eeg1=datastrap.eeg1;

eeg2=datastrap.eeg2;

eeg3=datastrap.eeg3;

eeg4=datastrap.eeg4;

f=length(eeg1)/120;

t=1/f;

t\_D=[0:1:length(eeg2)-1]\*t;

figure;

subplot(2,2,1)

plot(t\_D,eeg1)

title('eeg data')

xlabel('Time(s)')

ylabel('Voltage(v)')

subplot(2,2,2)

plot(t\_D,eeg2)

title('eeg data')

xlabel('Time(s)')

ylabel('Voltage(v)')

subplot(2,2,3)

plot(t\_D,eeg3)

title('eeg data')

xlabel('Time(s)')

ylabel('Voltage(v)')

subplot(2,2,4)

plot(t\_D,eeg4)

title('eeg data')

xlabel('Time(s)')

ylabel('Voltage(v)')

eeg1\_Fft=fft(eeg1);

eeg1\_Fft(1)=0;

eeg1=ifft(eeg1\_Fft);

eeg2\_Fft=fft(eeg2);

eeg2\_Fft(1)=0;

eeg2=ifft(eeg2\_Fft);

eeg3\_Fft=fft(eeg3);

eeg3\_Fft(1)=0;

eeg3=ifft(eeg3\_Fft);

eeg4\_Fft=fft(eeg4);

eeg4\_Fft(1)=0;

eeg4=ifft(eeg4\_Fft);

figure;

subplot(2,2,1)

plot(t\_D,eeg1)

title('eeg data')

xlabel('Time(s)')

ylabel('Voltage(v)')

subplot(2,2,2)

plot(t\_D,eeg2)

title('eeg data')

xlabel('Time(s)')

ylabel('Voltage(v)')

subplot(2,2,3)

plot(t\_D,eeg3)

title('eeg data')

xlabel('Time(s)')

ylabel('Voltage(v)')

subplot(2,2,4)

plot(t\_D,eeg4)

title('eeg data')

xlabel('Time(s)')

ylabel('Voltage(v)')

% Smooth input data

smoothedData1 = smoothdata(eeg1,"movmean",[9.5 9.5]);

% Display results

clf

plot(eeg1,"Color",[77 190 238]/255,"DisplayName","Input data")

hold on

plot(smoothedData1,"Color",[0 114 189]/255,"LineWidth",1.5,...

"DisplayName","Smoothed data")

hold off

legend

% Smooth input data

smoothedData2 = smoothdata(eeg2,"movmean",[9.5 9.5]);

% Display results

clf

plot(eeg2,"Color",[77 190 238]/255,"DisplayName","Input data")

hold on

plot(smoothedData2,"Color",[0 114 189]/255,"LineWidth",1.5,...

"DisplayName","Smoothed data")

hold off

legend

% Smooth input data

smoothedData3 = smoothdata(eeg3,"movmean",[9 9]);

% Display results

clf

plot(eeg3,"Color",[77 190 238]/255,"DisplayName","Input data")

hold on

plot(smoothedData3,"Color",[0 114 189]/255,"LineWidth",1.5,...

"DisplayName","Smoothed data")

hold off

legend

% Smooth input data

smoothedData4 = smoothdata(eeg4,"movmean",19);

% Display results

clf

plot(eeg4,"Color",[77 190 238]/255,"DisplayName","Input data")

hold on

plot(smoothedData4,"Color",[0 114 189]/255,"LineWidth",1.5,...

"DisplayName","Smoothed data")

hold off

legend

figure;

colormap jet;

subplot(4,1,1)

pspectrum(eeg1,f,"spectrogram","MinThreshold",-30,"FrequencyLimits",[0,15],"Leakage",0.6,"OverlapPercent",90)

subplot(4,1,2)

pspectrum(eeg2,f,"spectrogram","MinThreshold",-30,"FrequencyLimits",[0,15],"Leakage",0.6,"OverlapPercent",90)

subplot(4,1,3)

pspectrum(eeg3,f,"spectrogram","MinThreshold",-30,"FrequencyLimits",[0,15],"Leakage",0.6,"OverlapPercent",90)

subplot(4,1,4)

pspectrum(eeg4,f,"spectrogram","MinThreshold",-30,"FrequencyLimits",[0,15],"Leakage",0.6,"OverlapPercent",90)

figure;

colormap jet;

pspectrum(eeg1,f,"spectrogram","MinThreshold",-30,"FrequencyLimits",[0,15],"Leakage",0.9,"OverlapPercent",90)

pspectrum(eeg2,f,"spectrogram","MinThreshold",-30,"FrequencyLimits",[0,15],"Leakage",0.9,"OverlapPercent",90)

pspectrum(eeg3,f,"spectrogram","MinThreshold",-30,"FrequencyLimits",[0,15],"Leakage",0.9,"OverlapPercent",90)

pspectrum(eeg4,f,"spectrogram","MinThreshold",-30,"FrequencyLimits",[0,15],"Leakage",0.9,"OverlapPercent",90)

figure;

colormap jet;

subplot(4,1,1)

pspectrum(smoothedData1,f,"spectrogram","MinThreshold",-40,"FrequencyLimits",[0,15],"Leakage",0.6,"OverlapPercent",90)

subplot(4,1,2)

pspectrum(smoothedData2,f,"spectrogram","MinThreshold",-40,"FrequencyLimits",[0,15],"Leakage",0.6,"OverlapPercent",90)

subplot(4,1,3)

pspectrum(smoothedData3,f,"spectrogram","MinThreshold",-40,"FrequencyLimits",[0,15],"Leakage",0.6,"OverlapPercent",90)

subplot(4,1,4)

pspectrum(smoothedData4,f,"spectrogram","MinThreshold",-40,"FrequencyLimits",[0,15],"Leakage",0.6,"OverlapPercent",90)

figure;

colormap jet;

pspectrum(smoothedData1,f,"spectrogram","MinThreshold",-40,"FrequencyLimits",[0,15],"Leakage",0.9,"OverlapPercent",90)

pspectrum(smoothedData2,f,"spectrogram","MinThreshold",-40,"FrequencyLimits",[0,15],"Leakage",0.9,"OverlapPercent",90)

pspectrum(smoothedData3,f,"spectrogram","MinThreshold",-40,"FrequencyLimits",[0,15],"Leakage",0.9,"OverlapPercent",90)

pspectrum(smoothedData4,f,"spectrogram","MinThreshold",-40,"FrequencyLimits",[0,15],"Leakage",0.9,"OverlapPercent",90)