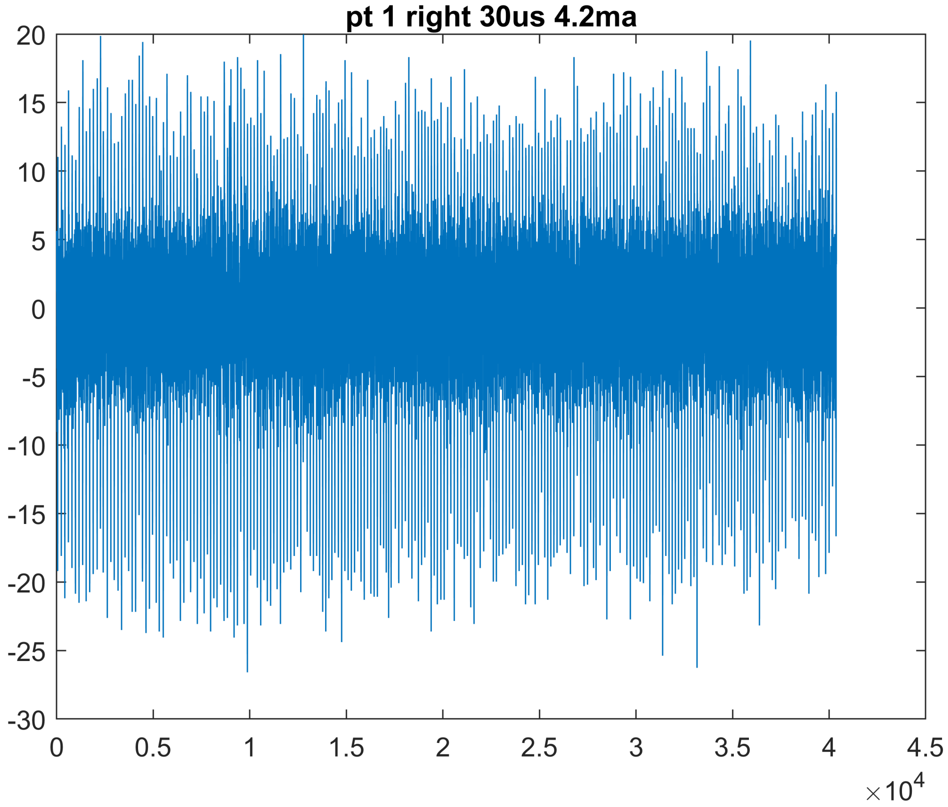
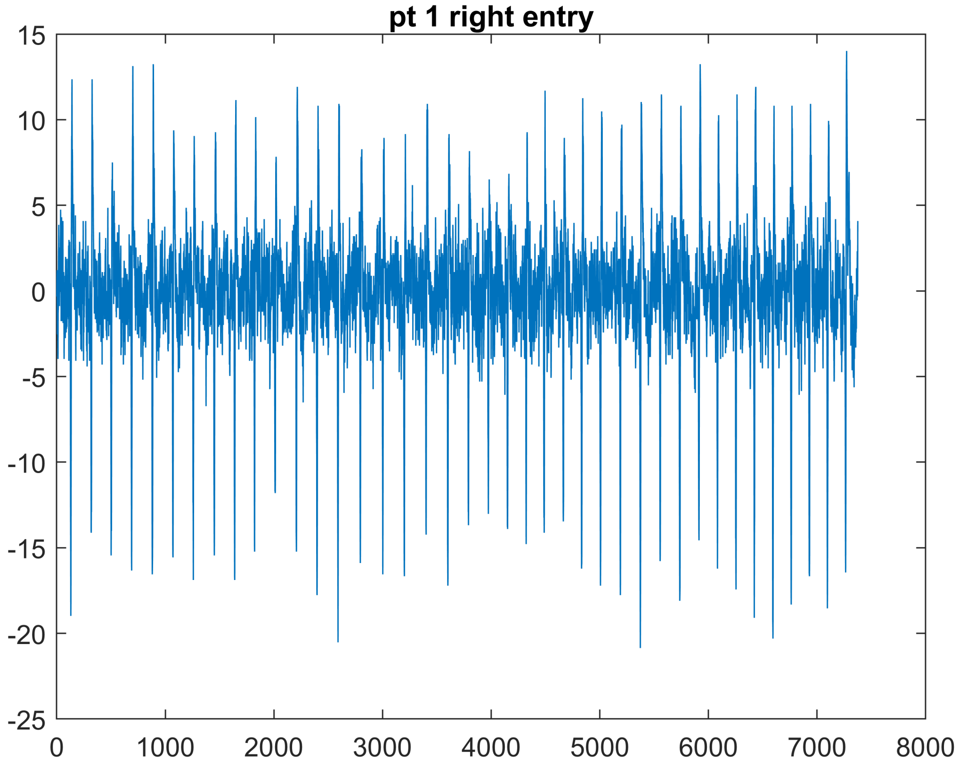
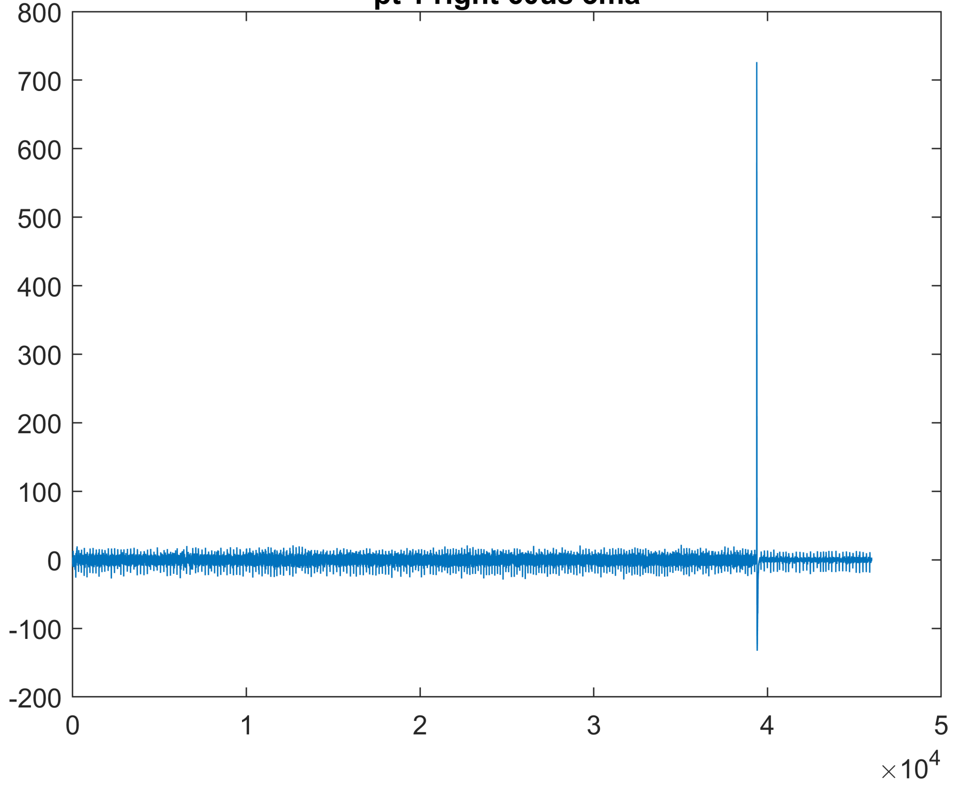
Create JS and data for all patients and sides

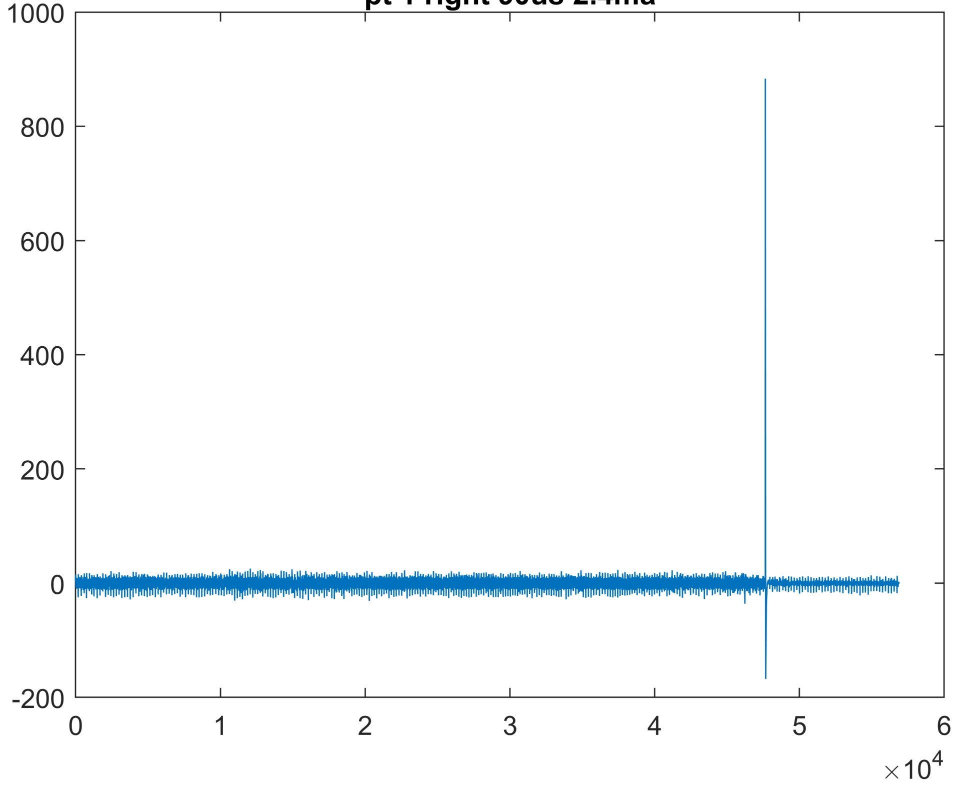
PT1 Right

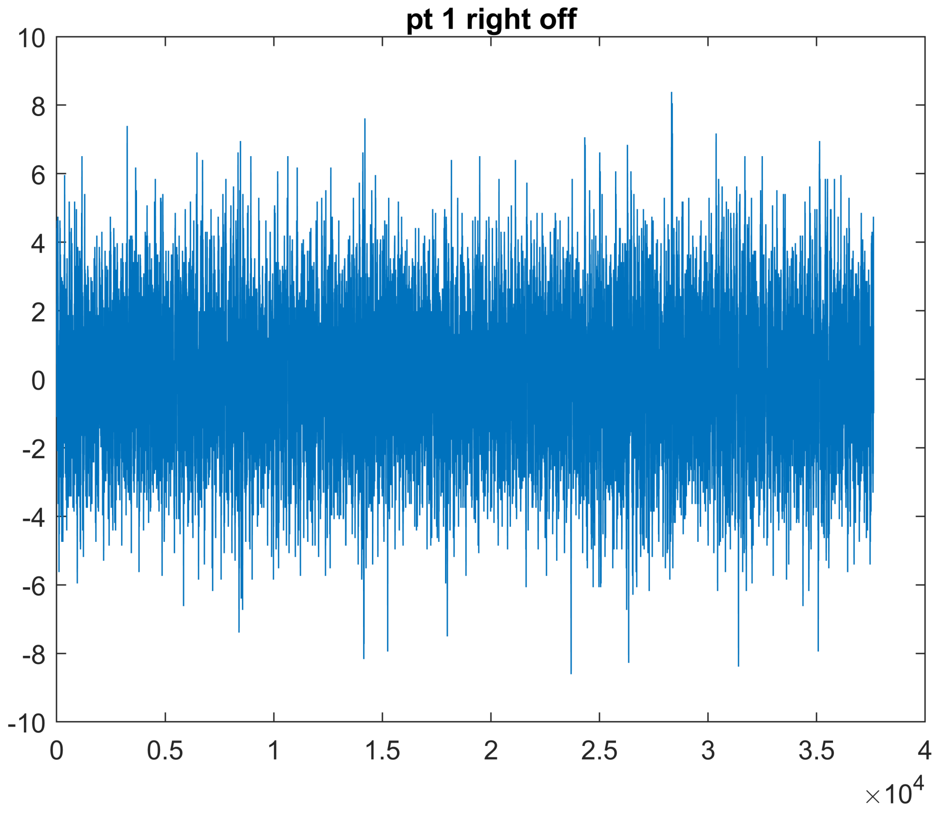
```
%pt 1 right
clear all;
figure;
%get the json
 cd('C:\Users\sydne\Documents\github\perceive\patientData')
% JAT PC
%cd('C:\Users\Admin\Documents\Github\perceive\patientData')
%
jsonFiles = 'Report_Json_Session_Report_patient1_right_final (1).json';
js = jsondecode(fileread(jsonFiles));
%set back to the correct directory
%Sydnei PC
cd('C:\Users\sydne\Documents\github\perceive\postAnalysis')
% JAT PC
%cd('C:\Users\Admin\Documents\github\perceive\postAnalysis')

%% create a struct of the relevant data from brainsense
leng = numel(js.BrainSenseLfp);
data = struct;
for i=1:leng
    x = num2str(i);
    field = append("treatment", x);
    data.(field).channel = js.BrainSenseLfp(i).Channel;
    data.(field).time = datetime(replace({js.BrainSenseLfp(i).FirstPacketDateTime}, {'T', 'Z'},
    data.(field).pw = js.BrainSenseLfp(i).TherapySnapshot.Right.PulseWidthInMicroSecond;
    data.(field).ma = js.BrainSenseLfp(i).TherapySnapshot.Right.LowerLimitInMilliAmps;
    data.(field).timeDomain = js.BrainSenseTimeDomain(i).TimeDomainData;
end

%get legend info
%some parts must be hard coded bc
for i = 1:leng
    x = num2str(i);
    field = append("treatment", x);
    pw = num2str(data.(field).pw);
    ma = num2str(data.(field).ma);
    pt = "pt 1 right ";
    legendVal{i} = ((append(pt, pw, "us ", ma, "ma")));
end

%MANUALLY SET THESE BASED UPON THE PATIENT SUMMARY
legendVal{5} = append(pt, "off") ;
legendVal{2} = append(pt, "entry");

for i = 1:leng
    figure
    field = append("treatment", num2str(i));
    plot(data.(field).timeDomain)
    title(legendVal{i})
    figname = append(legendVal{i}, ".fig");
    savefig(figname)
end
```






pt 1 right 60us 3ma

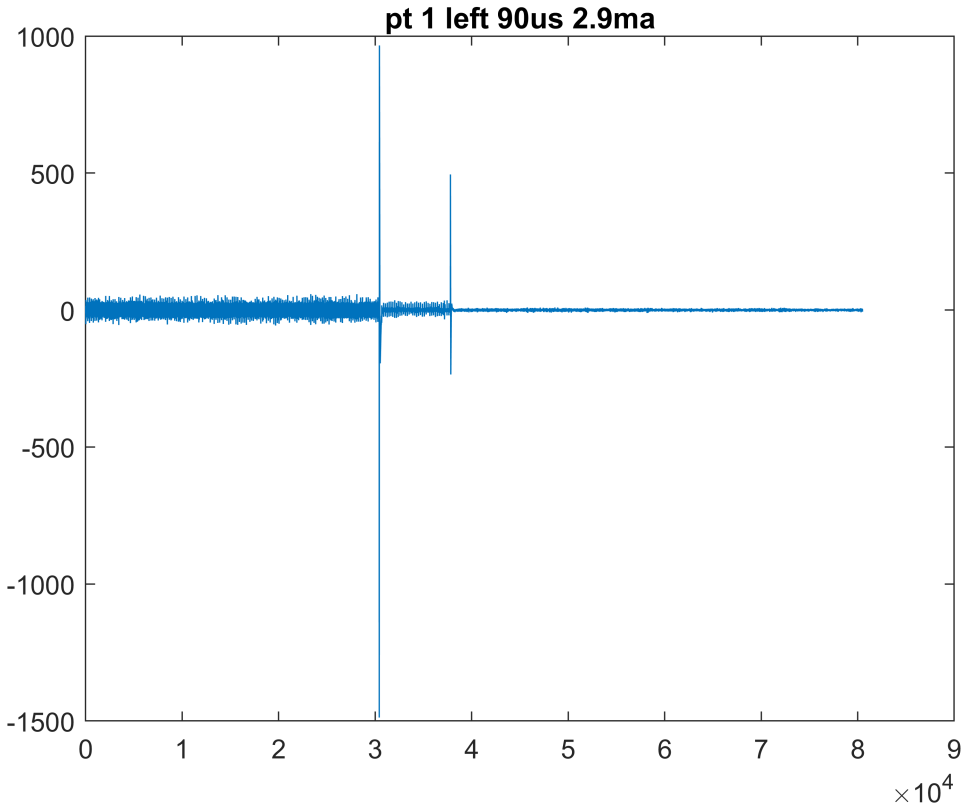

pt 1 right 90us 2.4ma

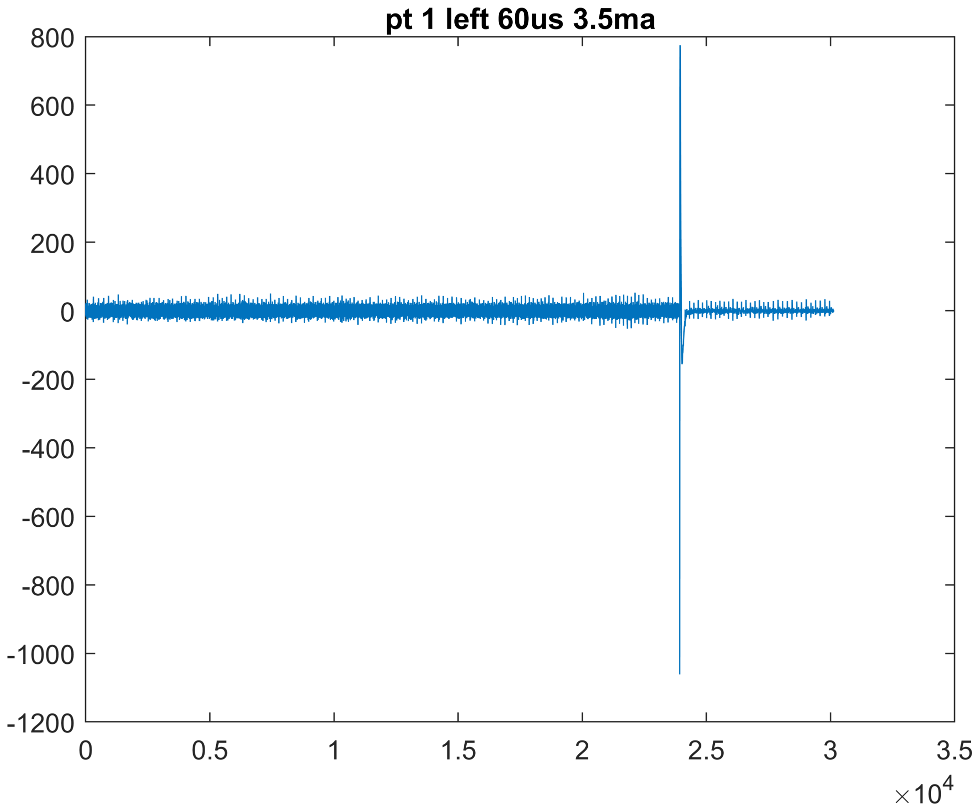


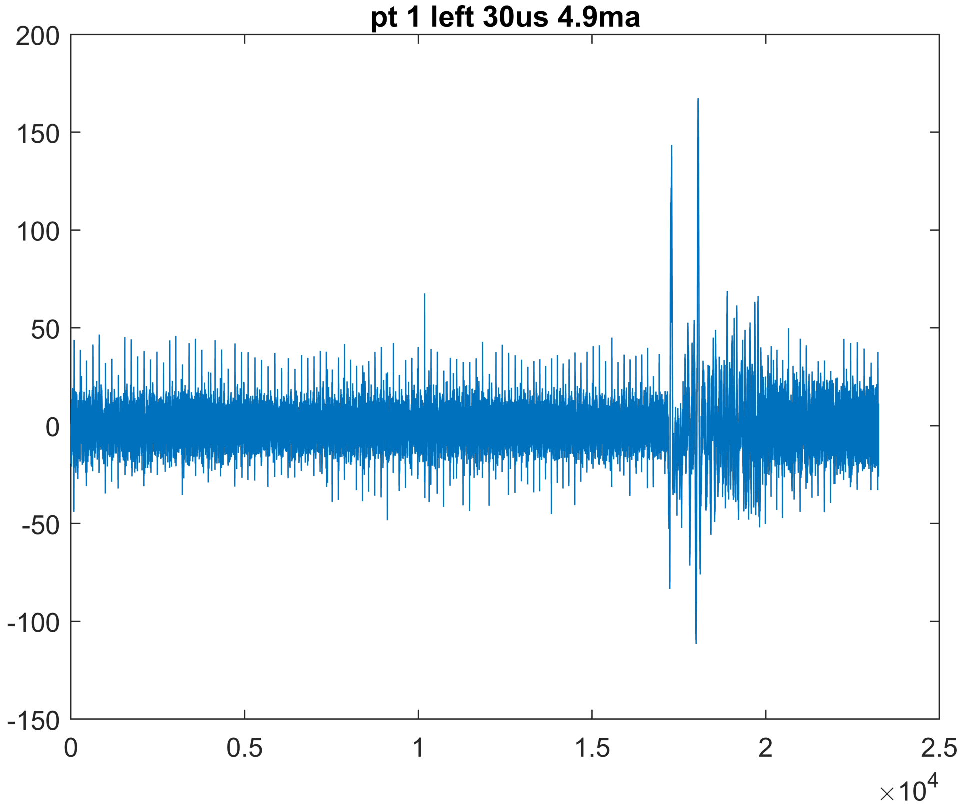
PT1 Left

```
%pt1 left
clear all;
figure;
%get the json
cd('C:\Users\sydne\Documents\github\perceive\patientData')
jsonFiles = 'Report_Json_Session_Report_patient1_left_final (1).json';
js = jsondecode(fileread(jsonFiles));
%set back to the correct directory
cd('C:\Users\sydne\Documents\github\perceive\postAnalysis')
%% create a struct of the relevant data from brainsense
leng = numel(js.BrainSenseLfp);
data = struct;
for i=1:leng
    x = num2str(i);
    field = append("treatment", x);
    data.(field).channel = js.BrainSenseLfp(i).Channel;
    data.(field).time = datetime(replace({js.BrainSenseLfp(i).FirstPacketDateTime}, {'T', 'Z'}
    data.(field).pw = js.BrainSenseLfp(i).TherapySnapshot.Left.PulseWidthInMicroSecond;
    data.(field).ma = js.BrainSenseLfp(i).TherapySnapshot.Left.LowerLimitInMilliAmps;
    data.(field).timeDomain = js.BrainSenseTimeDomain(i).TimeDomainData;
end

%get legend info
%some parts must be hard coded bc
for i = 1:leng
```

```
    x = num2str(i);
    field = append("treatment", x);
    pw = num2str(data.(field).pw);
    ma = num2str(data.(field).ma);
    pt = "pt 1 left ";
    legendVal{i} = ((append(pt, pw, "us ", ma, "ma")));
end

%create plot of index vs voltage LFP data
for i = 1:leng
    figure
    field = append("treatment", num2str(i));
    plot(data.(field).timeDomain)
    title(legendVal{i})
    figname = append(legendVal{i}, ".fig");
    savefig(figname)
end
```

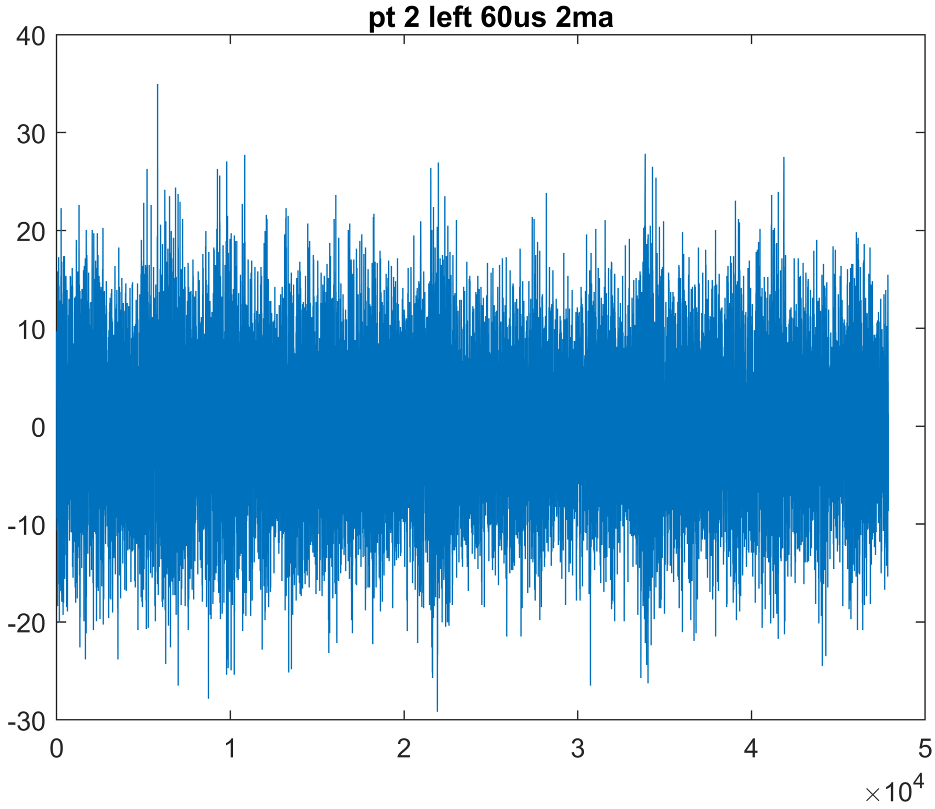


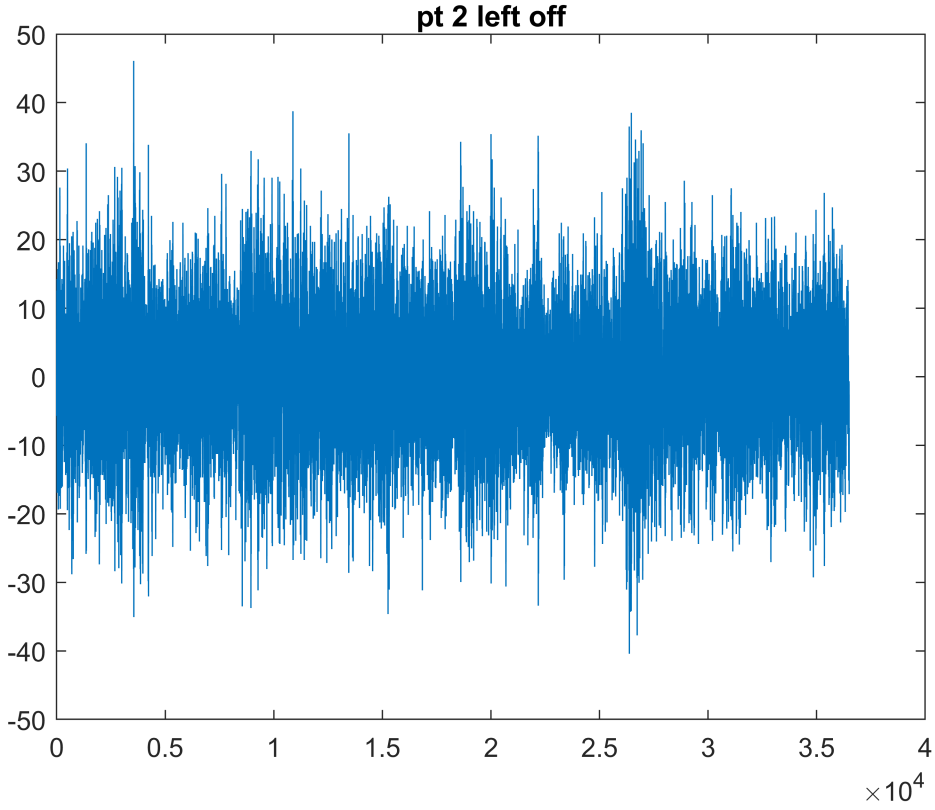

pt 1 left 60us 3.5ma
800
600
400
200
0
-200
-400
-600
-800
-1000
-1200
0
0.5
1
1.5
2
2.5
3
3.5
×10^4

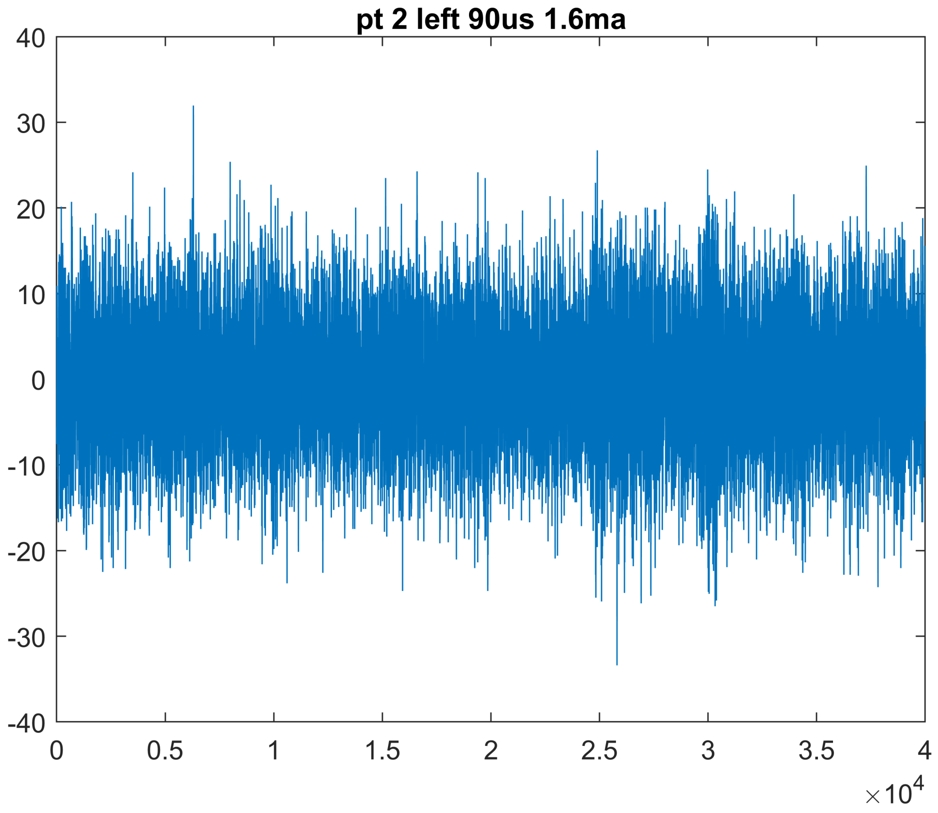

pt 1 left 30us 4.9ma
200
150
100
50
0
-50
-100
-150
0
0.5
1
1.5
2
2.5
×10^4

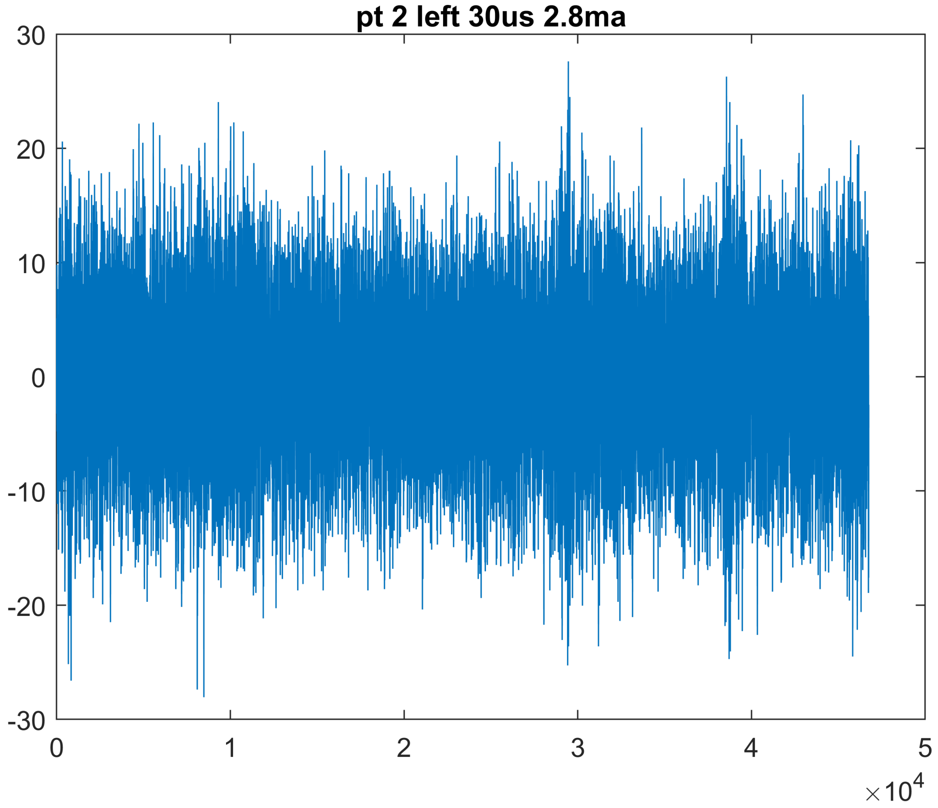
PT2 Left

```
clear all;

%pt 2 has all the data contained in a single JSON due to having a single
%battery
%this struct gets field 1-4 which contain data for the left
%and fields 5-8 contains data for the right
%if errors arise, double check the indexing because it has to be manual
%in most cases

%get the json
 cd('C:\Users\sydne\Documents\github\perceive\patientData')
%cd('C:\Users\Admin\Documents\Github\perceive\patientData\Patient2_0604')
jsonFiles = 'Report_Json_Session_Report_20210604T120025.json';
js = jsondecode(fileread(jsonFiles));
%set back to the correct directory
 cd('C:\Users\sydne\Documents\github\perceive\postAnalysis')
%cd('C:\Users\Admin\Documents\Github\perceive\postAnalysis')
leng = numel(js.BrainSenseLfp);
data = struct;
for i=1:4
    x = num2str(i);
    field = append("treatment", x);
    data.(field).channel = js.BrainSenseLfp(i).Channel;
    data.(field).time = datetime(replace({js.BrainSenseLfp(i).FirstPacketDateTime}, {'T', 'Z'},
    data.(field).pw = js.BrainSenseLfp(i).TherapySnapshot.Left.PulseWidthInMicroSecond;
    data.(field).ma = js.BrainSenseLfp(i).TherapySnapshot.Left.LowerLimitInMilliAmps;
    data.(field).timeDomain = js.BrainSenseTimeDomain(i).TimeDomainData;
end

%get legend info
%some parts must be hard coded bc
for i = 1:4
    x = num2str(i);
    field = append("treatment", x);
    pw = num2str(data.(field).pw);
    ma = num2str(data.(field).ma);
    pt = "pt 2 left ";
    legendVal{i} = ((append(pt, pw, "us ", ma, "ma")));
end
%hard code based on clinic notes
legendVal{2} = append(pt, "off");

%create plot of index vs voltage LFP data
for i = 1:4
    figure
    field = append("treatment", num2str(i));
    plot(data.(field).timeDomain)
    title(legendVal{i})
    figname = append(legendVal{i}, ".fig");
    savefig(figname)
end
```


pt 2 left 60us 2ma
40
30
20
10
0
-10
-20
-30
0
1
2
3
4
5
×10^4

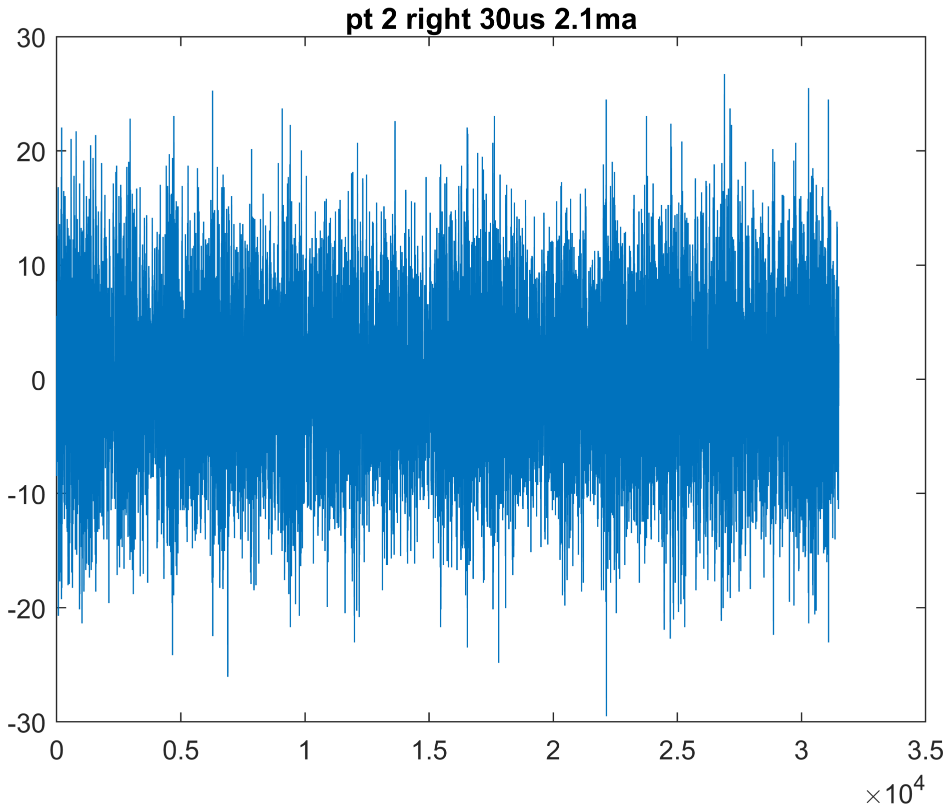

pt 2 left off
50
40
30
20
10
0
-10
-20
-30
-40
-50
0
0.5
1
1.5
2
2.5
3
3.5
4
×10^4

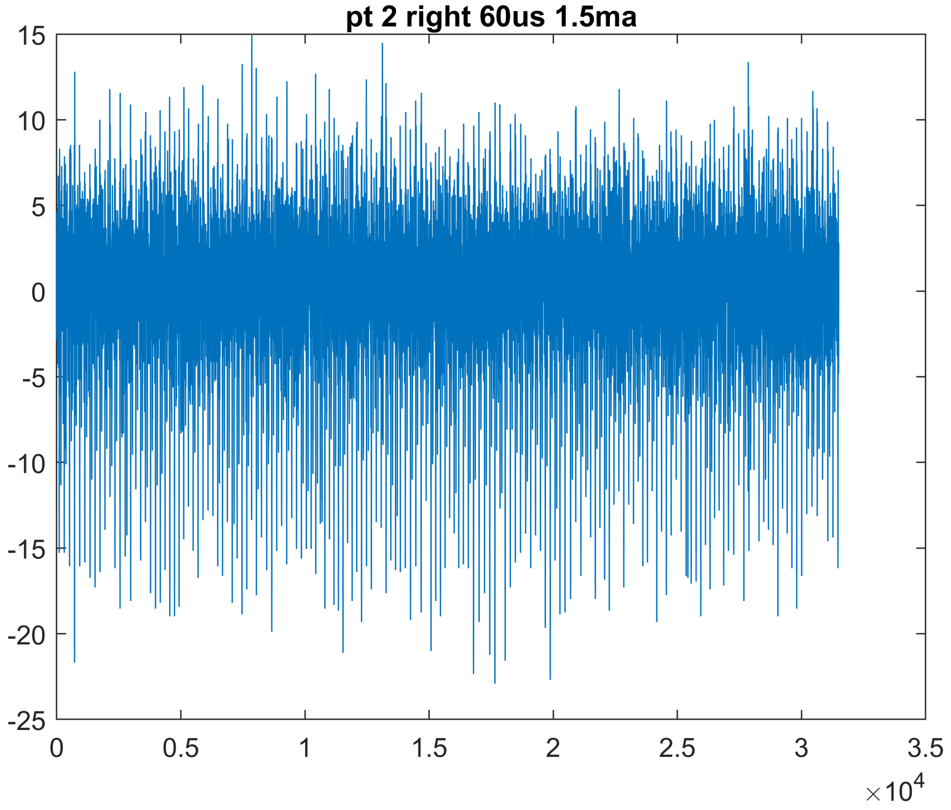

pt 2 left 90us 1.6ma
40
30
20
10
0
-10
-20
-30
-40
0
0.5
1
1.5
2
2.5
3
3.5
4
×10^4

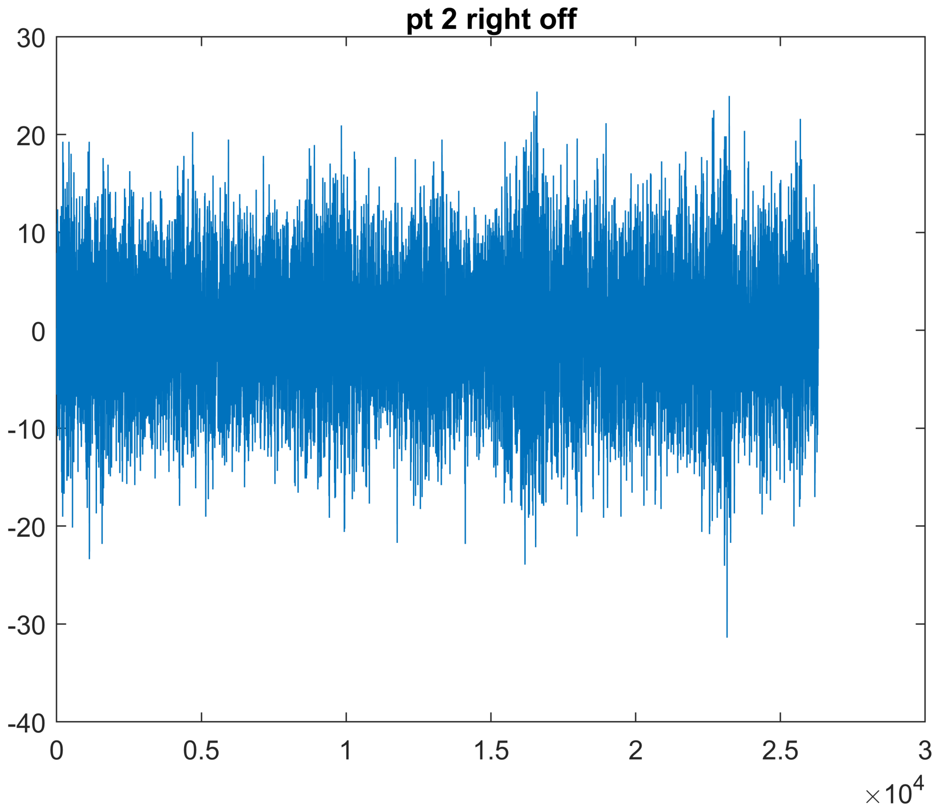

pt 2 left 30us 2.8ma
30
20
10
0
-10
-20
-30
0
1
2
3
4
5
×10^4

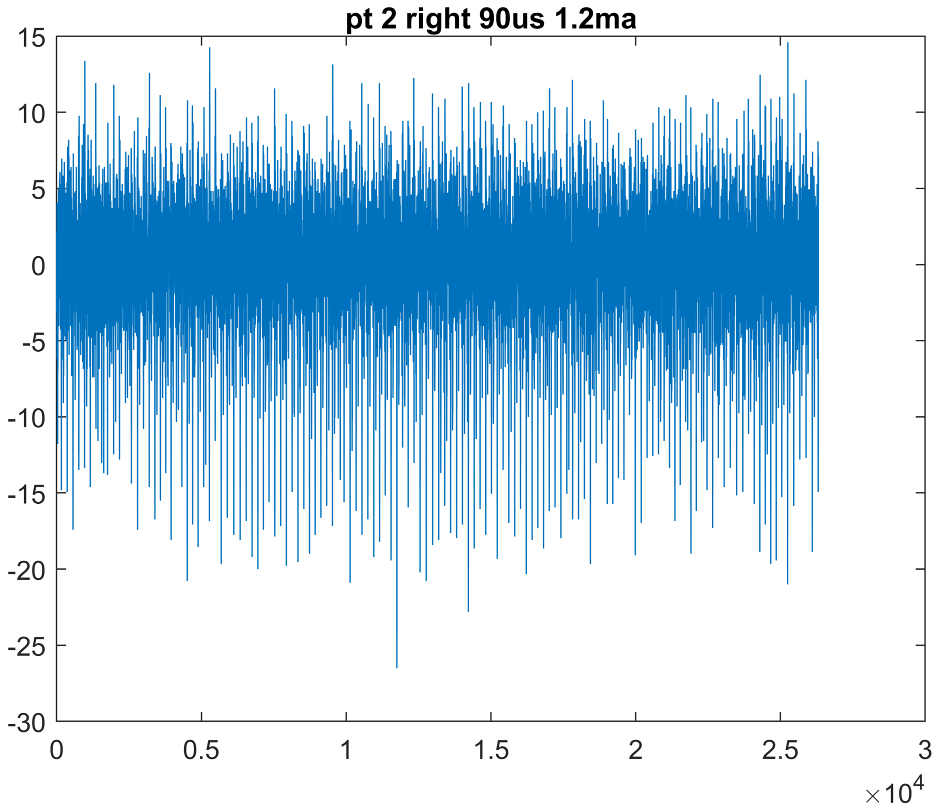
PT2 Right

```
clear all;
%get the json
cd('C:\Users\sydne\Documents\github\perceive\patientData')
jsonFiles = 'Report_Json_Session_Report_20210604T120025.json';
js = jsondecode(fileread(jsonFiles));
%set back to the correct directory
cd('C:\Users\sydne\Documents\github\perceive\postAnalysis')

%snapshot
figure;
leng = numel(js.BrainSenseLfp);
data = struct;
for i=5:8
    x = num2str(i);
    field = append("treatment", x);
    data.(field).channel = js.BrainSenseLfp(i).Channel;
    data.(field).time = datetime(replace({js.BrainSenseLfp(i).FirstPacketDateTime}, {'T', 'Z'},
    data.(field).pw = js.BrainSenseLfp(i).TherapySnapshot.Right.PulseWidthInMicroSecond;
    data.(field).ma = js.BrainSenseLfp(i).TherapySnapshot.Right.LowerLimitInMilliAmps;
    data.(field).timeDomain = js.BrainSenseTimeDomain(i).TimeDomainData;
end

%get legend info
%some parts must be hard coded bc
for i=5:8
    x = num2str(i);
    field = append("treatment", x);
    pw = num2str(data.(field).pw);
    ma = num2str(data.(field).ma);
    pt = "pt 2 right ";
    legendVal{i} = ((append(pt, pw, "us ", ma, "ma")));
end
%need to investigate discrepency between json and pdf summary
legendVal{7} = append(pt, "off");

%create plot of index vs voltage LFP data
for i = 5:8
    figure
    field = append("treatment", num2str(i));
    plot(data.(field).timeDomain)
    title(legendVal{i})
    figname = append(legendVal{i}, ".fig");
    savefig(figname)
end
```


pt 2 right 30us 2.1ma

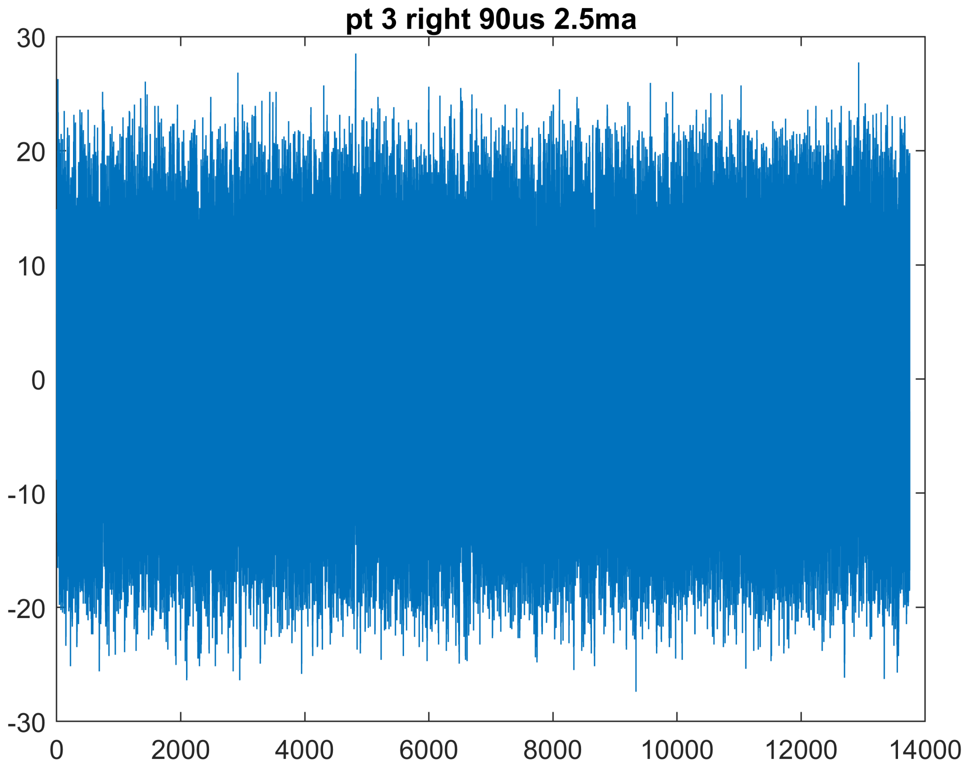

pt 2 right 60us 1.5ma

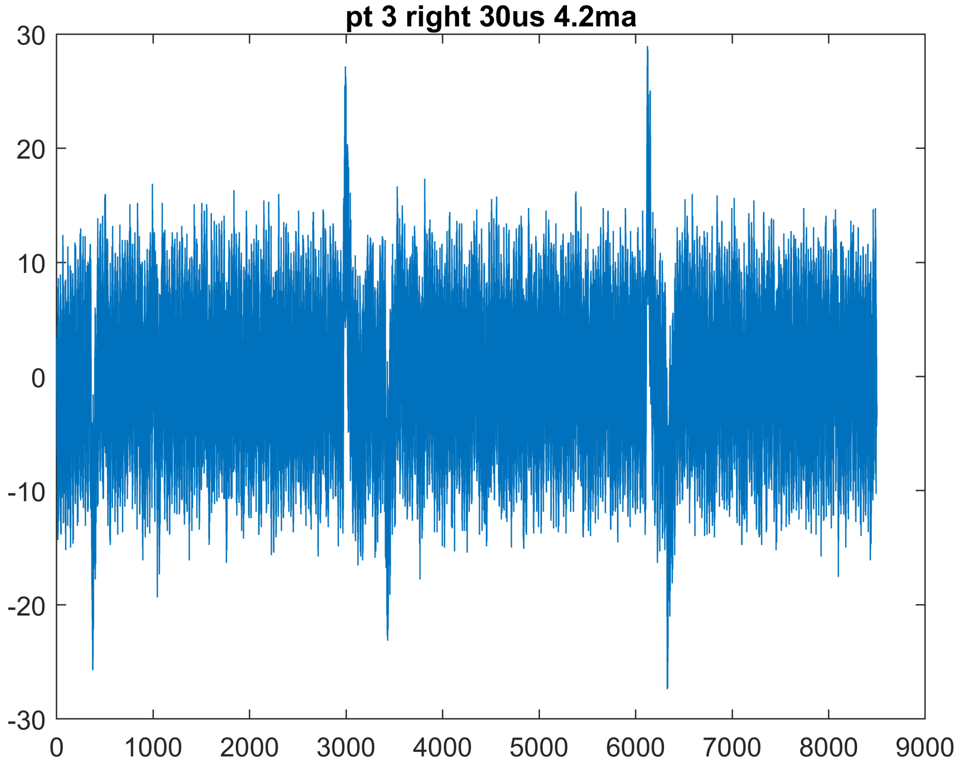

pt 2 right off
30
20
10
0
-10
-20
-30
-40
0
0.5
1
1.5
2
2.5
3
×10^4

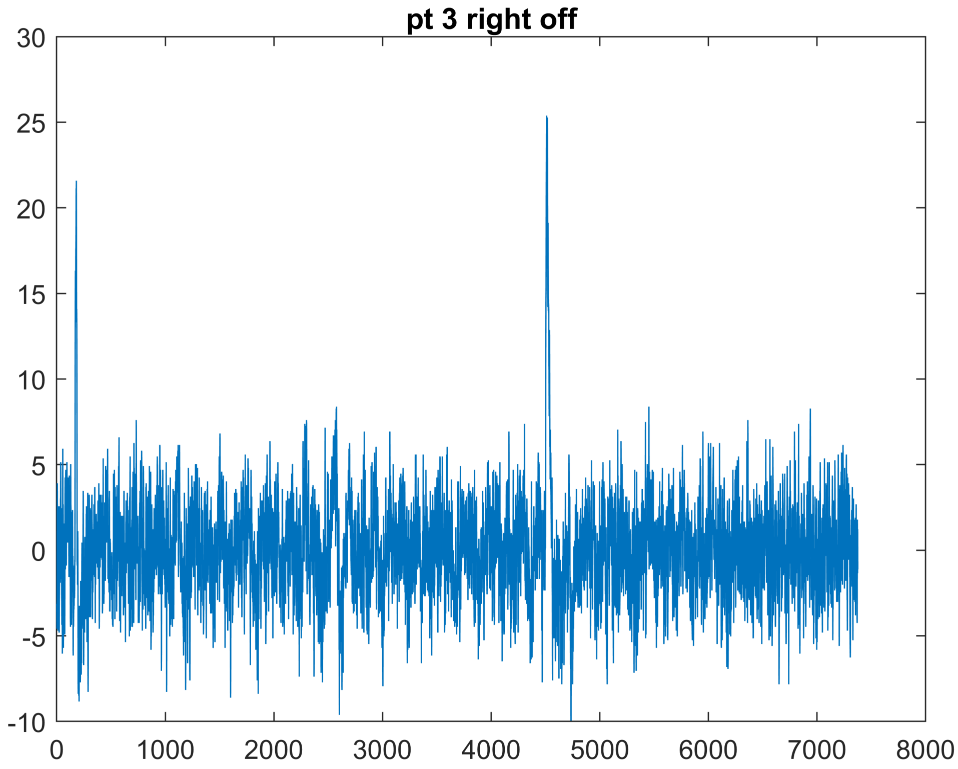

pt 2 right 90us 1.2ma
15
10
5
0
-5
-10
-15
-20
-25
-30
0
0.5
1
1.5
2
2.5
3
×10^4

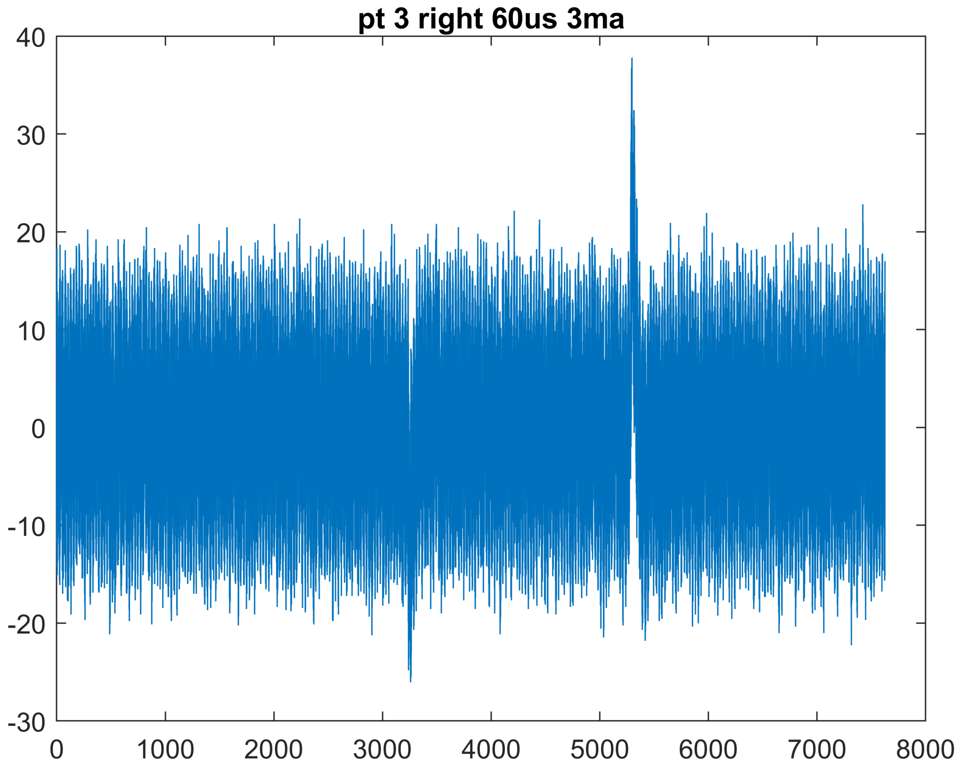
PT3 Right

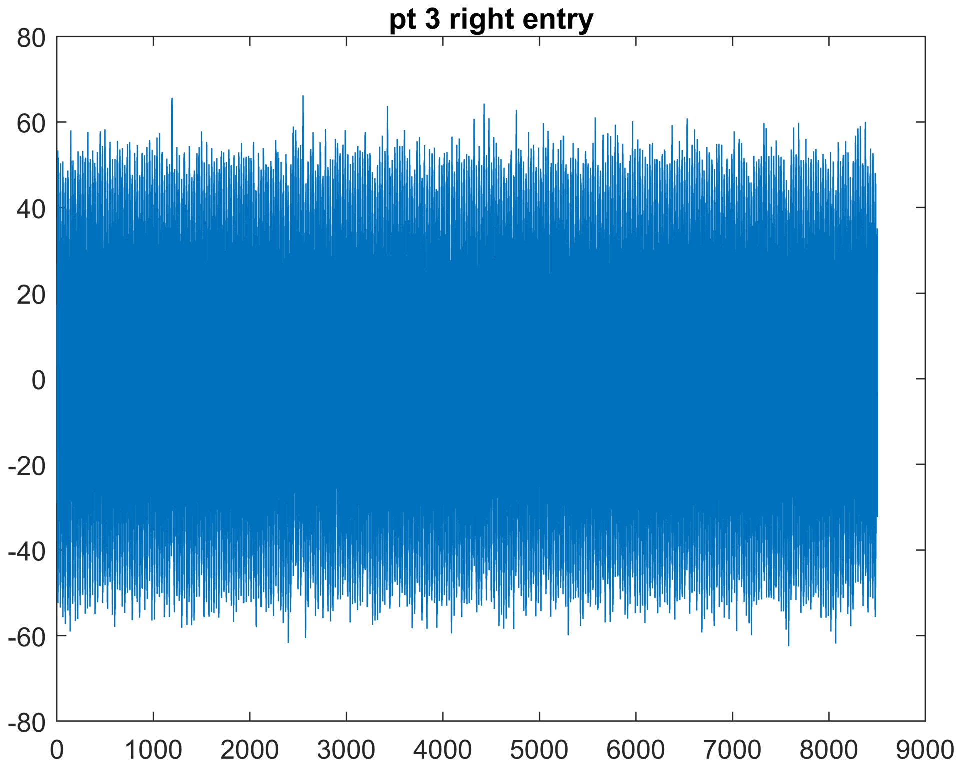
```
clear all;
figure;
%get the json
cd('C:\Users\sydne\Documents\github\perceive\patientData\Patient3_0630')
jsonFiles = 'Report_Json_Session_Report_patient3_right_final.json';
js = jsondecode(fileread(jsonFiles));
%set back to the correct directory
cd('C:\Users\sydne\Documents\github\perceive\postAnalysis')
%% create a struct of the relevant data from brainsense
leng = numel(js.BrainSenseLfp);
data = struct;
for i=1:leng
    x = num2str(i);
    field = append("treatment", x);
    data.(field).channel = js.BrainSenseLfp(i).Channel;
    data.(field).time = datetime(replace({js.BrainSenseLfp(i).FirstPacketDateTime}, {'T', 'Z'},
    data.(field).pw = js.BrainSenseLfp(i).TherapySnapshot.Right.PulseWidthInMicroSecond;
    data.(field).ma = js.BrainSenseLfp(i).TherapySnapshot.Right.LowerLimitInMilliAmps;
    data.(field).timeDomain = js.BrainSenseTimeDomain(i).TimeDomainData;
end

%get legend info
%some parts must be hard coded bc
for i = 1:leng
    x = num2str(i);
    field = append("treatment", x);
    pw = num2str(data.(field).pw);
    ma = num2str(data.(field).ma);
    pt = "pt 3 right ";
    legendVal{i} = ((append(pt, pw, "us ", ma, "ma")));
end
legendVal{3} = append(pt, "off");
legendVal{5} = append(pt, "entry");

%create plot of index vs voltage LFP data
for i = 1:leng
    figure
    field = append("treatment", num2str(i));
    plot(data.(field).timeDomain)
    title(legendVal{i})
    figname = append(legendVal{i}, ".fig");
    savefig(figname)
end
```


pt 3 right 90us 2.5ma
30
20
10
0
-10
-20
-30
0
2000
4000
6000
8000
10000
12000
14000


pt 3 right 30us 4.2ma
30
20
10
0
-10
-20
-30
0
1000
2000
3000
4000
5000
6000
7000
8000
9000

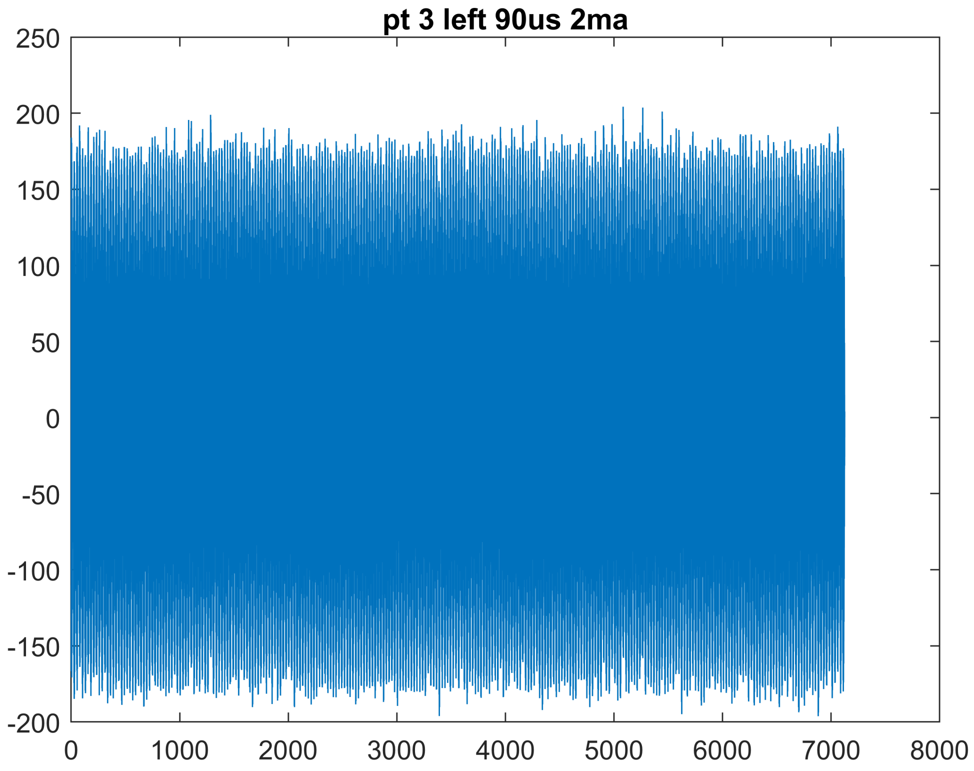

pt 3 right off
30
25
20
15
10
5
0
-5
-10
0
1000
2000
3000
4000
5000
6000
7000
8000


pt 3 right 60us 3ma
40
30
20
10
0
-10
-20
-30
0
1000
2000
3000
4000
5000
6000
7000
8000

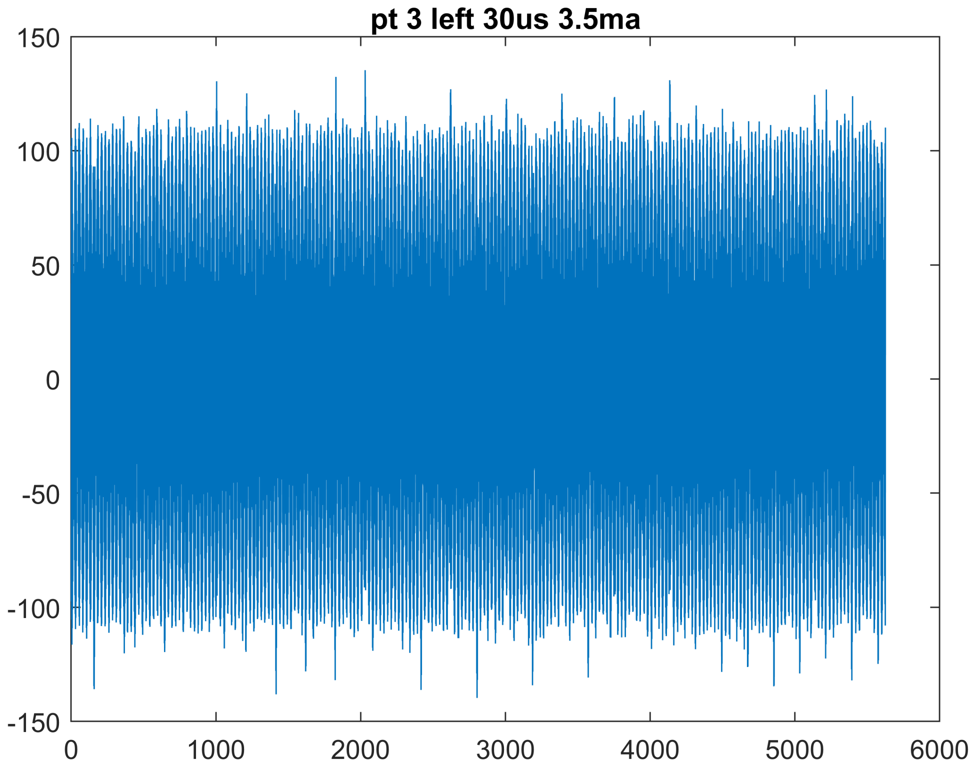


PT3 Left

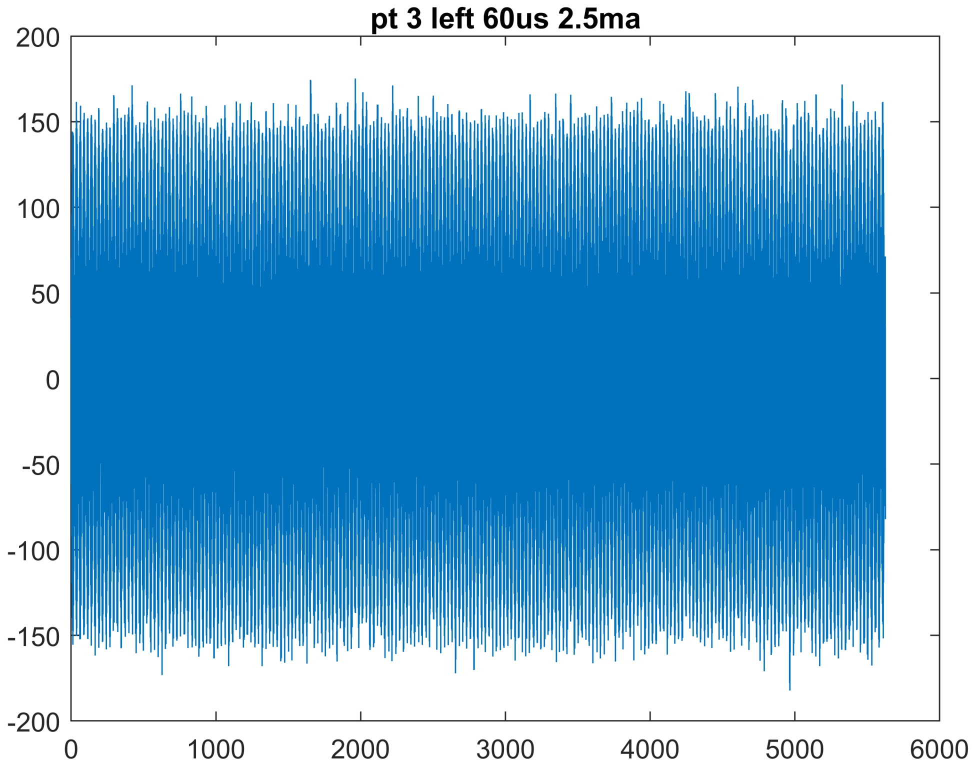
```
clear all;
figure;
%get the json
cd('C:\Users\sydne\Documents\github\perceive\patientData')
jsonFiles = 'Report_Json_Session_Report_Patient3_left_final.json';
js = jsondecode(fileread(jsonFiles));
%set back to the correct directory
cd('C:\Users\sydne\Documents\github\perceive\postAnalysis')
%% create a struct of the relevant data from brainsense
leng = numel(js.BrainSenseLfp);
data = struct;
for i=1:leng
    x = num2str(i);
    field = append("treatment", x);
    data.(field).channel = js.BrainSenseLfp(i).Channel;
    data.(field).time = datetime(replace({js.BrainSenseLfp(i).FirstPacketDateTime}, {'T', 'Z'}
    data.(field).pw = js.BrainSenseLfp(i).TherapySnapshot.Left.PulseWidthInMicroSecond;
    data.(field).ma = js.BrainSenseLfp(i).TherapySnapshot.Left.LowerLimitInMilliAmps;
    data.(field).timeDomain = js.BrainSenseTimeDomain(i).TimeDomainData;
end

%get legend info
%some parts must be hard coded bc
for i = 1:leng
    x = num2str(i);
    field = append("treatment", x);
    pw = num2str(data.(field).pw);
    ma = num2str(data.(field).ma);
    pt = "pt 3 left ";
    legendVal{i} = ((append(pt, pw, "us ", ma, "ma")));
end
legendVal{4} = append(pt, "entry");
legendVal{5} = append(pt, "off");

%create plot of index vs voltage LFP data
for i = 1:leng
    figure
    field = append("treatment", num2str(i));
    plot(data.(field).timeDomain)
    title(legendVal{i})
    figname = append(legendVal{i}, ".fig");
    savefig(figname)
end
```



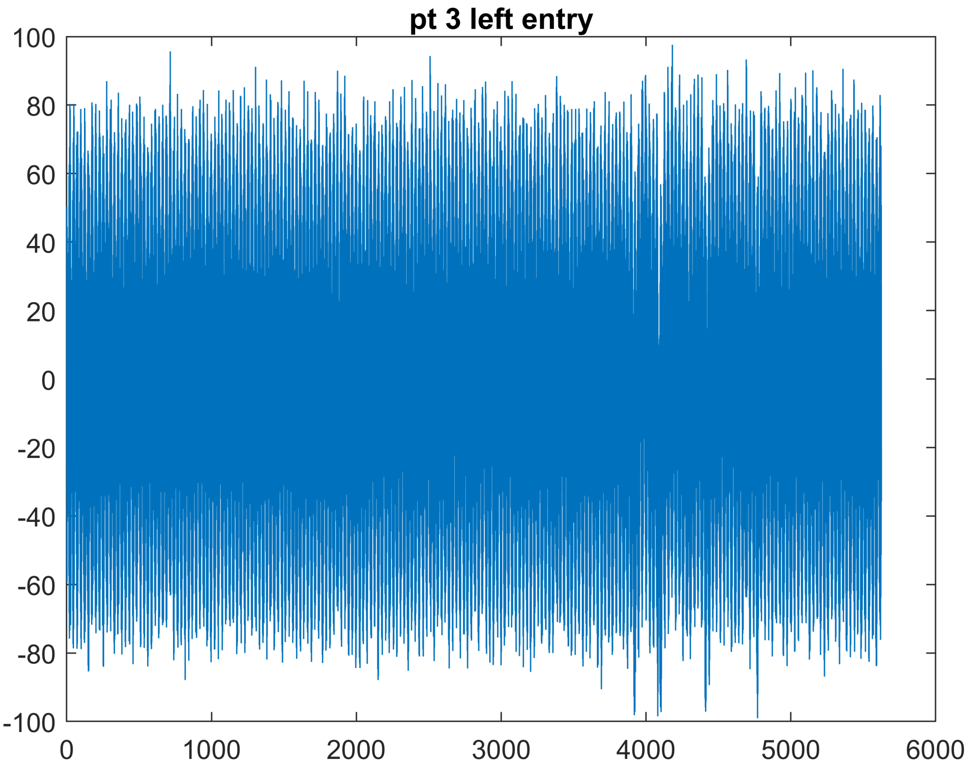
pt 3 left 90us 2ma

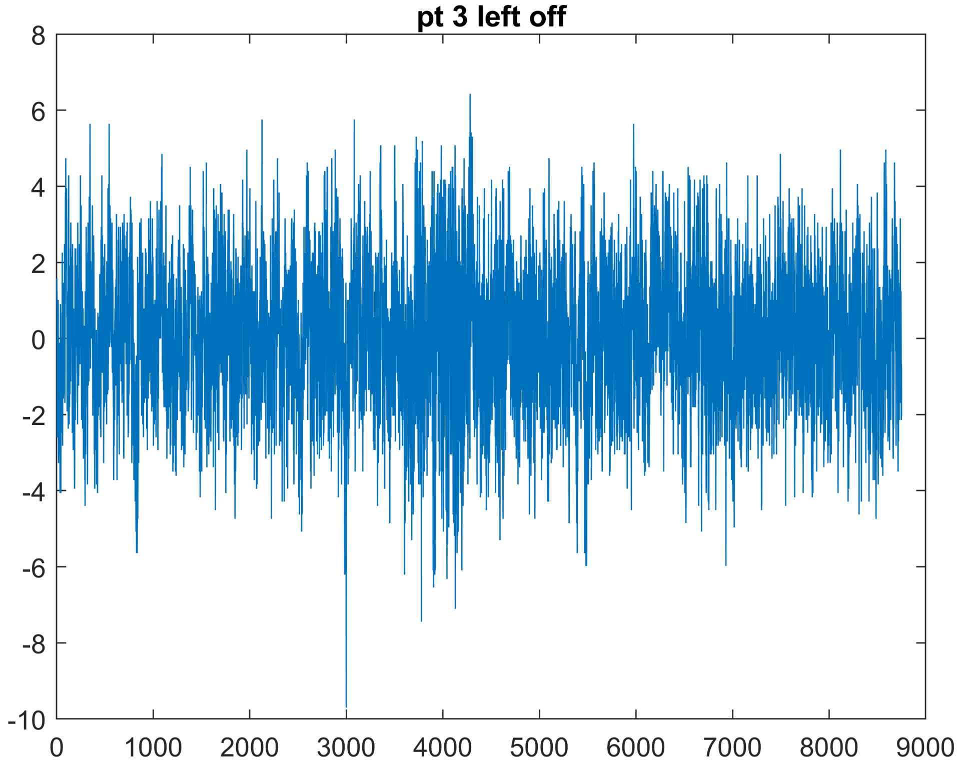


pt 3 left 30us 3.5ma



pt 3 left 60us 2.5ma





Code to Create Plot of all Data

Run the section of interest above using "run section" to generate relevant data

Run this section to plot all of the raw LFP data on the same plot

```
% figure
% for i = 1:leng
%     field = append("treatment", num2str(i));
%     [outDAT] = proc1(data.(field).timeDomain);
%     %collect time domain data from given field in Data strcut I made
%
%     hold on
%     plot(outDAT.freq,outDAT.pwr)
% end
% legend()
```

Code to Plot Raw Data

Run the section of interest above using "run section" to generate relevant data

Run this section using "run section" to create index vs voltage for given time domain data

```
% figure
% for i = 1:leng
%     field = append("treatment", num2str(i));
%     plot(data.(field).timeDomain)
%     figure
% end
```

```
function [outDAT] = proc1(dataIN)
%purpose of this fucntion is really to proces the data in a
%general and nonspecific way

hp = highpass(dataIN,0.8,250);
lp = lowpass(hp,59,250);
%dont recall how these numbers were created
[x,y] = pspectrum(lp,250,'FrequencyLimits',[1 59]);

xl = 10*log10(x);
%plots bode-ish of power from pspectrum
x2 = smoothdata(xl,'gaussian',150);
%smooth the bode

outDAT.freq = y;
outDAT.pwr = x2;

end
```