```
classdef afmprocessing

    methods(Static)
          function imtopoFlat=flattenTopo_median(imtopo)
            % flattenTopo_median. Flatten topography image by removing
the
            % median of each row and column
            % imtopo: a matrix of pixel heights
            % imtopoFlat: the matrix of pixel heights corresponding to
the
            % flattened image

            [n1,n2]=size(imtopo);

            %first remove lines of zeros. Necessary when scan aborted
            %before completion, in which case the recorded image has a
bunch
            %of lines filled with zeros
            keepline=ones(n1,1);
            for i=1:n1
                if any(imtopo(i,:)==0)
                    keepline(i)=0;
                end
            end

            imtopo=imtopo(find(keepline),:);
            imtopoFlat=imtopo;

            %then remove median row and column wise
            med1=median(imtopo,2);

                for i=1:n2
                    imtopoFlat(:,i)=imtopoFlat(:,i)-med1;
                end
                med2=median(imtopoFlat,1);
                for i=1:n1
                    imtopoFlat(i,:)=imtopoFlat(i,:)-med2;
                end
        end

         function flattenTopo_median_batch(pathroot,filesmask)
           % flattenTopo_median_batch: apply flattenTopo_median to a
bunch
           % of images.
           % pathroot : folder containing the images to flatten,
stored as
           % text files containing matrix of heights.
           % filesmask : filter for file selection in the folder. Ex:
           % '*.txt'
            cdir=pwd;
            cd(pathroot);
            imgs=dir(filesmask);
            imnames={imgs.name};
            nims=length(imnames);


            for i=1:nims
                fprintf(1,'Processing image %g out of %g : %s
\n',i,nims,imnames{i});


                im2flattenName=[pathroot '/' imnames{i}];
                immat=load(im2flattenName); %this is a matrix of
double representing the height expressed in meters
                immat=immat*1e9; %to get the height in nm;

                display('Flattening topography...');
                imflat=afmprocessing.flattenTopo_median(immat);

                imsavename=[pathroot '/' imnames{i}(1:end-4)
'_flat.mat'];
                save(imsavename,'imflat');
            end

            cd(cdir);

         end
    end
end
```