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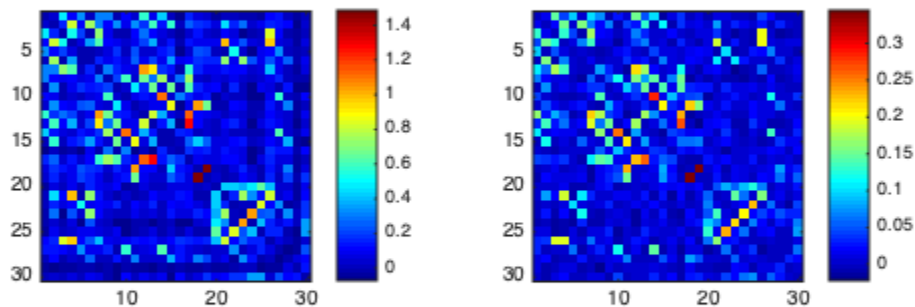
comparing MI and DI graphs for undergrad 1

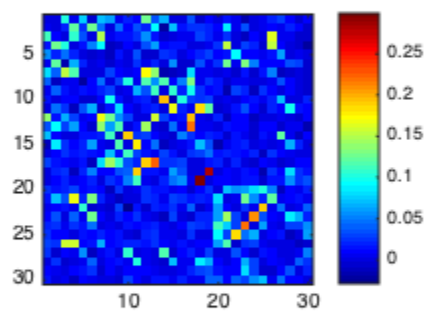
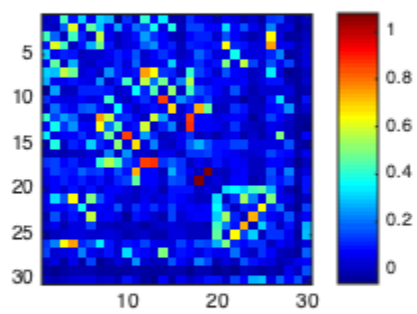
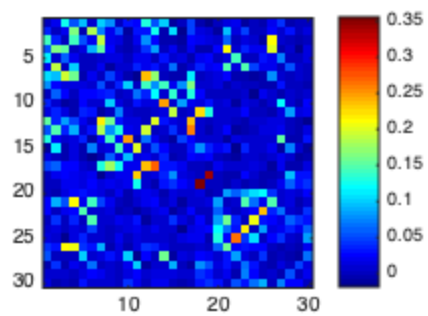
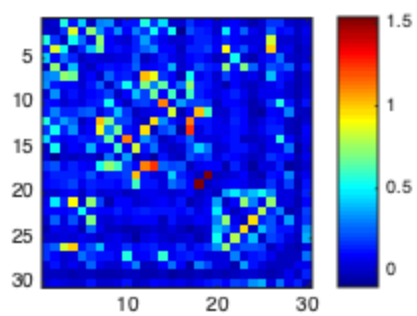
comparing MI and DI graphs to understand the differences, for undergrad 1, VOT 123

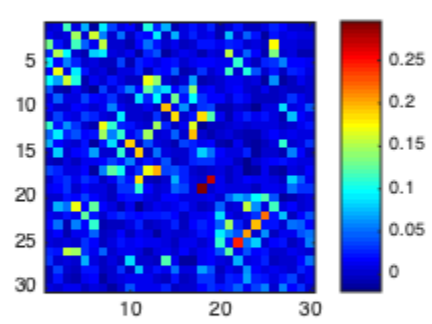
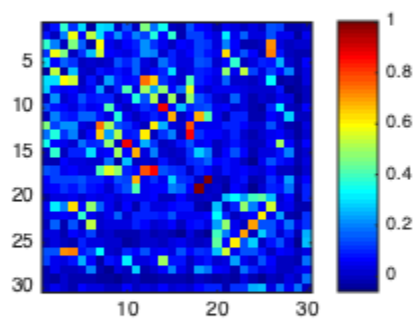
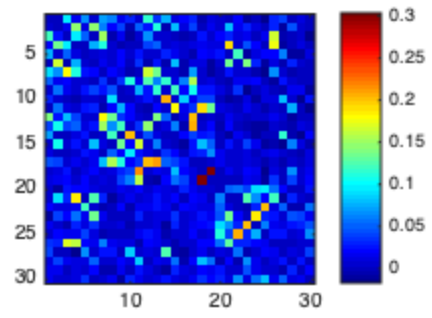
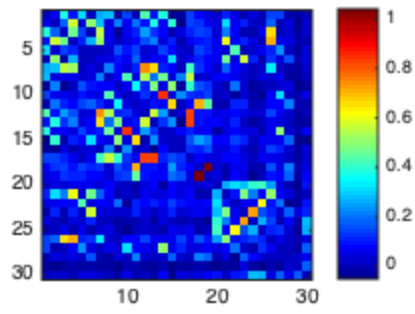
```
% load MI data
% contains cell structure with 2 undergrads (ug), eventually will
% have all 21 undergrads
load('mi_matrix_VOT123_K4.mat');
mi_ug1 = mi_matrix_VOT123_K4{1,1}; % this is the 43 time windows of ug 1

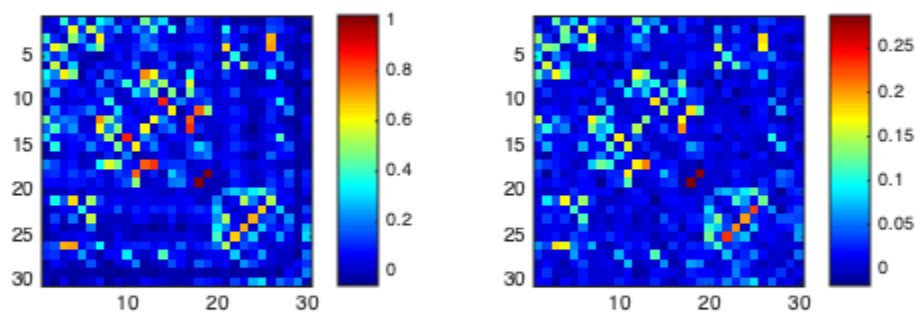
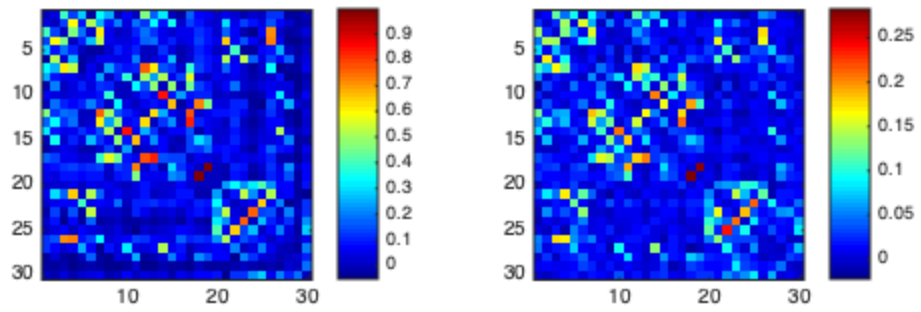
% load DI data
load('di_matrix_subj1_VOT123_mem2K4down15ver2');

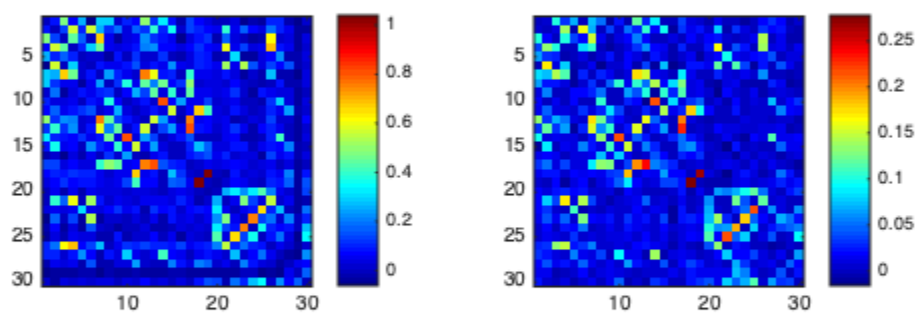
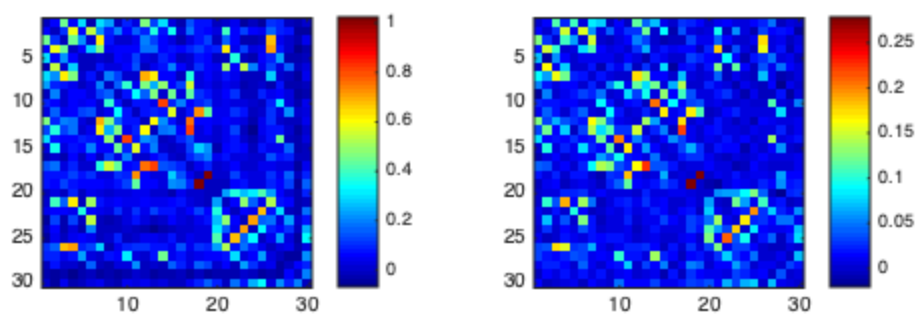
for i = 1:43
    figure;
    subplot(1,2,1); imagesc(mi_ug1{i,1}); colormap jet; colorbar; axis square;
    subplot(1,2,2); imagesc(di_matrix{i,1}); colormap jet; colorbar; axis square;
end
```

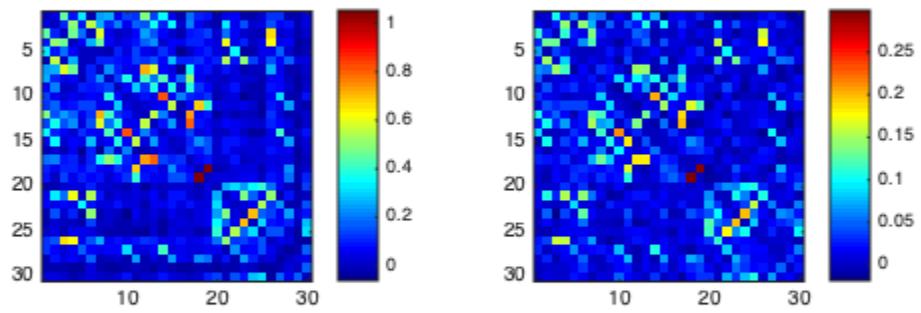
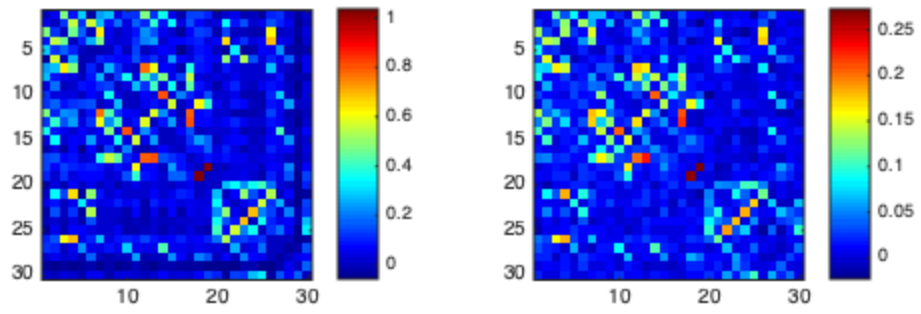


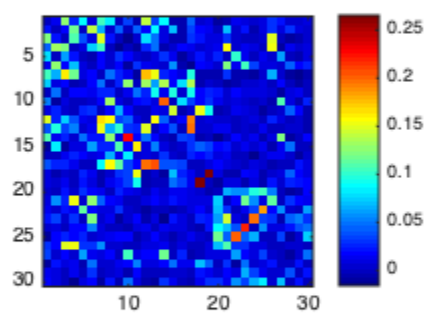
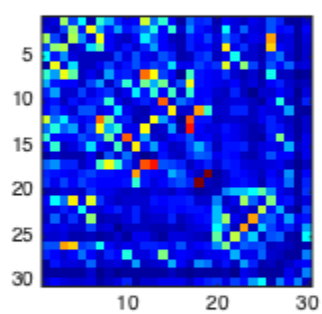
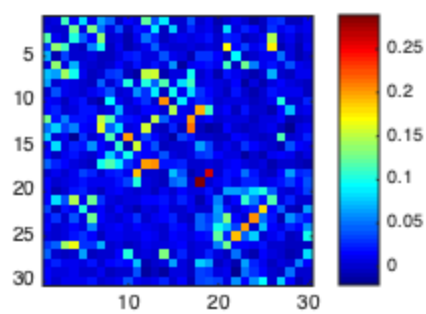
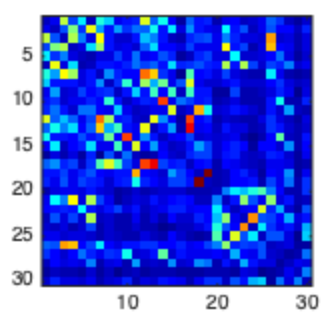


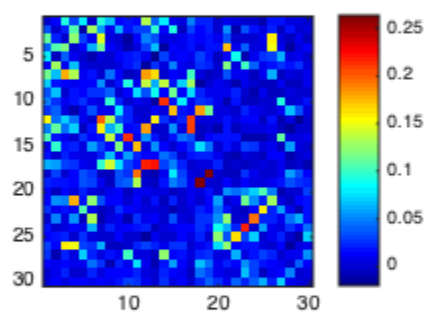
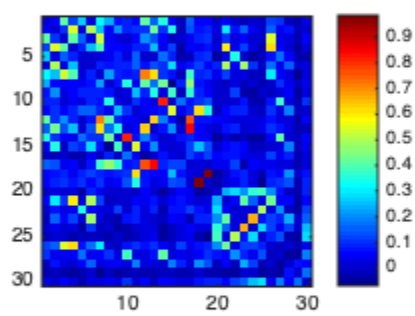
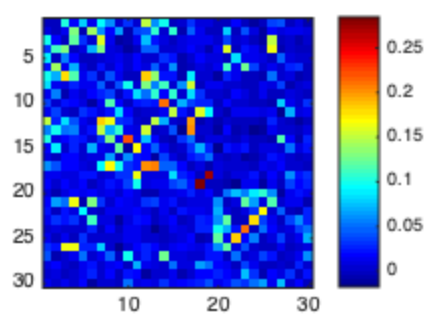
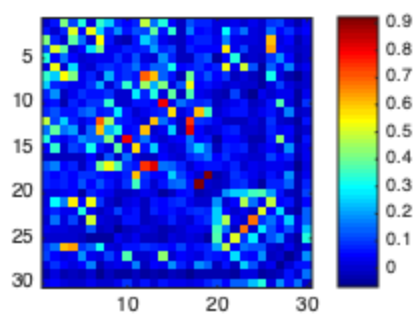


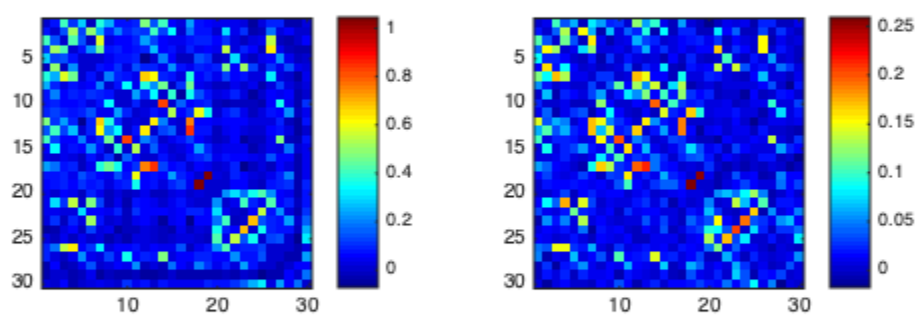
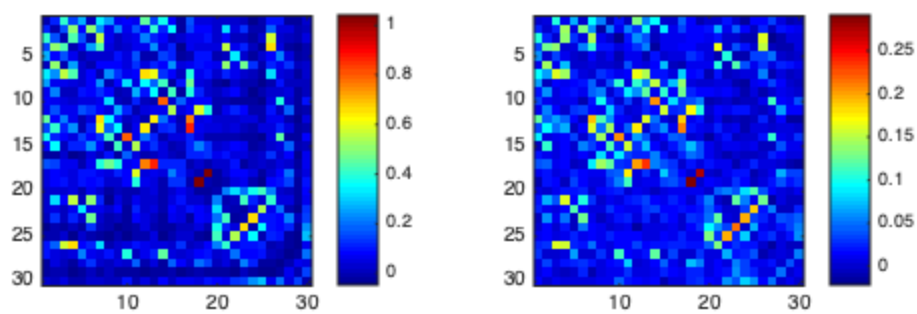


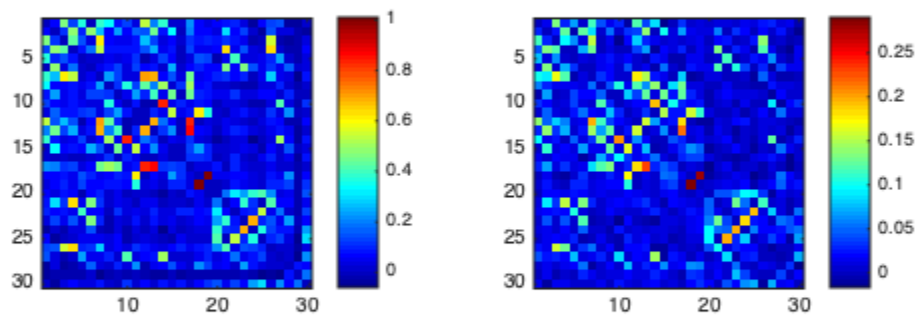
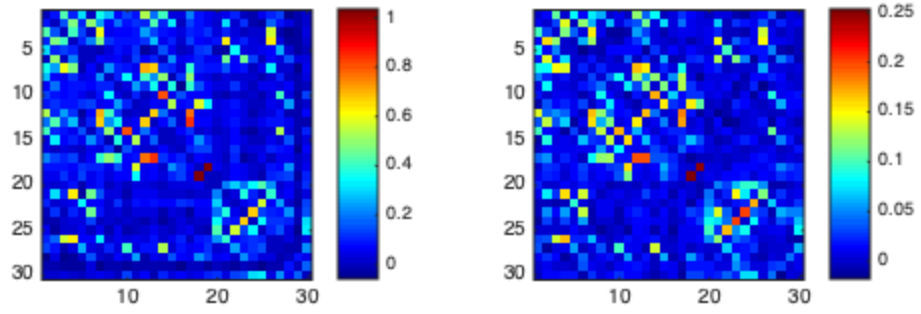


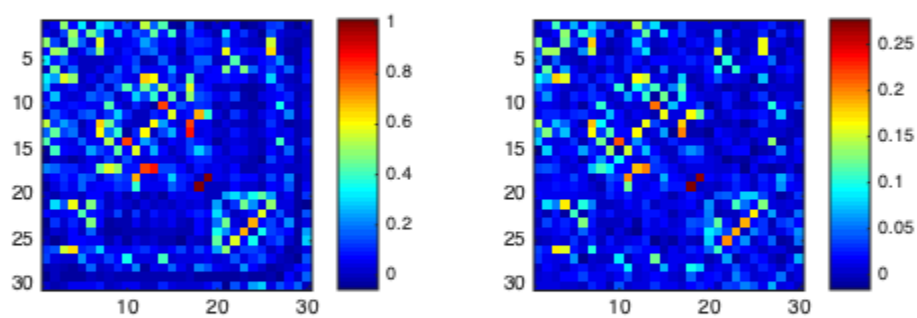
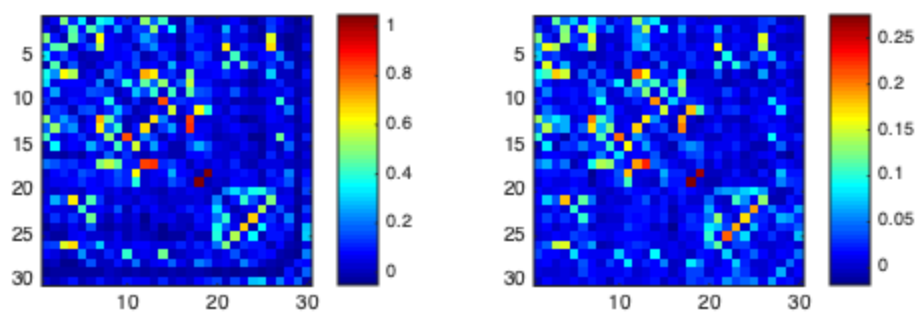


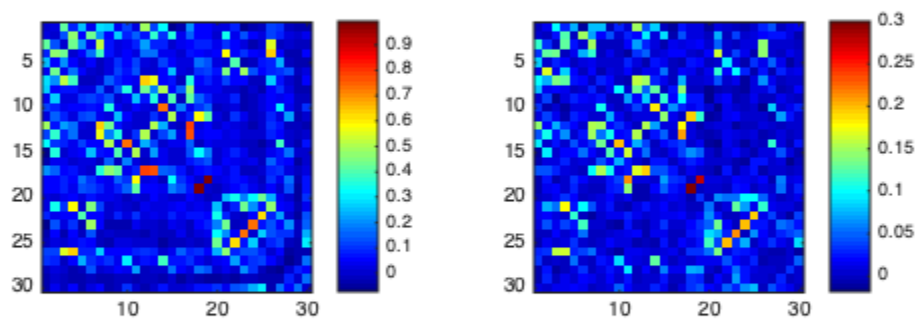
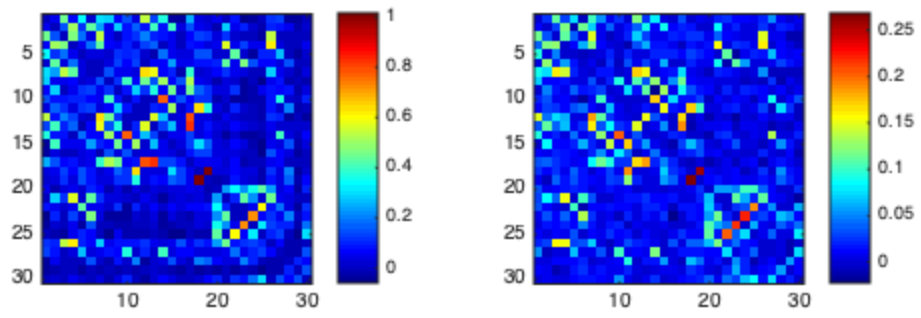


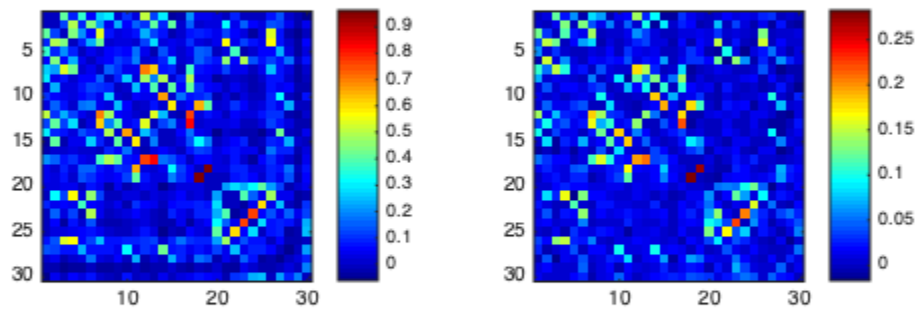
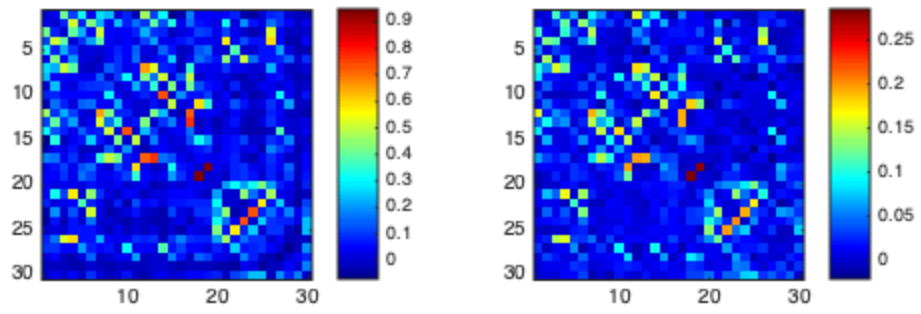


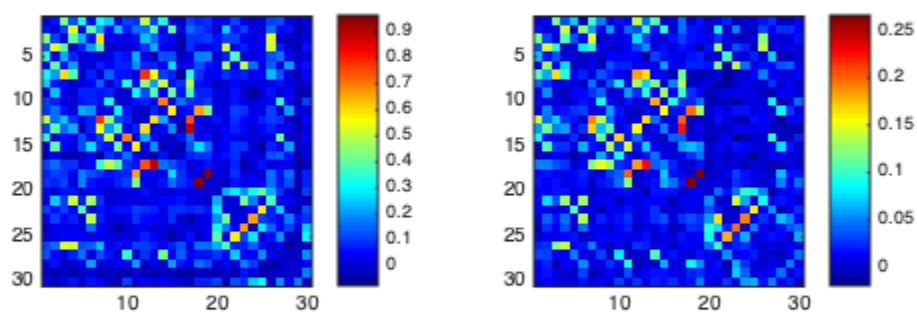
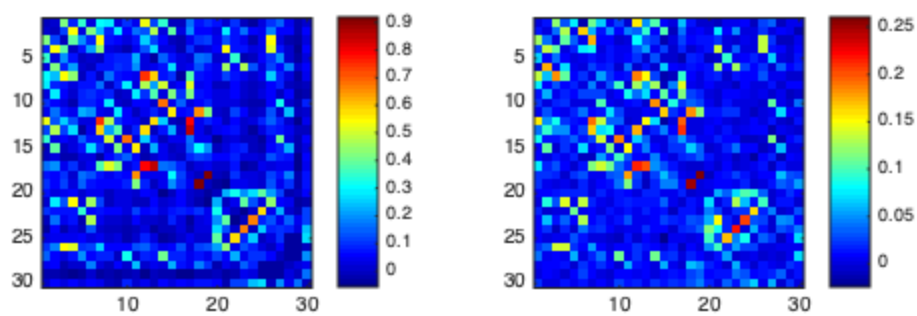


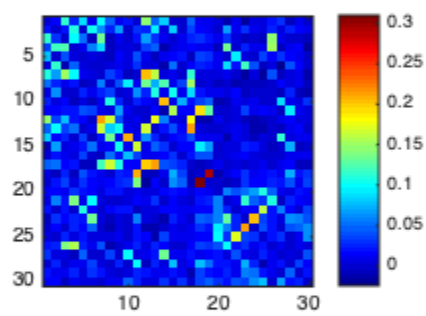
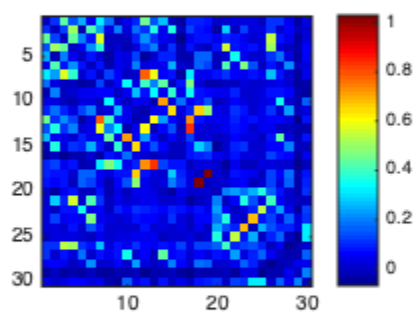
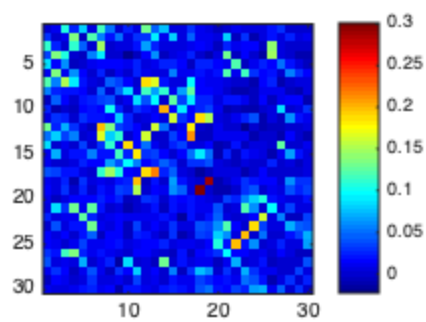
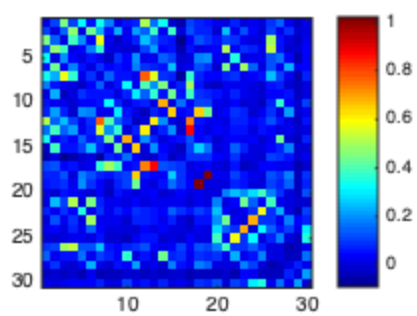


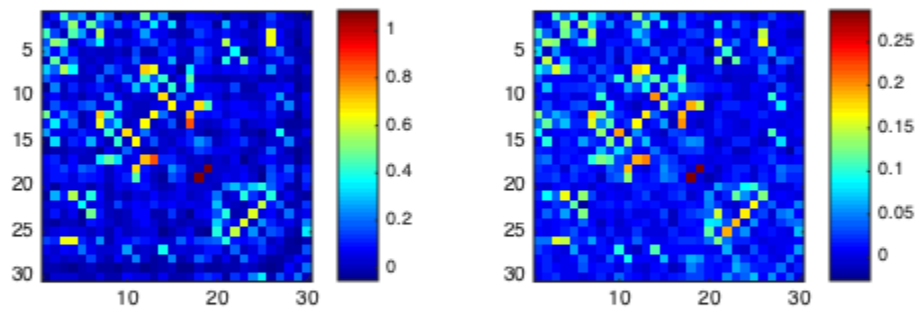
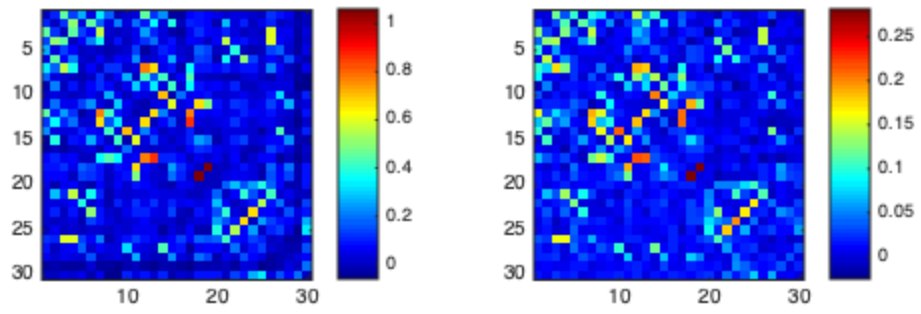


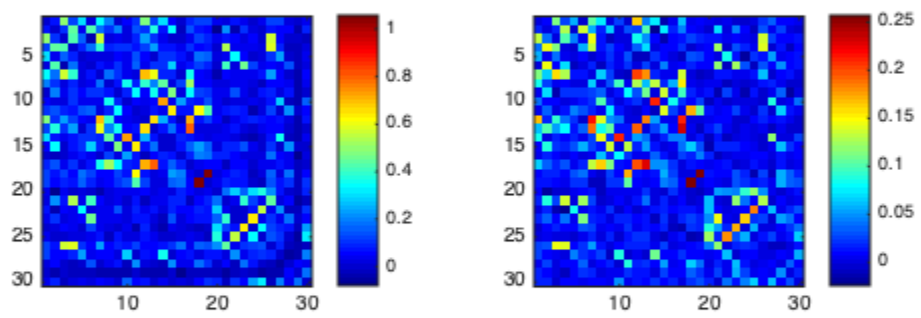
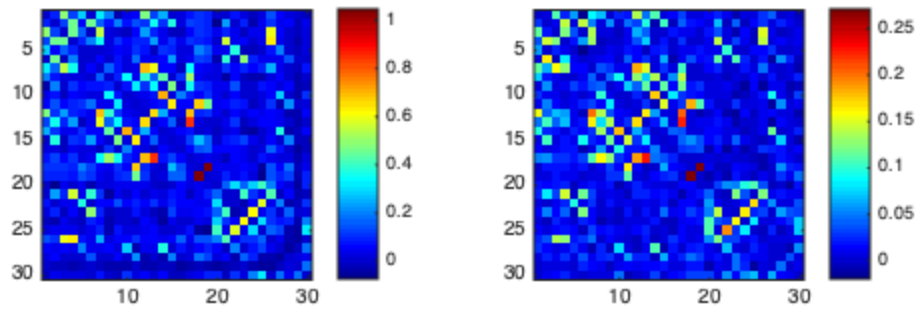


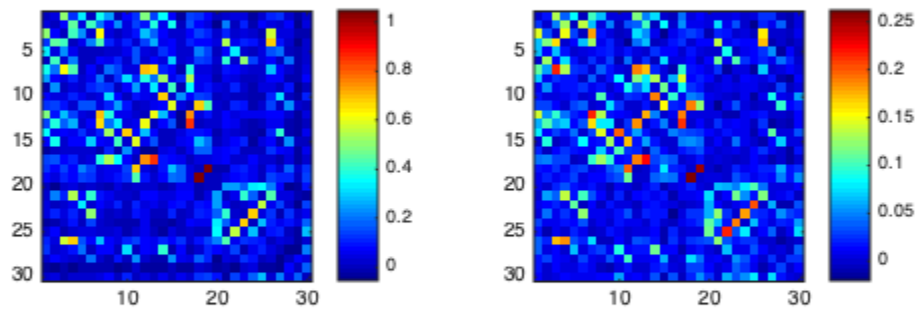
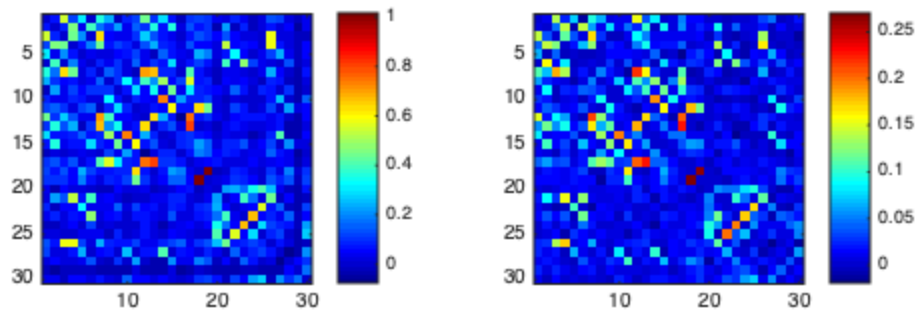


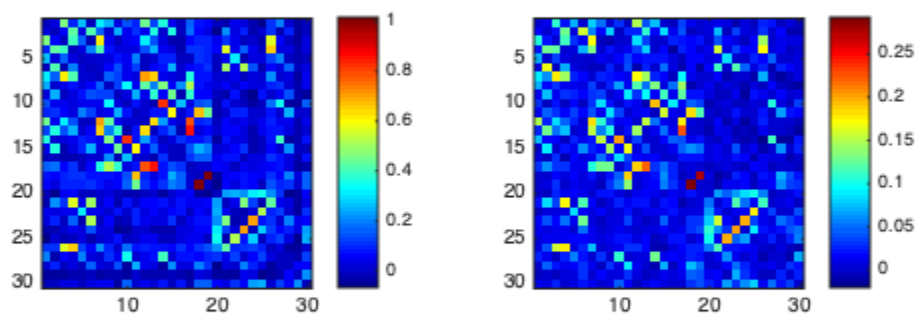
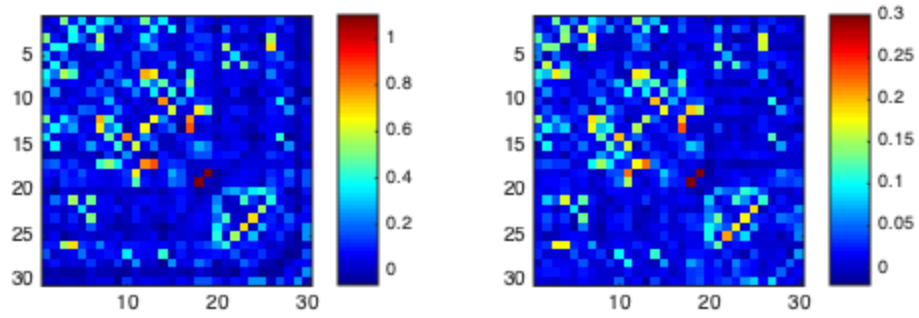


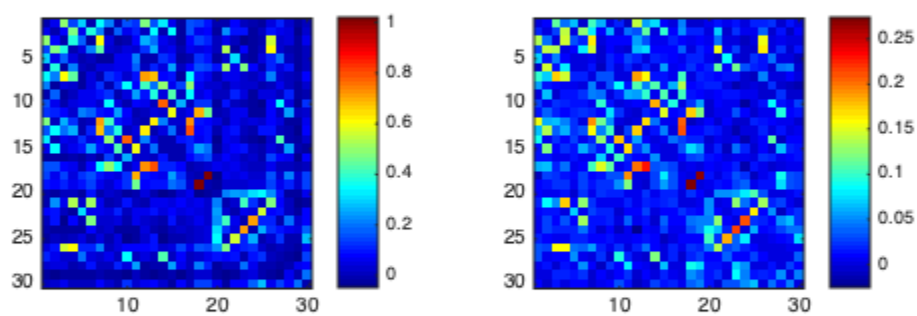
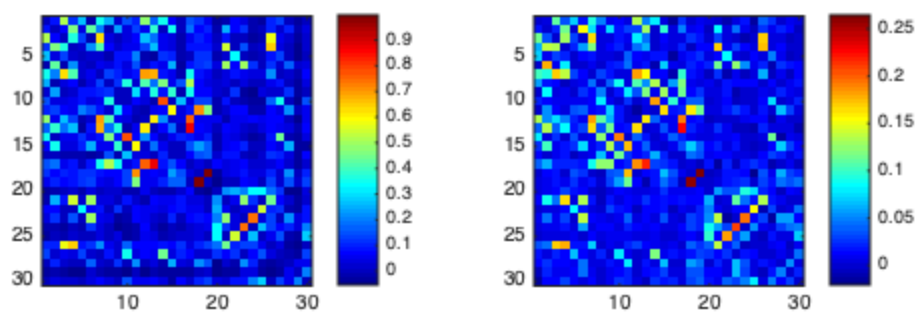


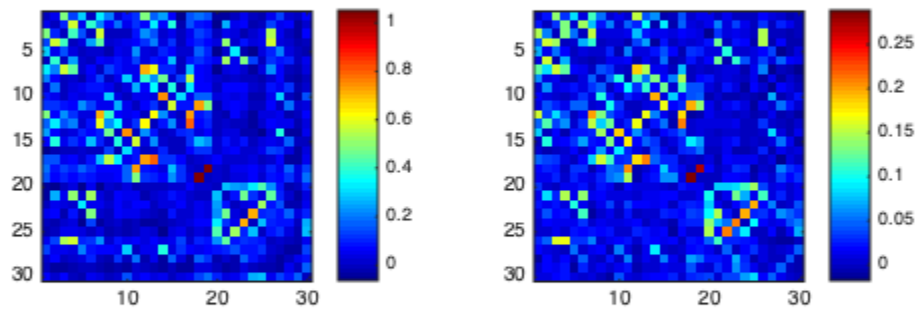
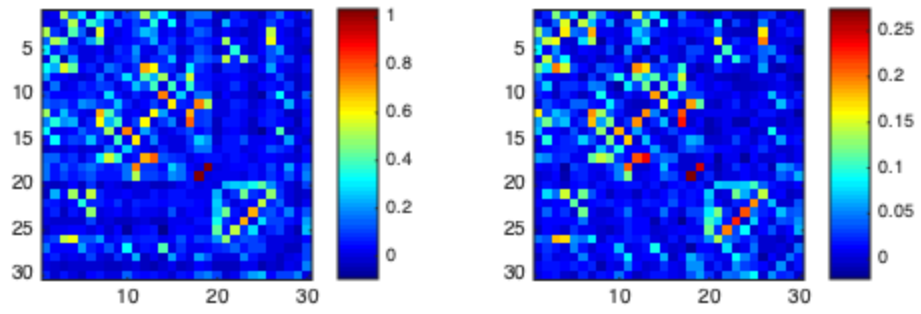


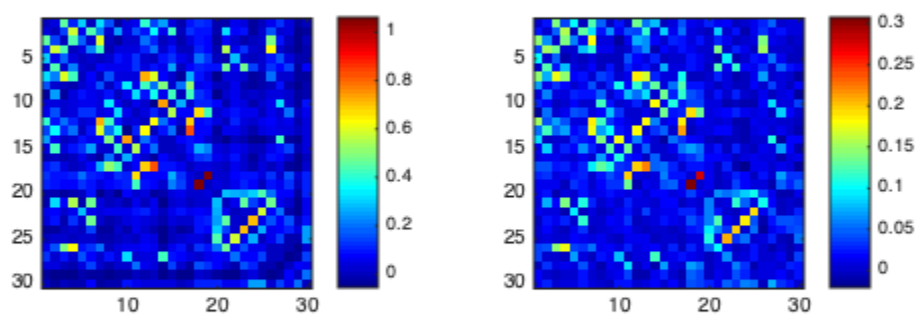
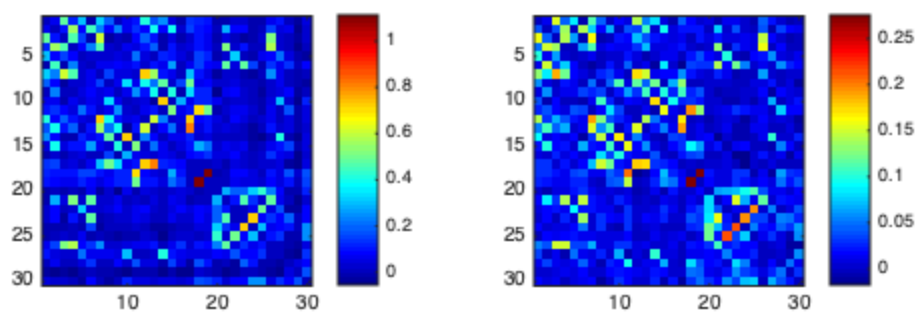








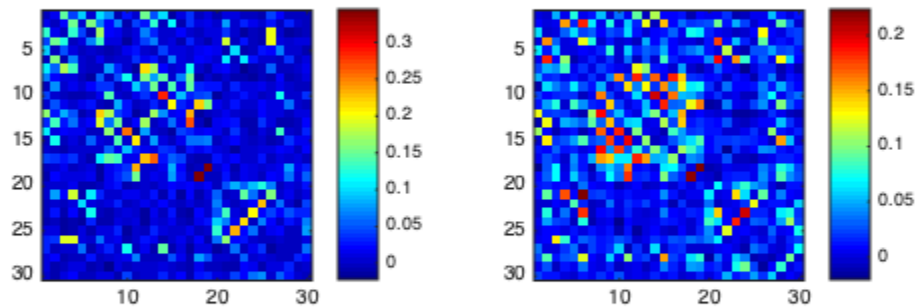


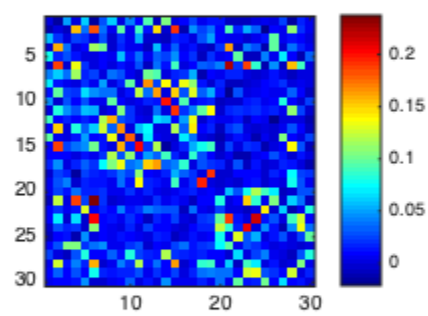
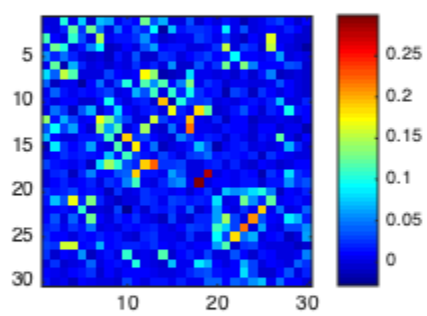
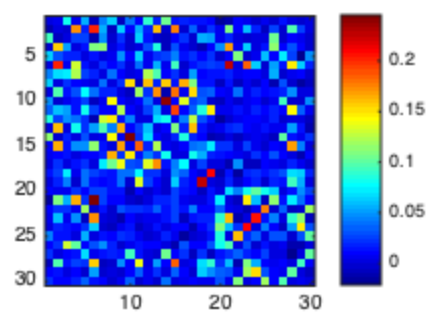
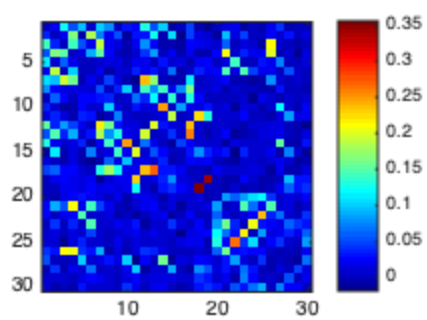


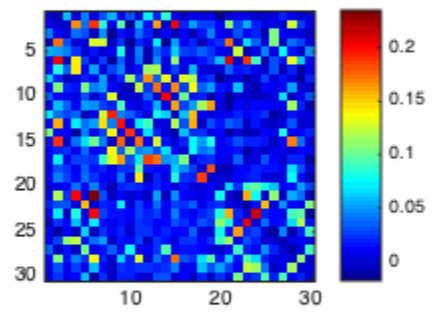
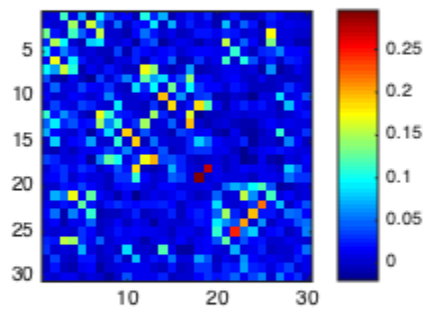
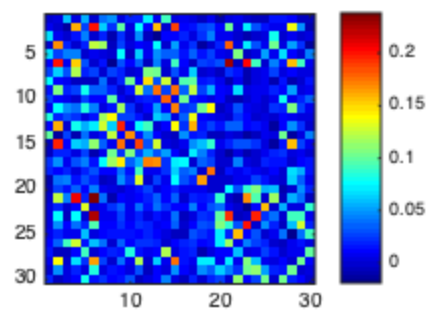
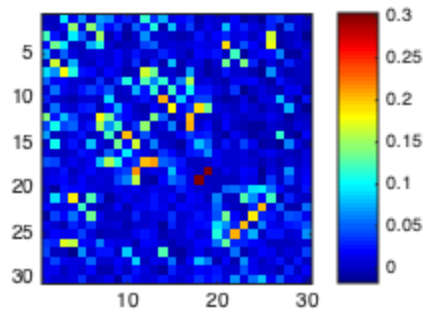
comparing apahsia and healthy undergrad graphs

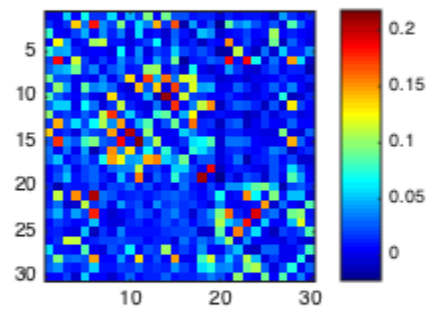
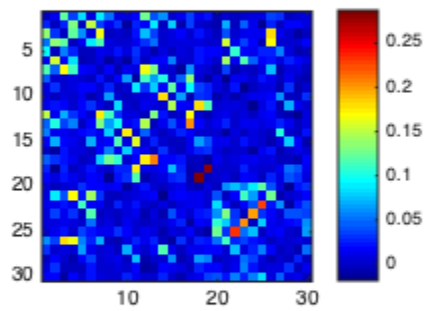
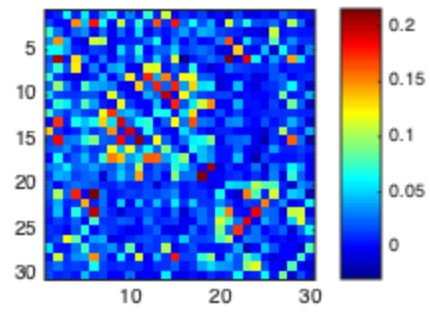
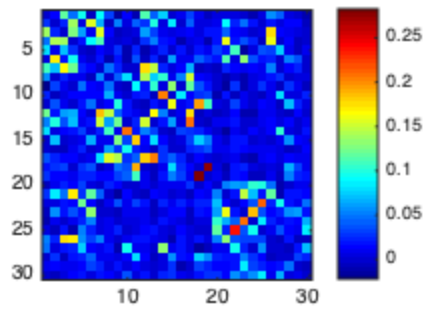
```
% load DI data
ug1=load('di_matrix_subj1_VOT123_mem2K4down15ver2');
%load aphasia data
aph = load('di_matrix_Aphasia_VOT123_mem2K4down15ver2');

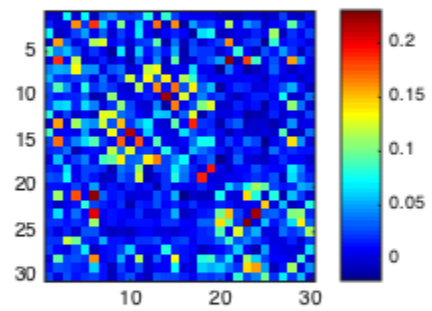
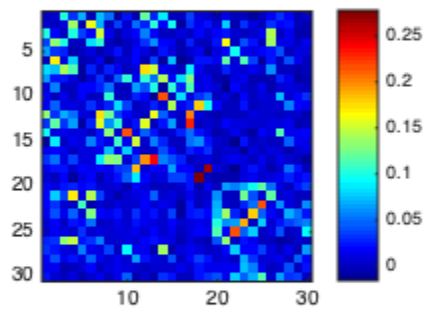
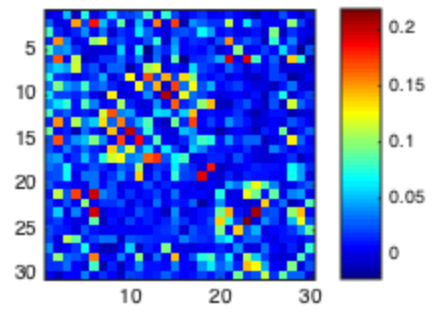
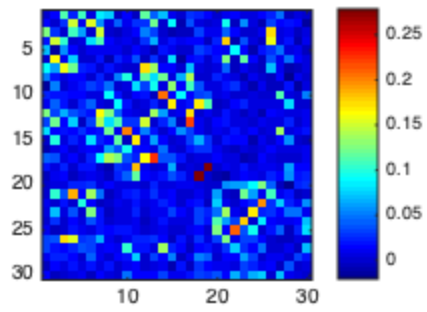
for i = 1:43
    figure;
    subplot(1,2,1); imagesc(ug1.di_matrix{i,1}); colormap jet; colorbar; axis square
    subplot(1,2,2); imagesc(aph.di_matrix{i,1}); colormap jet; colorbar; axis square
end
```

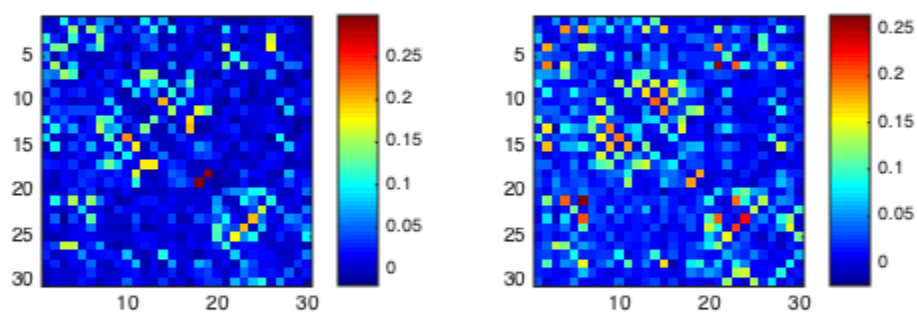
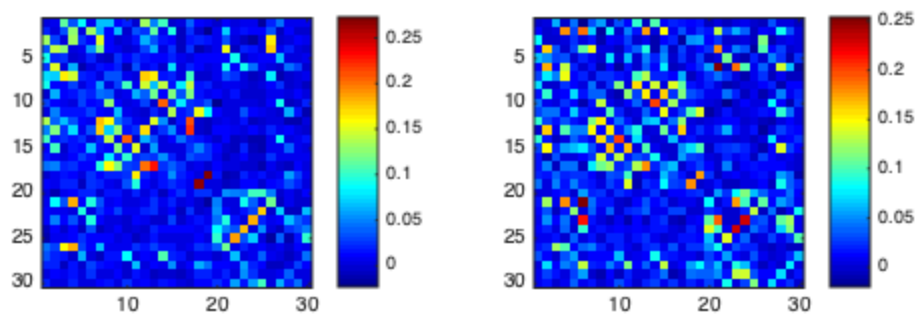


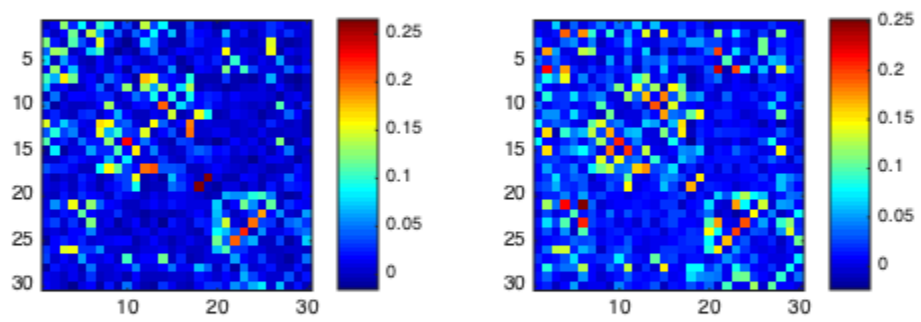
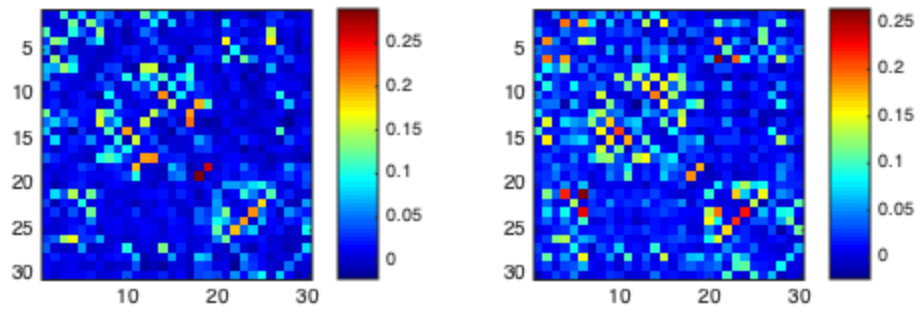


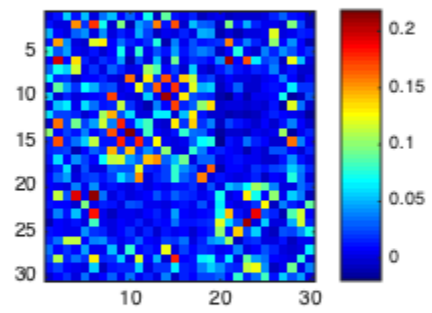
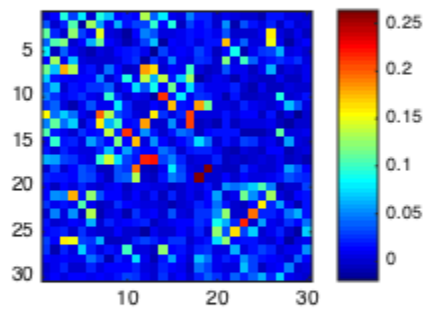
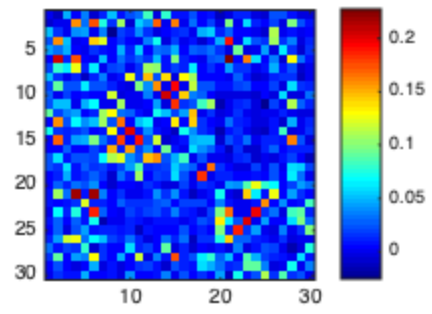
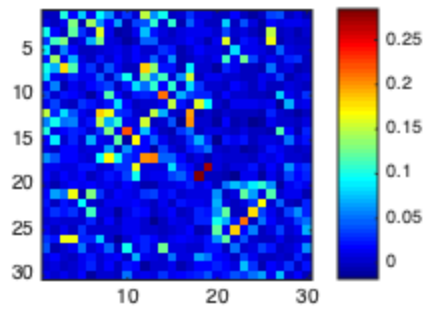


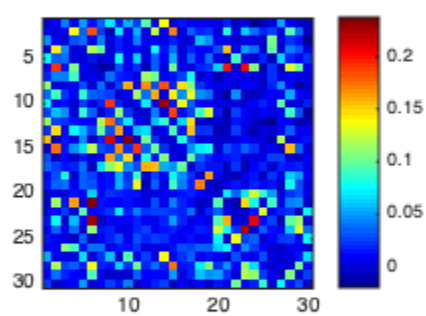
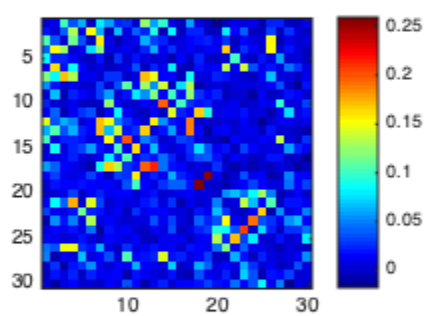
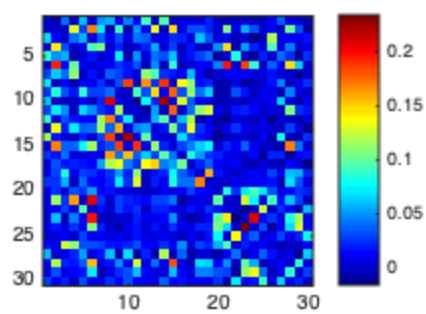
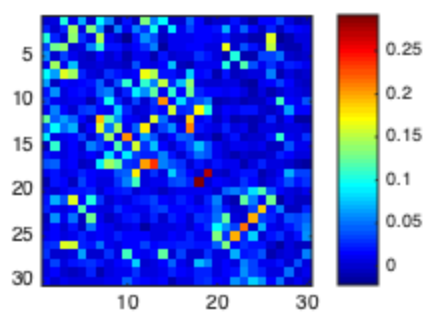


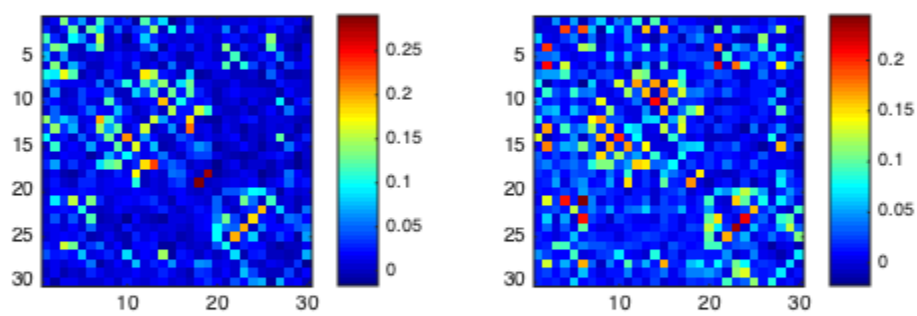
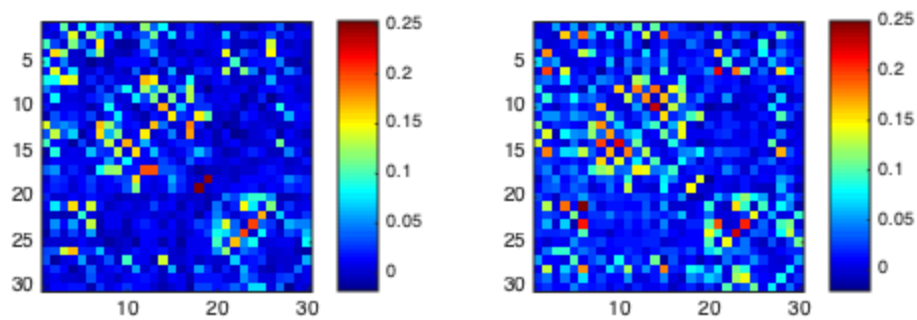


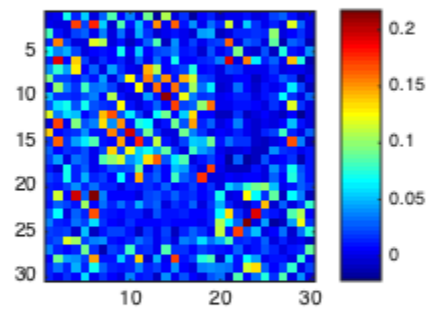
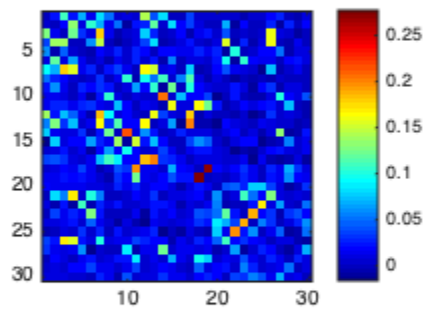
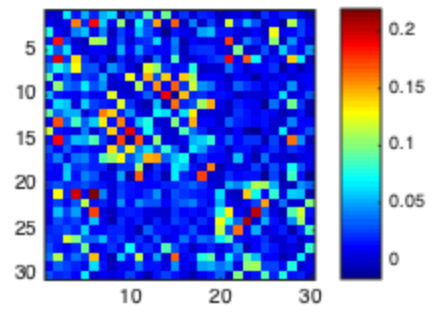
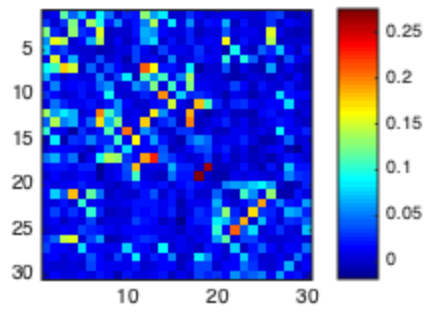


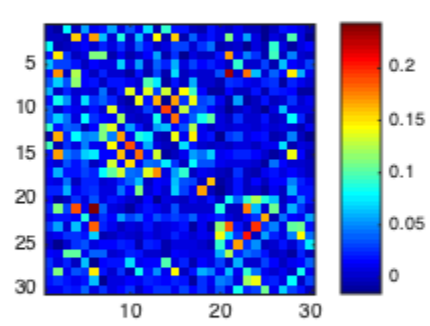
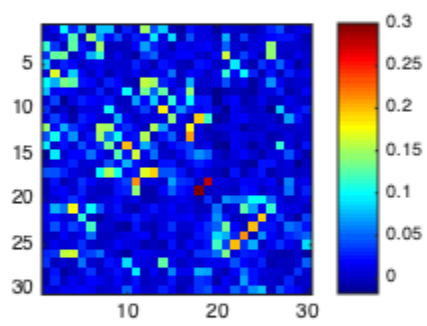
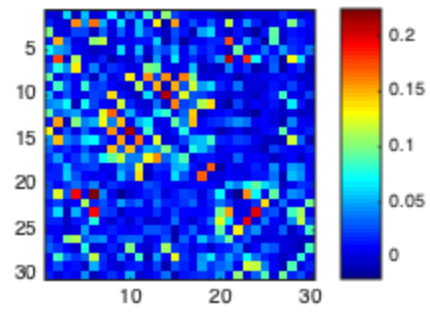
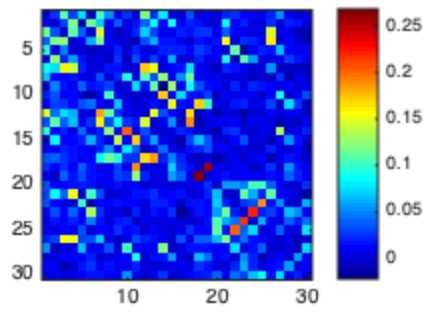


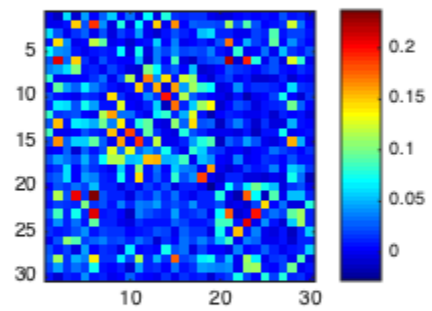
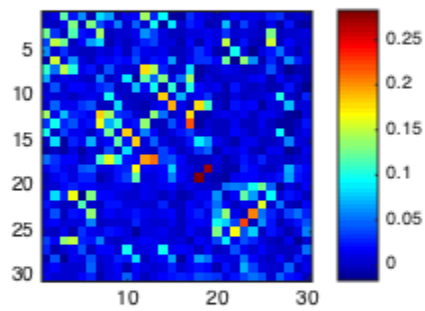
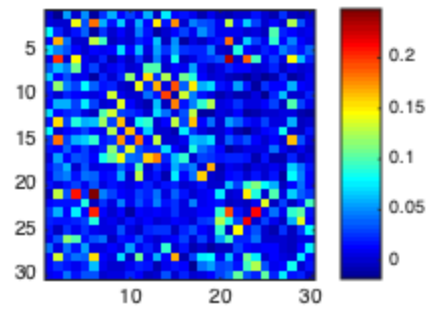
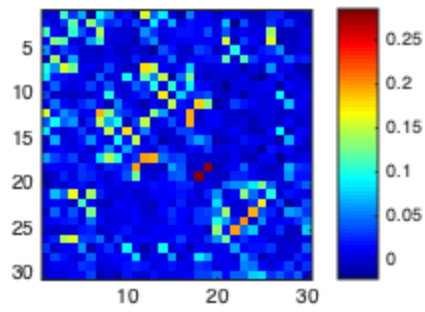


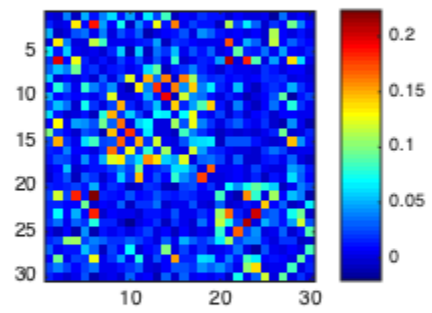
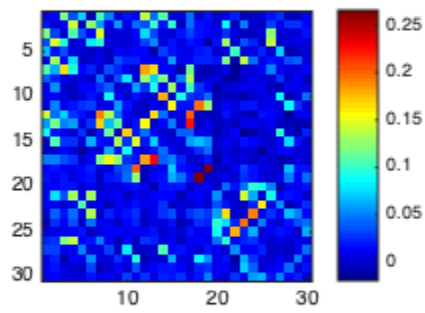
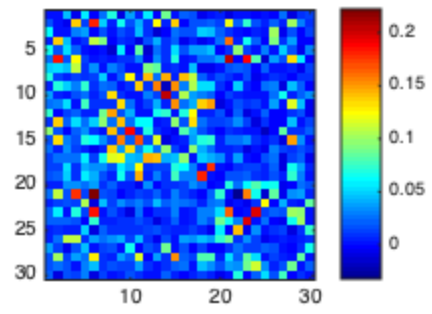
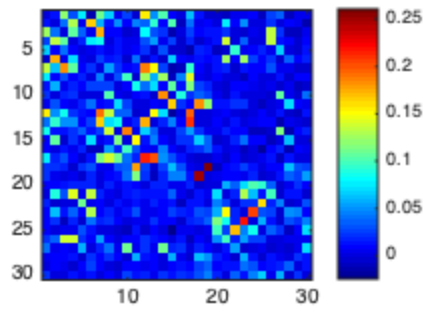


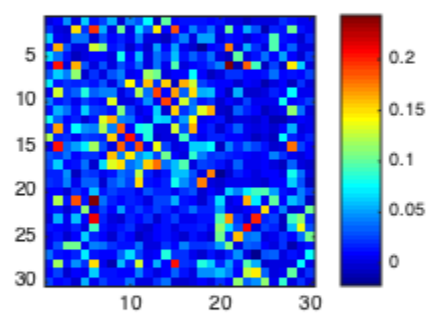
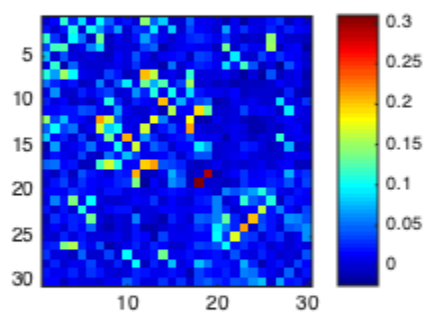
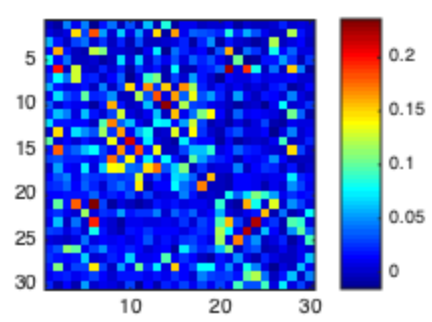
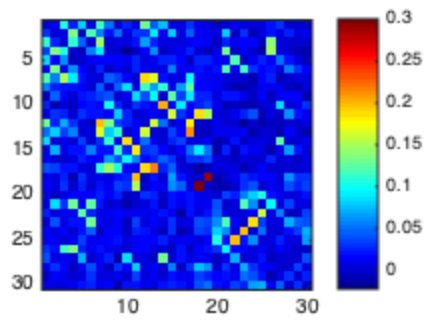


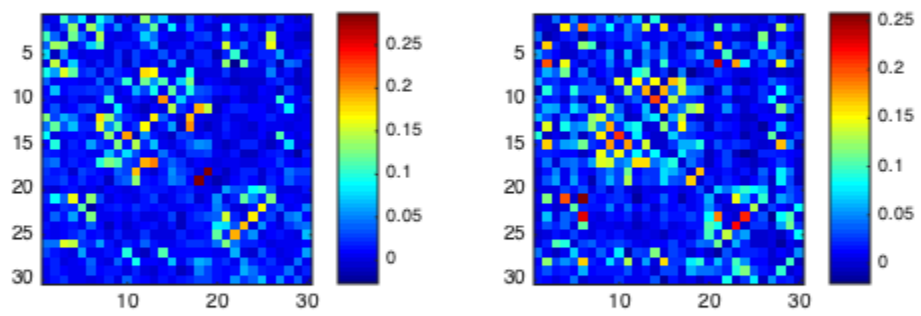
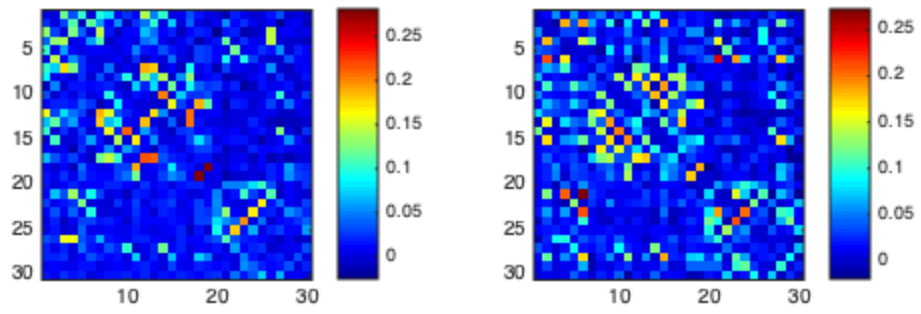


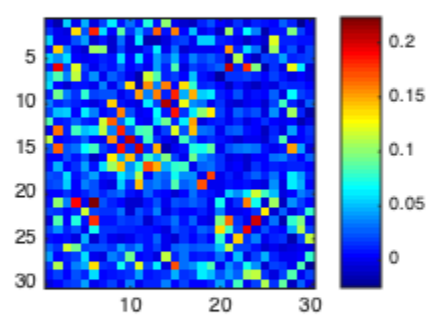
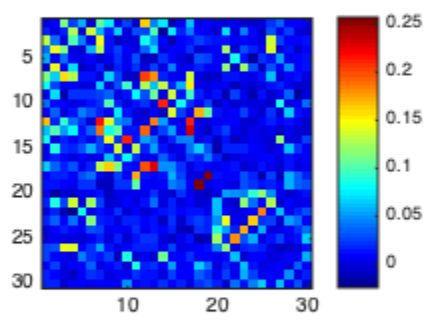
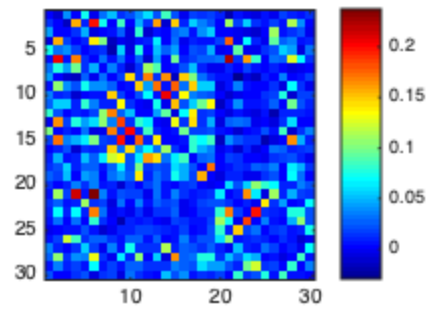
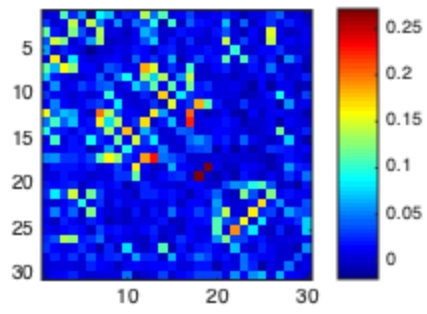


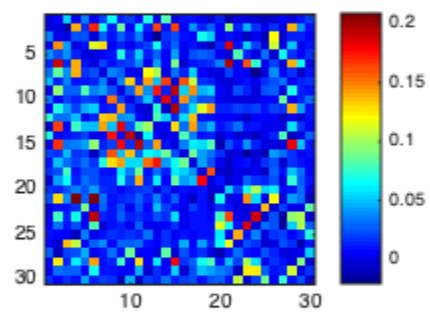
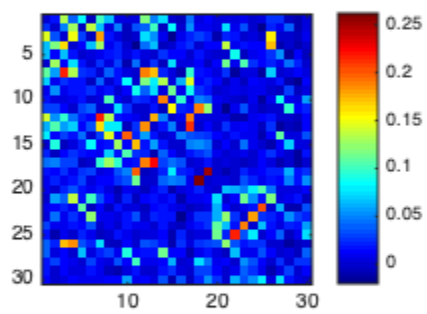
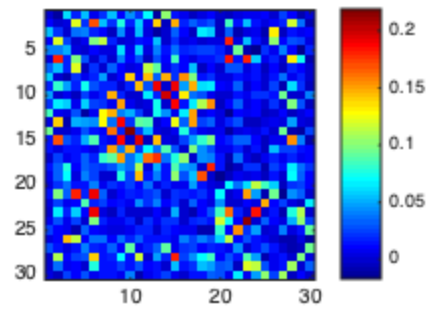
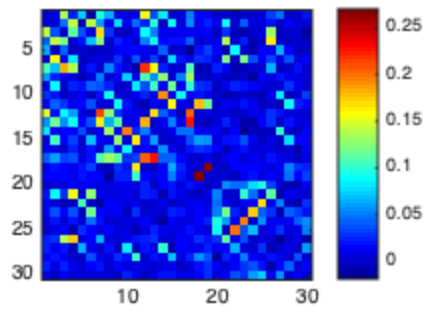


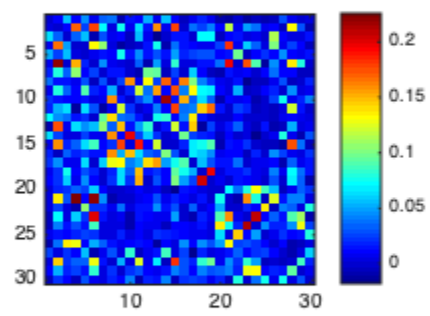
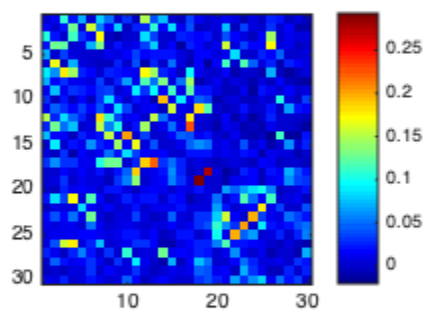
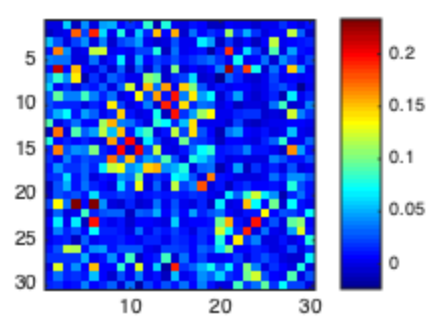
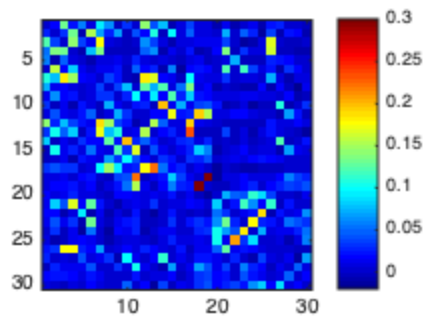


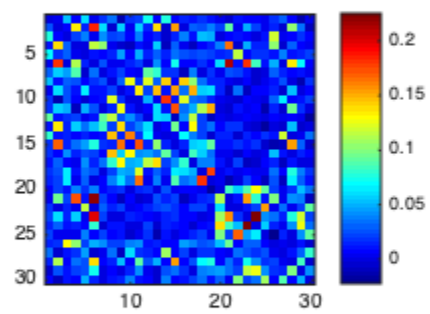
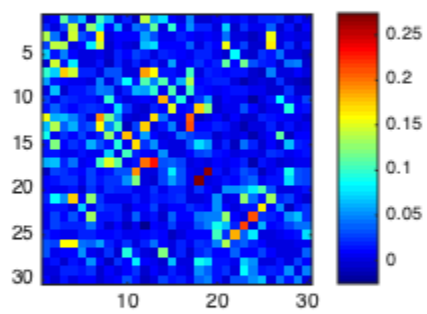
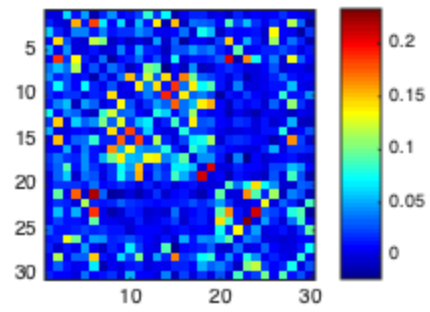
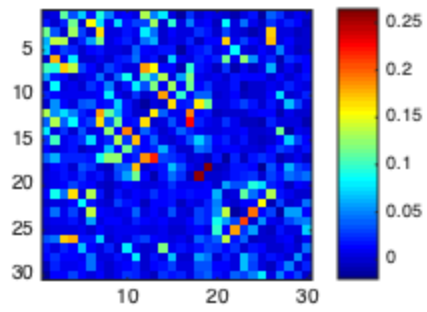


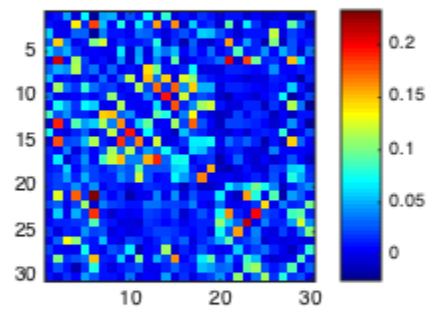
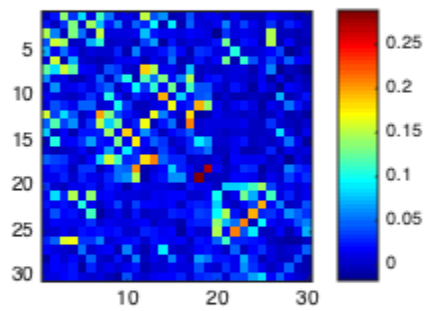
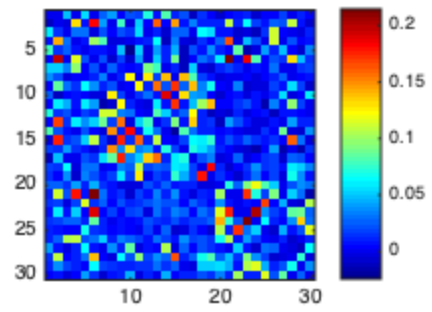
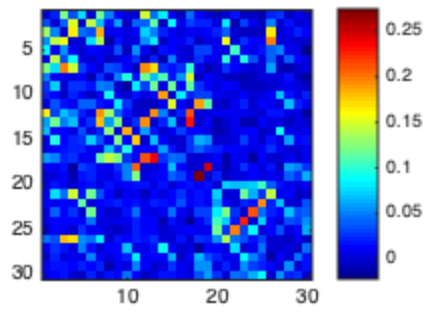


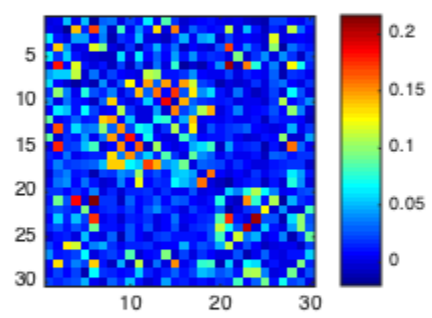
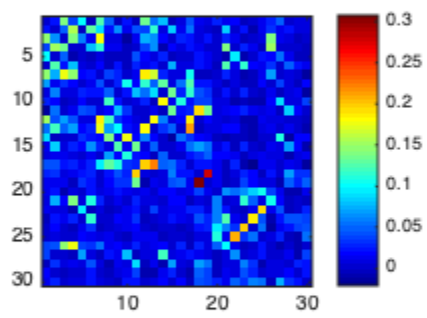
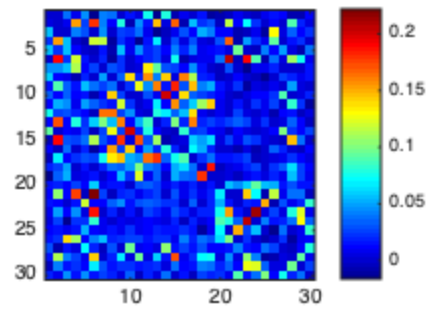
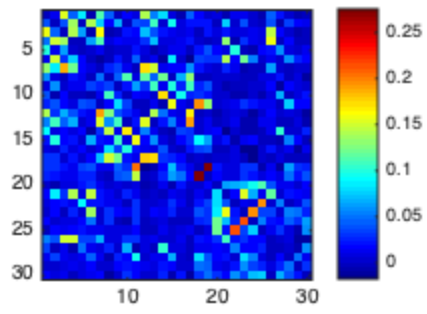












comparing degrees of graphs

```
% calculate node degrees for all patients

num_patients = 21;
VOT_conditions = 3;
nch=30;
nwin = 43;

dim = 2; %2 is indegree, 1 is outdegree
node_indeg = cell(1,num_patients+1);

for ipat = 1:num_patients % for each patient, run the loop
    VOT_ch_time = zeros(VOT_conditions, nch, nwin);

    % VOT condition 1 : includes 1,2,3
    cond =1;
    filename = sprintf('di_matrix_subj%d_VOT123_mem2K4down15ver2.mat', ipat);
    load(filename);

    for nt = 1:nwin % calculate degrees for each time window
        mat = di_matrix{nt,1};
        mat(mat<0)=0;
        VOT_ch_time(cond,:,nt) = sum(mat,dim); %along the row, in-degrees
    end

    % VOT condition 2 : includes 4,5,6
    cond =2;
    filename = sprintf('di_matrix_subj%d_VOT456_mem2K4down15ver2.mat', ipat);
    load(filename);

    for nt = 1:nwin % calculate degrees for each time window
        mat = di_matrix{nt,1};
        mat(mat<0)=0;
        VOT_ch_time(cond,:,nt) = sum(mat,dim); %along the row, in-degrees
    end

    % VOT condition 3 : includes 7,8,9
    cond =3;
    filename = sprintf('di_matrix_subj%d_VOT789_mem2K4down15ver2.mat', ipat);
    load(filename);

    for nt = 1:nwin % calculate degrees for each time window
        mat = di_matrix{nt,1};
        mat(mat<0)=0;
        VOT_ch_time(cond,:,nt) = sum(mat,dim); %along the row, in-degrees
    end

    % now save the VOT_ch_time structure to the cell node_indeg
    node_indeg{1,ipat} = VOT_ch_time;
end

% aphasia patient
```

```

% VOT condition 1 : includes 1,2,3
cond =1;
filename = sprintf('di_matrix_Aphasia_VOT123_mem2K4down15ver2.mat');
load(filename);

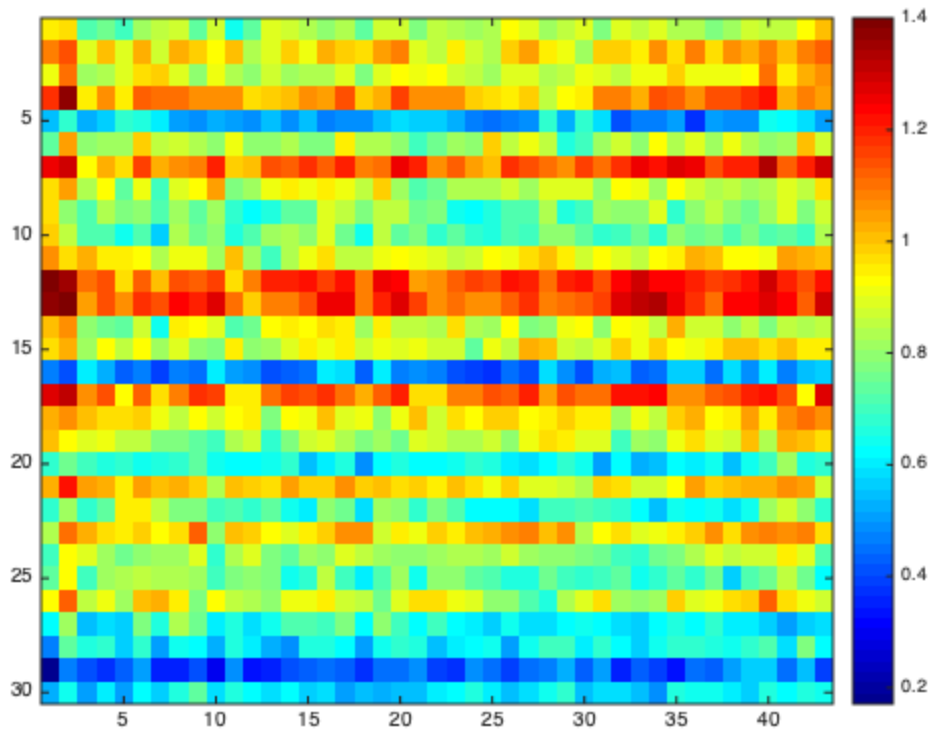
for nt = 1:nwin % calculate degrees for each time window
    mat = di_matrix{nt,1};
    mat(mat<0)=0;
    VOT_ch_time(cond,:,nt) = sum(mat,dim); %along the row, in-degrees
end

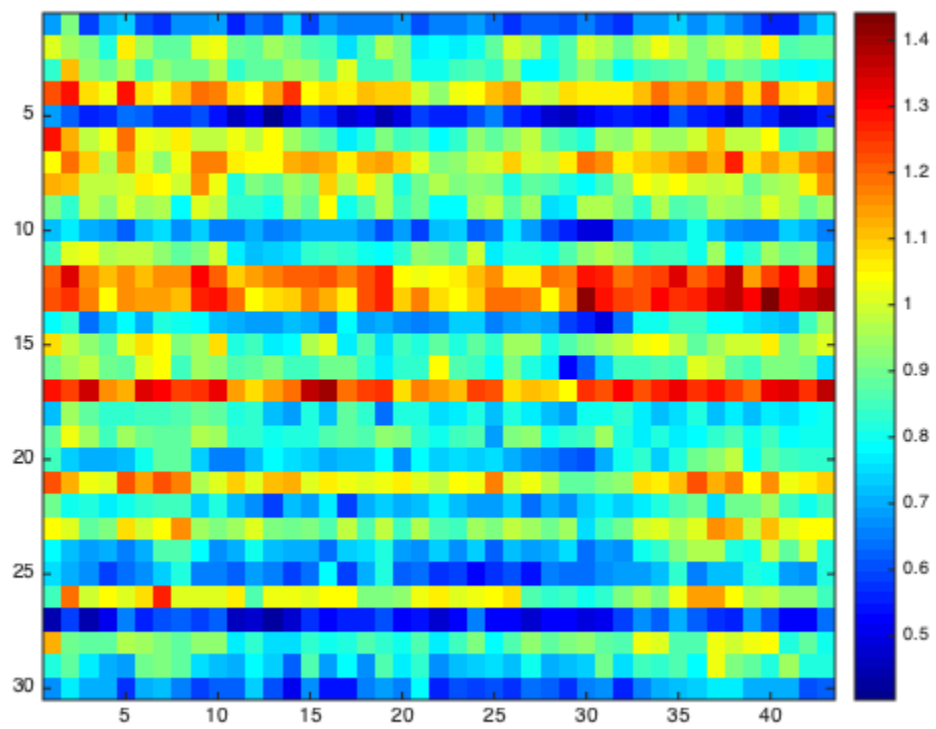
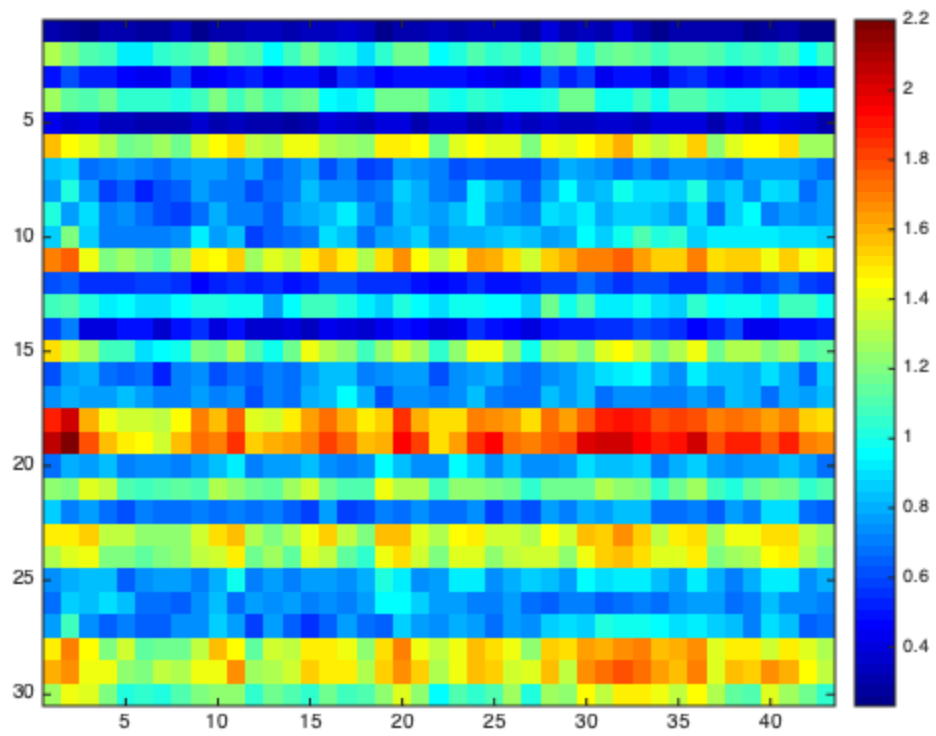
node_indeg{1,num_patients+1} = VOT_ch_time; % last one is aphasia patient

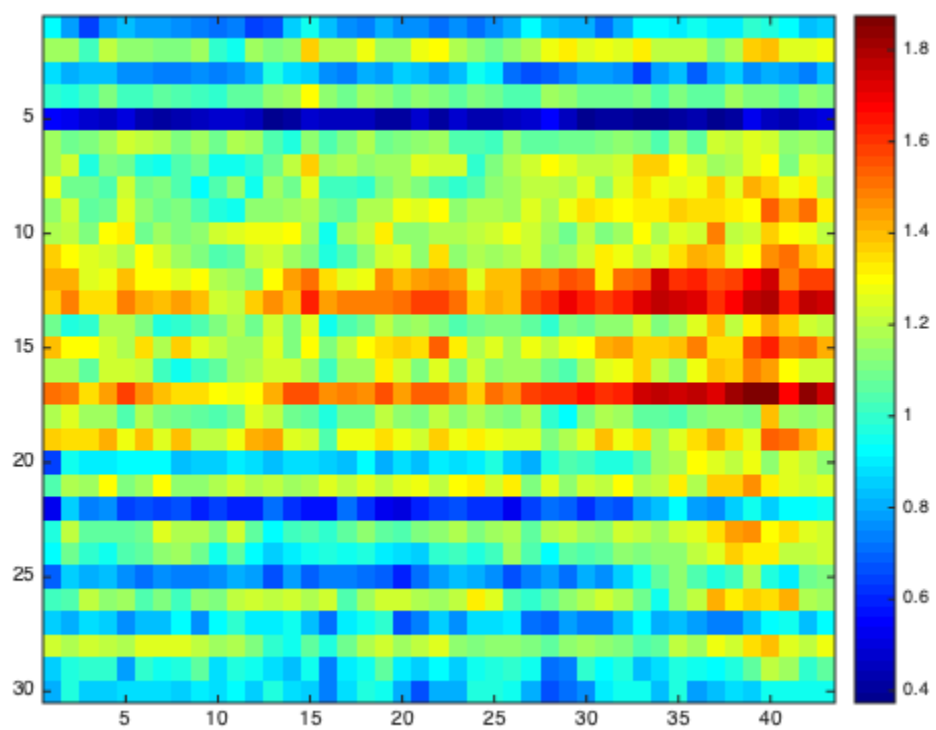
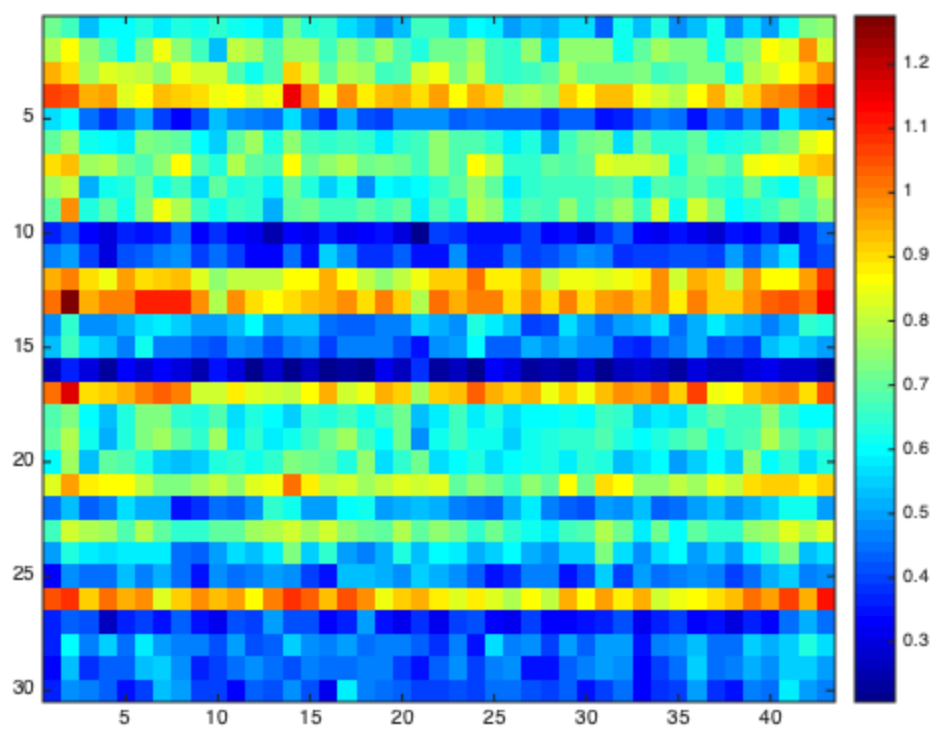
% lets look at the data

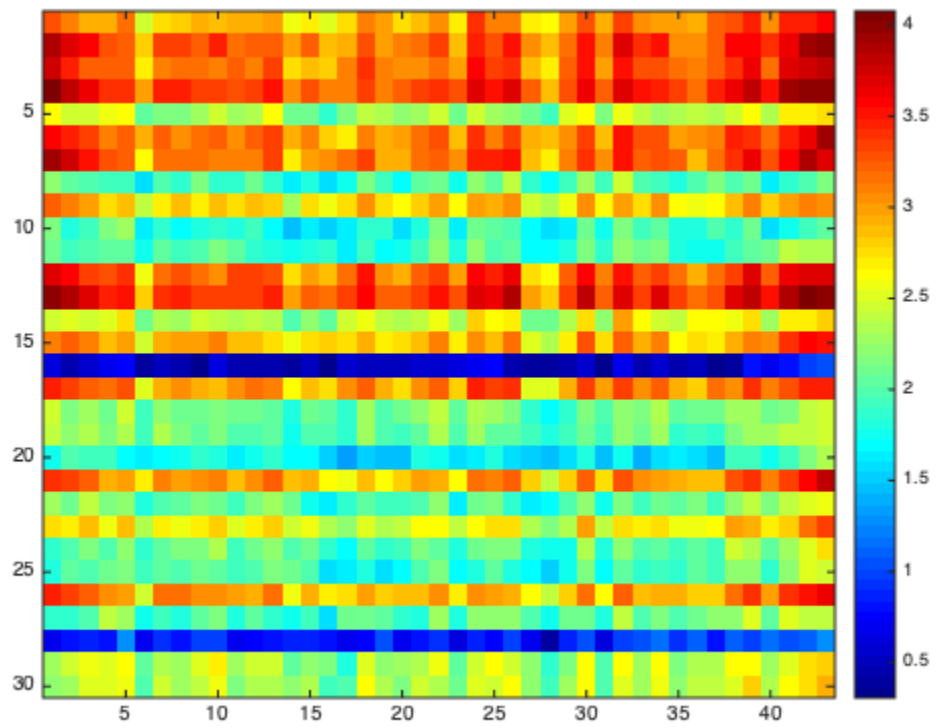
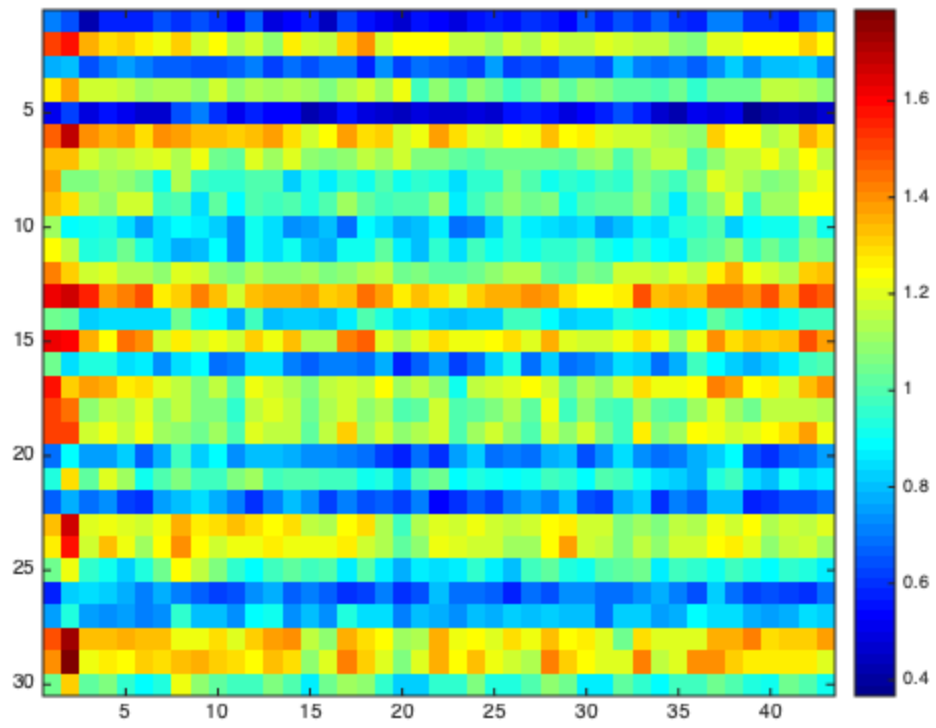
for ipat = 1:num_patients+1
    figure;
    mat = node_indeg{1,ipat};
    imagesc(squeeze(mat(1,:,:))); colorbar; colormap jet;
    %subplot(1,3,1); imagesc(squeeze(mat(1,:,:))); colorbar; colormap jet;
    %subplot(1,3,2); imagesc(squeeze(mat(2,:,:))); colorbar; colormap jet;
    %subplot(1,3,3); imagesc(squeeze(mat(3,:,:))); colorbar; colormap jet;
    %waitforbuttonpress;
end

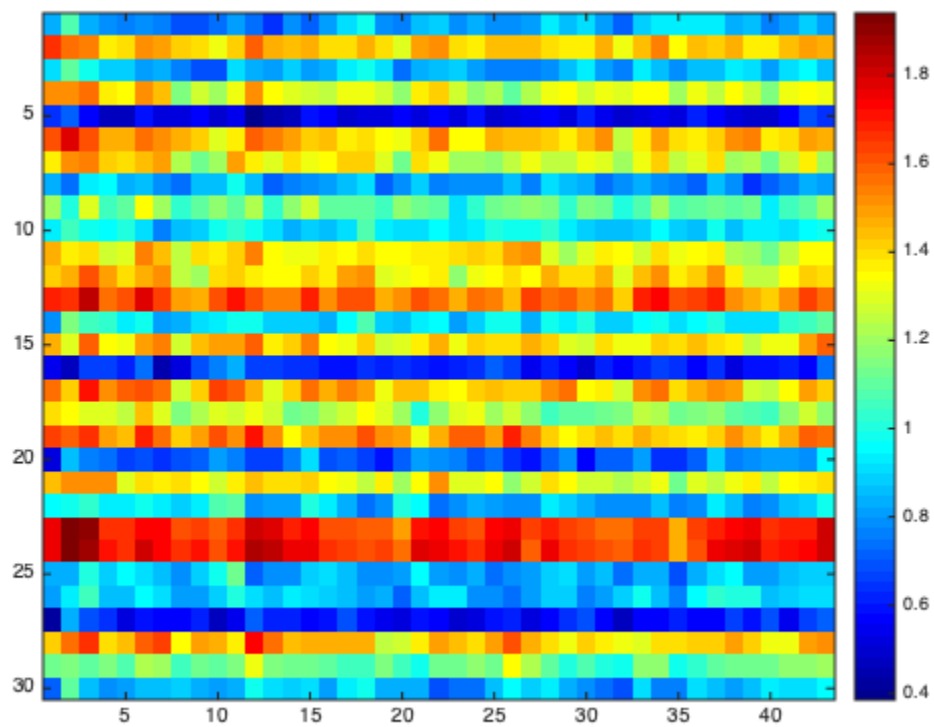
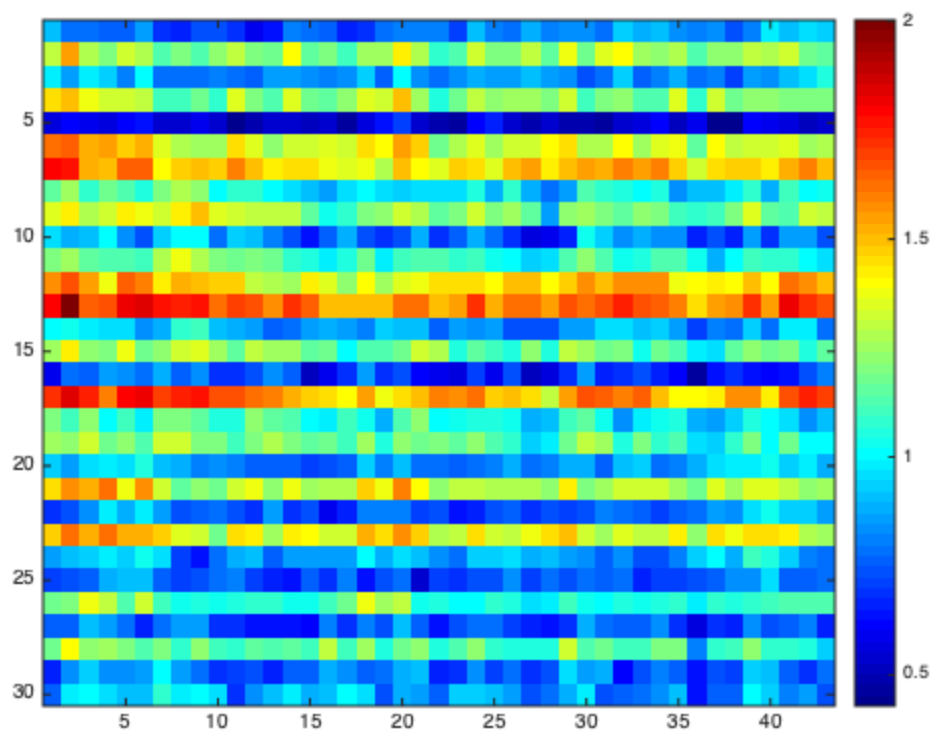
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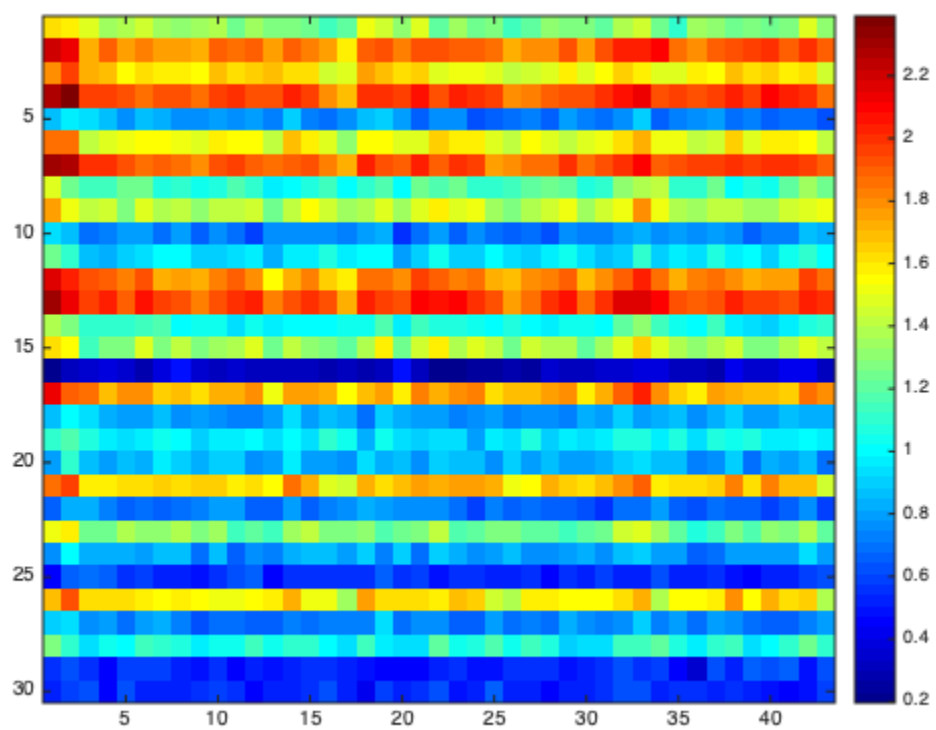
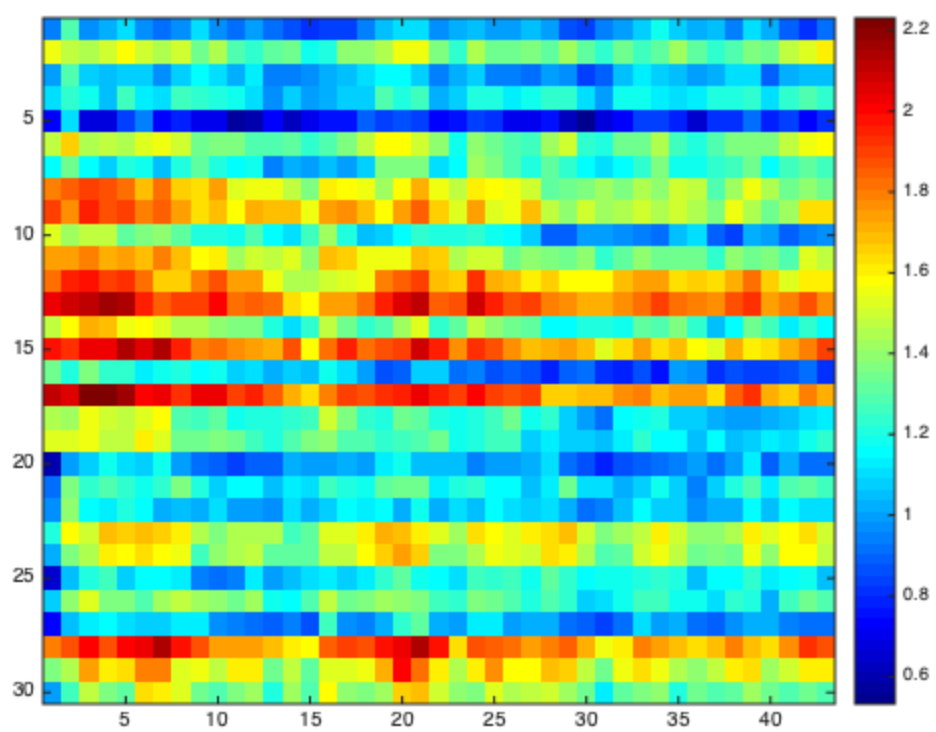


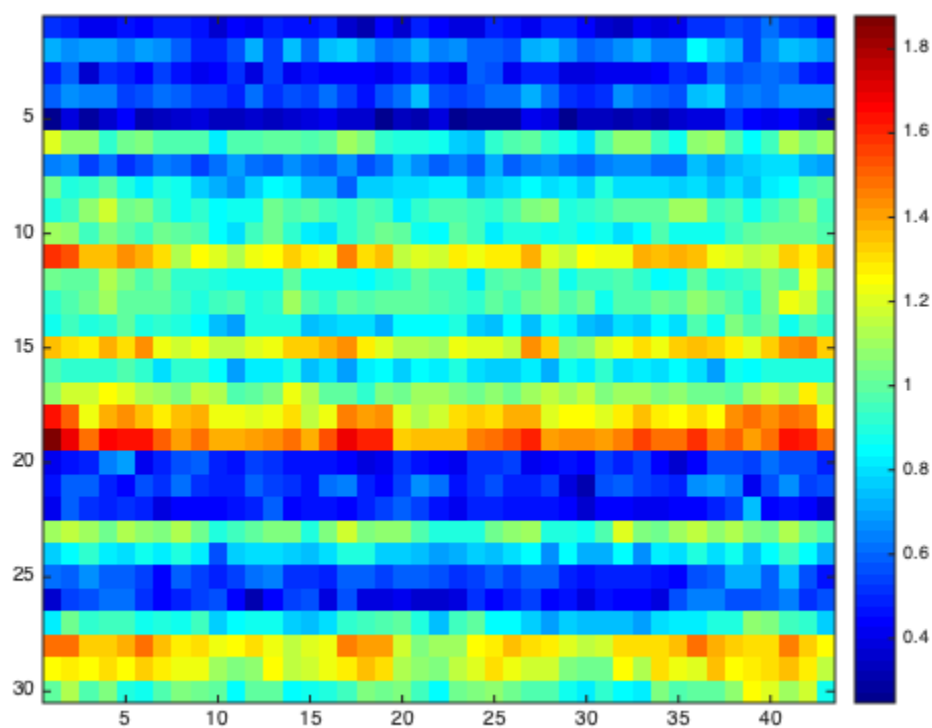
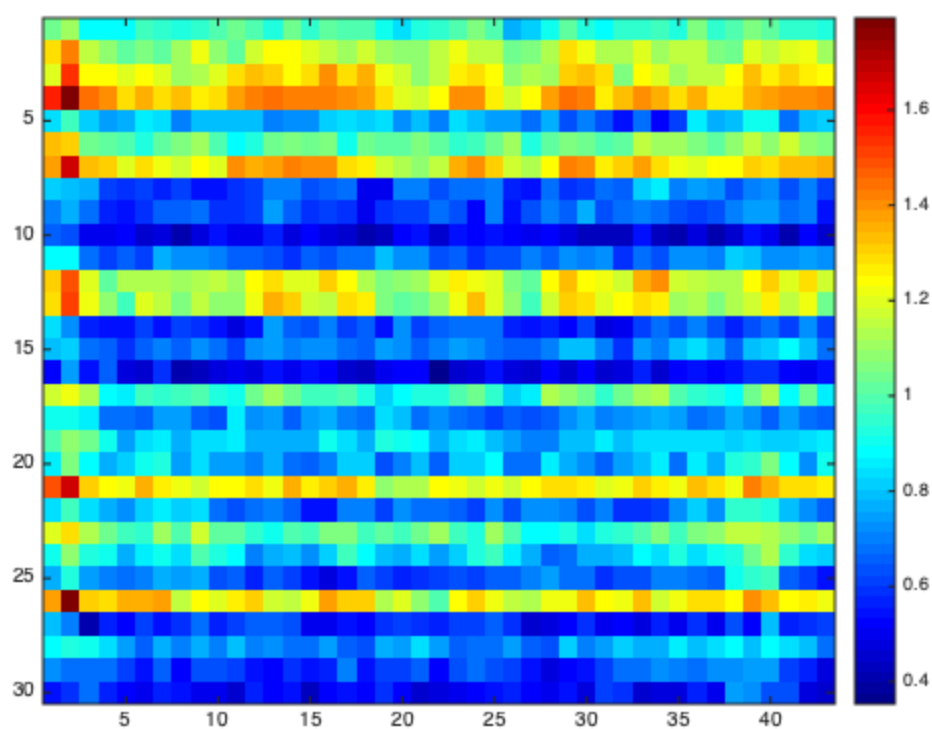


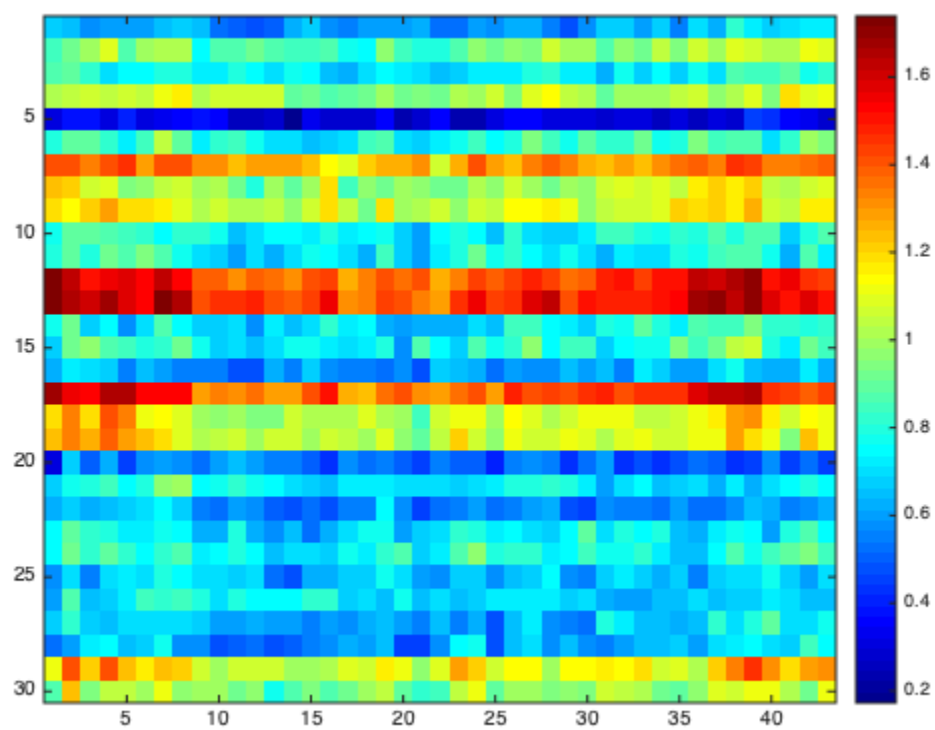
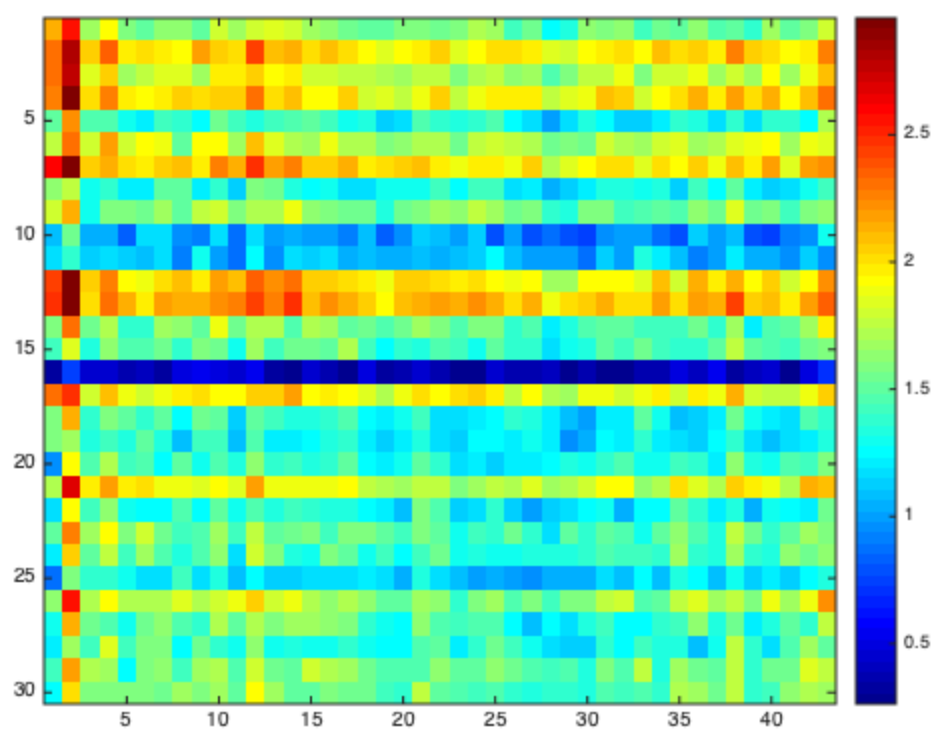


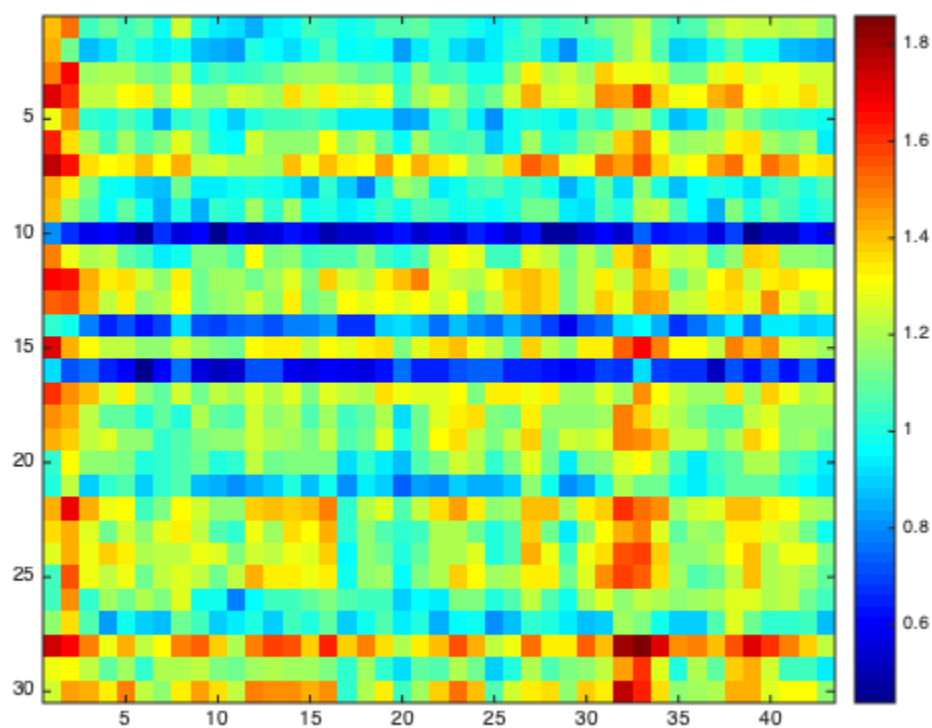
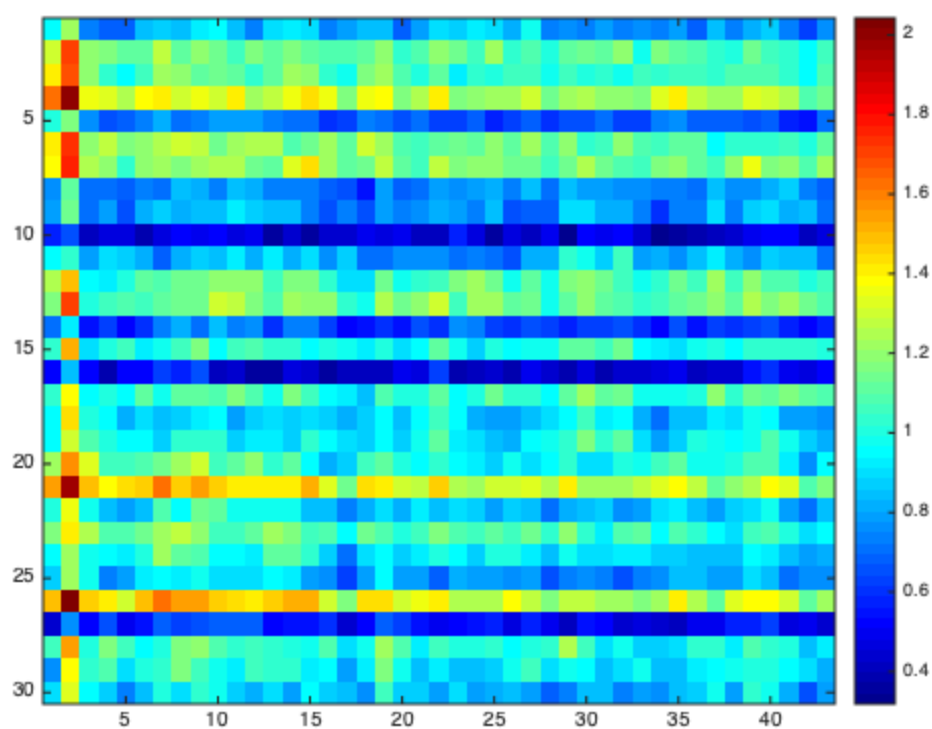


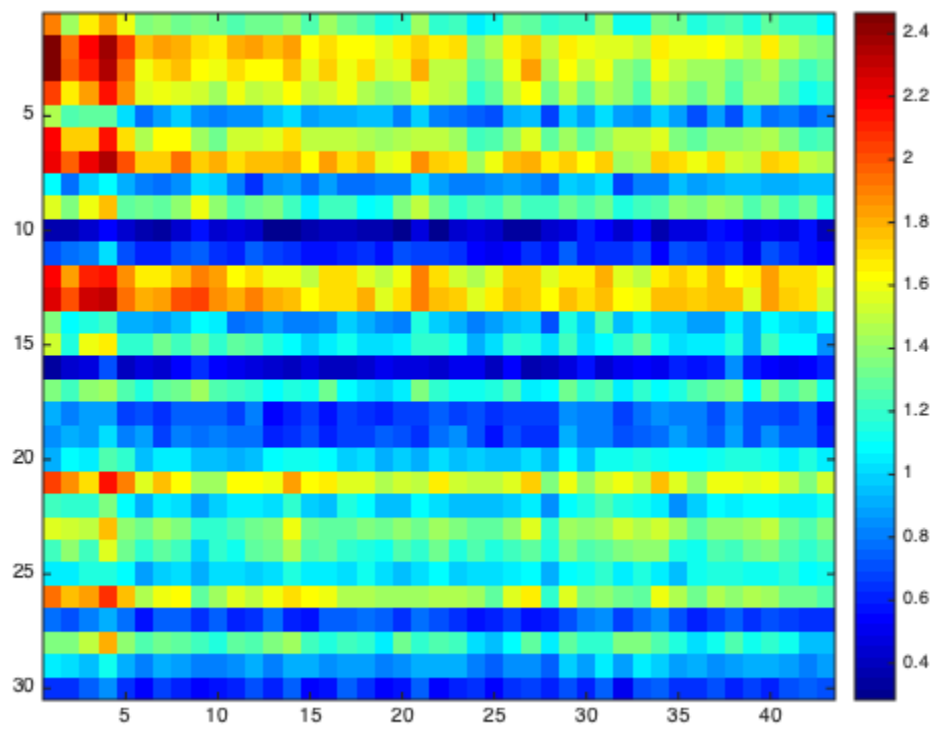
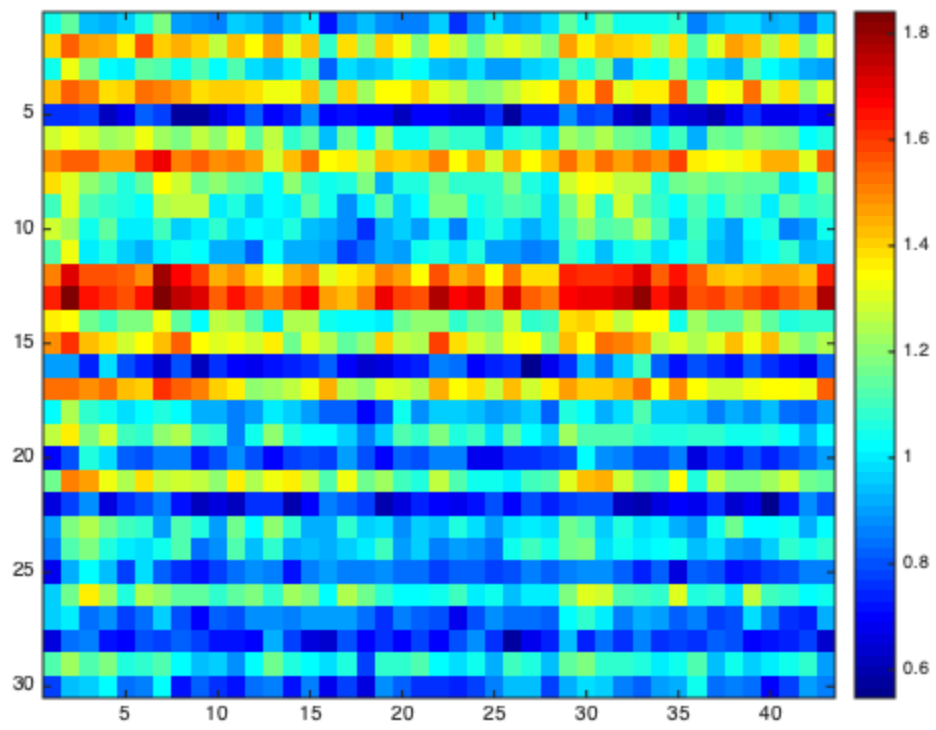


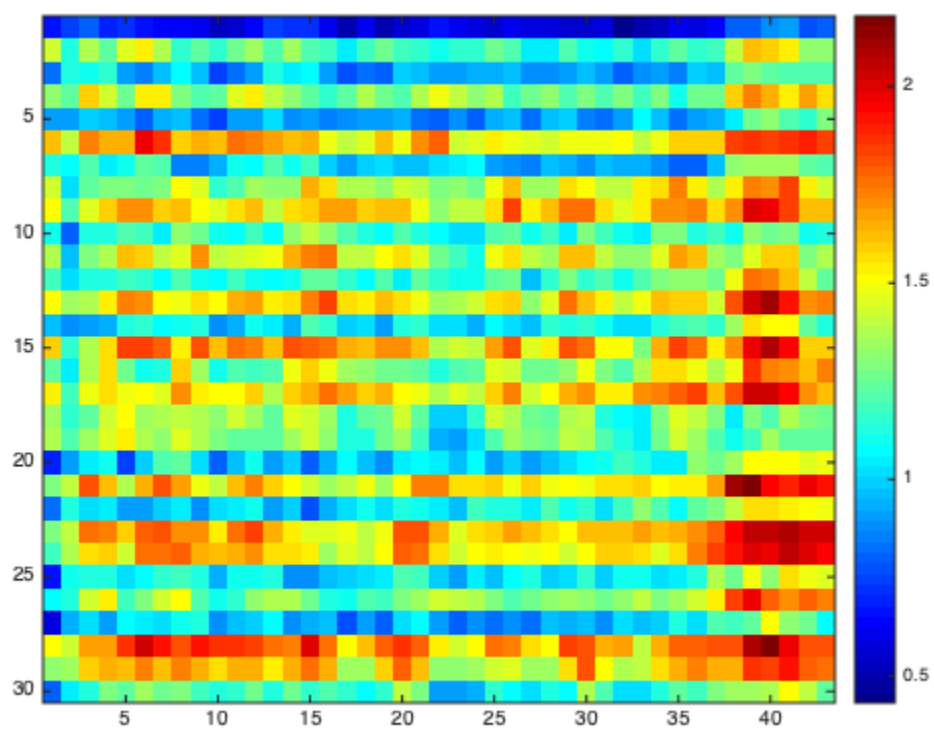
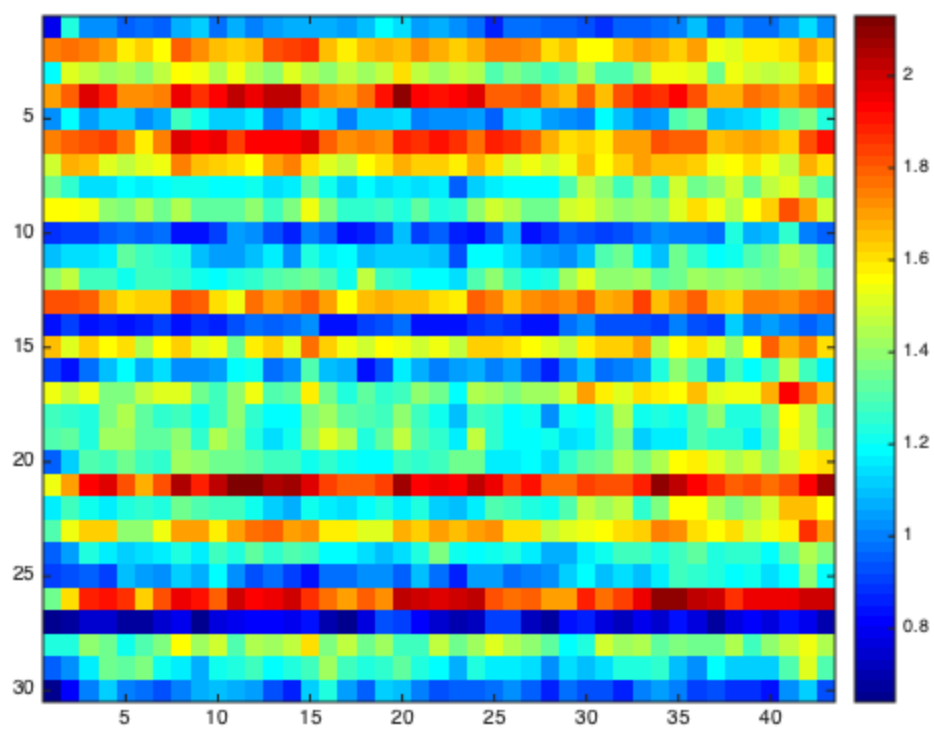


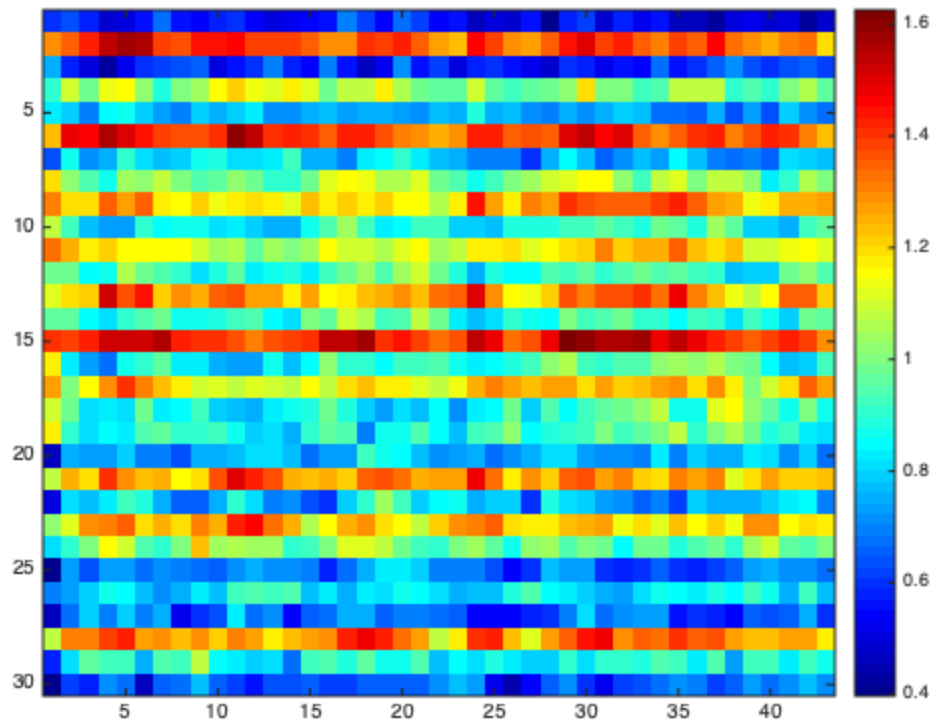












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