%%%%%%%%%%%%%% Realignment %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

substart = cputime;

P = cell(1,1);

dir{1} = [cwd filesep subname '\_' int2str(hcfmriscan) '\_1' filesep];

P{1} = spm\_get('Files',dir{1},['3\*001.img']); %CR original datafiles

V = spm\_vol(P);

V = cat(1,V{:});

disp(sprintf('realigning hcfmri'))

FlagsC = struct('quality',defaults.realign.estimate.quality,'fwhm',5,'rtm',0);

spm\_realign(V, FlagsC);

which\_writerealign = 2;

mean\_writerealign = 1;

FlagsR = struct('interp',defaults.realign.write.interp,...

 'wrap',defaults.realign.write.wrap,...

 'mask',defaults.realign.write.mask,...

 'which',which\_writerealign,'mean',mean\_writerealign);

spm\_reslice(P,FlagsR);

disp(sprintf(' time to process realigning hcfmri %12.2f\n',cputime-substart))

%%%%%%%%%%%%%% End of realignment %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

%%%%%%%%%%%%%% Normalization %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

% MNI template

mni\_template = 'D:\MATLAB\spm2\templates\EPI.mnc';

% Bold image files that will be normalized to MNI space.

theboldfile=strcat(mydir{1},'mean',subname,'\_',int2str(hcfmriscan),'\_1-001-001.img');

clear allboldfiles;

dir{1} = [cwd filesep subname '\_' int2str(hcfmriscan) '\_1' filesep];

mytempstr = spm\_get('Files',dir{1},['r3\*.img']);

clear otherboldfiles;

for myindex=1:size(mytempstr,1)

 otherboldfiles{myindex} = mytempstr(myindex,1:end);

end

allboldfiles = cat(2,theboldfile, otherboldfiles);

normalise\_arg = cat(2,mni\_template, allboldfiles);

spm\_normalise\_juh(normalise\_arg{:});

%%%%%%%%%%%%%% End of Normalization %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

%%%%%%%%%%%%%% Smoothing %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

SmoothFWHMmm = 8; %Full-Width Half-Maximum Gaussian Kernel

spm\_defaults;

global defaults;

substart = cputime;

P = cell(1,1);

dir{1} = [cwd filesep subname '\_' int2str(hcfmriscan) '\_1' filesep];

P{1} = spm\_get('Files',dir{1},['wr\*.img']);

V = spm\_vol(P);

V = cat(1,V{:});

for i=1:length(V),

 [pth,nam,ext] = fileparts(V(i).fname);

 fnameIn = fullfile(pth,[nam ext]);

 fname = fullfile(pth,['s' int2str(SmoothFWHMmm) nam ext]);

 spm\_smooth(fnameIn,fname,SmoothFWHMmm);

end;

clear V;

%%%%%%%%%%%%%%end smooth hcfmri %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%