LAMPIRAN

Listing Program :

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clear;
close all;
clear al

% Load EEG Data
SR = 250;
detik = 30;
windowx = SR*detik;

data = dlmread('E_I.txt');
%data = audioread('40Hz.wav');
epoch_per = floor(length(data)/windowx);
data_F1 = data(:,17);
o = 7;

tegangan = 0.3/16777216; %mengubah ke mV

%Bandpass Filter
[b,a] = butter(o,[0.017 0.2]);
xfilter = filtfilt(b,a ,data_F1);
%%xfilter = filtfilt(b,a ,data);

awal = 1;
akhir = windowx;

for i =1:epoch_per % Percobaan 1 = 20 ; Percobaan 2
= 12
awal = awal;
akhir = akhir;
%  epoch(i,:)= data(awal:akhir);
epoch(i,:)= xfilter(awal:akhir);
sinyal_fft(i,:) = tegangan*abs(fft(epoch(i,:)));
frek(i,:) = linspace(0,SR,length(sinyal_fft));
awal = akhir+1
akhir = akhir+windowx

%% Band Power Suara
%  b_suara(i,:) = find(frek(i,:) > 0.499 & frek(i,:) <
0.501);
%  a_suara(i,:) = find(frek(i,:) > 124.9 & frek(i,:) <
125.01);
%
%  data_suara(i,:) =
sinyal_fft(i,:)(b_suara(i,:):a_suara(i,:));
%  power_suara(i,:) = sum(data_suara(i,:));

 % Mencari Delta
b_delta(i,:) = find(frek(i,:) > 0.499 & frek(i,:) <
0.501); %batasbawah
a_delta(i,:) = find(frek(i,:) > 3.99 & frek(i,:) < 4.01);
%batasatas

 % Mencari Theta
b_theta(i,:) = find(frek(i,:) > 3.99 & frek(i,:) < 4.01);
%batasbawah
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a_theta(i,:) = find(frek(i,:) > 6.99 & frek(i,:) < 7.01);
%batasatas

 % Mencari Alpha
b_alpha(i,:) = find(frek(i,:) > 7.99 & frek(i,:) < 8.01);
%batasbawah
a_alpha(i,:) = find(frek(i,:) > 11.99 & frek(i,:) <
12.01); %batasatas

 %Mencari Beta
b_beta(i,:) = find(frek(i,:) > 19.99 & frek(i,:) <
20.01); %batasbawah
a_beta(i,:) = find(frek(i,:) > 29.99 & frek(i,:) <
30.01); %batasatas

 %Mencari Gamma
b_gamma(i,:) = find(frek(i,:) > 30.99 & frek(i,:) <
31.01); %batasbawah
a_gamma(i,:) = find(frek(i,:) > 39.99 & frek(i,:) <
40.02); %batasatas

%%  Sinyal
% figure ;
%
plot(frek(i,:)(1:round(length(frek(i,:))/2)),sinyal_fft(i,
:)(1:round(length(frek(i,:))/2)),'r');
% ylim([0, 0.00007]);
% xlim([0, 50]);
% xlabel('frekuensi(Hz)');
% ylabel('Tegangan((uV)2/herzt)');
% grid on;
%

 % Power Delta
data_delta(i,:) =
sinyal_fft(i,:)(b_delta(i,:):a_delta(i,:));
power_delta(i,:) = sum(data_delta(i,:));

 % Power Theta
data_theta(i,:) = sinyal_fft(i,:)
(b_theta(i,:):a_theta(i,:));
power_theta(i,:) = sum(data_theta(i,:));

 %Power Alpha
data_alpha(i,:) = sinyal_fft(i,:)
(b_alpha(i,:):a_alpha(i,:));
power_alpha(i,:) = sum(data_alpha(i,:));

 %Power Beta
data_beta(i,:) = sinyal_fft(i,:) (b_beta(i,:):a_beta(i,:));
power_beta(i,:) = sum(data_beta(i,:));

 %Power Gamma
data_gamma(i,:) = sinyal_fft(i,:)
(b_gamma(i,:):a_gamma(i,:));
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```matlab
power_gamma(i,:) = sum(data_gamma(i,:));

  %Batas atas dan bawah power total
b_tp(i,:) = find(frek(i,:) > 0.49 & frek(i,:) < 0.501);
a_tp(i,:) = find(frek(i,:) > 39.99 & frek(i,:) < 40.02);

  %Total Power Seluruh Band
data_tp(i,:) = sinyal_fft(b_tp(i,:):a_tp(i,:));
power_tp(i,:) = sum(data_tp(i,:));

  %Power Ratio Setiap Band
p_delta(i,:) = power_delta(i,:)/power_tp(i,:);
p_theta(i,:) = power_theta(i,:)/power_tp(i,:);
p_Alpha(i,:) = power_alpha(i,:)/power_tp(i,:);
p_beta(i,:) = power_beta(i,:)/power_tp(i,:);
p_gamma(i,:) = power_gamma(i,:)/power_tp(i,:);
end


%avg_delta = mean(p_delta);
%avg_theta = mean(p_theta);
%avg_Alpha = mean(p_Alpha);
%avg_beta = mean(p_beta);
%avg_gamma = mean(p_gamma);

% Sinyal
%figure ;
%sinyal_fft = tegangan*abs(fft(data));
%frek = linspace(0,SR,length(sinyal_fft))
%plot(frek(1:round(length(frek)/2)),sinyal_fft(1:roun
d(length(frek)/2)),'r');
%%ylim([0, 0.001]);
%%xlim([0, 50]);
%xlabel('frekuensi(Hz)');
%ylabel('Tegangan((uV)2/herzt)');
%grid on;
```