%khoi tao

numberofLPCcoeff = 12;

offset=20;

fftpoints=512;

hammingwindowed = 1;

wave\_as\_input = 1;

framelength=20\*10^-3;

framelengthoverlap= 5\*10^-3;

framelengthwindow=framelength+ 2\*framelengthoverlap;

%nguoi 1

[aud1\_orig,fs] = audioread('0.1-she-made-me-hurry\_.mp3');

aud1 = aud1\_orig(:,1);

y=decimate(aud1,2);

fs=fs/2;

framesamples=framelengthwindow/ (1/fs);

framesamples=round(framesamples);

framesamplesoverlap = framelengthoverlap/ (1/fs);

framesamplesoverlap=round(framesamplesoverlap);

y=y(1: length(y)-mod(length(y),framesamples));

dimensiony=size(y);

dimensionyframe =[framesamples length(y)/framesamples];

for i= 1:dimensionyframe(2)

yframe(:,i) = y(1+(framesamples)\*(i-1):framesamples+(framesamples)\*(i-1));

end

signalNB=yframe;

for i= 1:dimensionyframe(2)

[autosignalNB(:,i),lags(i,:)]=xcorr(signalNB(:,i));

end

autosignalNB= autosignalNB(find(lags(i,:)==0):end,:);

[a,g]=levinson(autosignalNB,numberofLPCcoeff);%a la giong noi cua nguoi 1

for i= 1:dimensionyframe(2)

errorNB(:,i) =filter(a(i,:),g(i).^0.5,signalNB(:,i));

end

for i= 1:dimensionyframe(2)

signalNBreconstructed(:,i) = filter(g(i)^0.5,a(i,:),errorNB(:,i));

end

h=signalNBreconstructed(:);

h2=audioplayer(h,fs);

%nguoi 2

[aud2\_orig,fs2] = audioread('1.-I-made-my-decision..mp3');

aud2 = aud2\_orig(:,1);

y2=decimate(aud2,2);

fs2=fs2/2;

y2=y2(1: length(y2)-mod(length(y2),framesamples));

dimensiony2=size(y2);

dimensionyframe2 =[framesamples length(y2)/framesamples];

for i= 1:dimensionyframe2(2)

yframe2(:,i) = y2(1+(framesamples)\*(i-1):framesamples+(framesamples)\*(i-1));

end

signalNB2=yframe2;

for i= 1:dimensionyframe2(2)

[autosignalNB2(:,i),lags2(i,:)]=xcorr(signalNB2(:,i));

end

autosignalNB2= autosignalNB2(find(lags2(i,:)==0):end,:);

[a2,g2]=levinson(autosignalNB2,numberofLPCcoeff);%a2 la giong noi nguoi 2

for i= 1:dimensionyframe2(2)

errorNB2(:,i) =filter(a2(i,:),g2(i).^0.5,signalNB2(:,i));

end

for i= 1:dimensionyframe2(2)

signalNBreconstructed2(:,i) = filter(g2(i)^0.5,a2(i,:),errorNB2(:,i));

end

% ng??i 2 nуi ti?ng c?a ng??i 1

for i= 1:dimensionyframe(2)

x2(:,i) = filter(g2(i)^0.5,a2(i,:),errorNB(:,i));

end

x2=x2(:);

x=audioplayer(x2,fs2);

play(x)

audiowrite(strcat('filter/',num2str(5,'%.4d'),'.wav'),x,fs);