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sudoku_allimage function

Input: image folder path Output: 9 sudoku images with mask on

```
function sudoku_allimage(folderpath)
```

read image and resize

default parameter

```
warning('off');
if(nargin < 1)
   folderpath = cd;
end
```

to avoid non-string input

```
if ischar(class(folderpath))

    if folderpath(end) ~= '/'
        folderpath = [folderpath,'/'];
    end
```

scan in the folder for jpg files

```
    filelist = dir(strcat(folderpath,'*.jpg'));

    mask = imread('thumask.png');
    s = size(mask);
```

generate 36 blocks

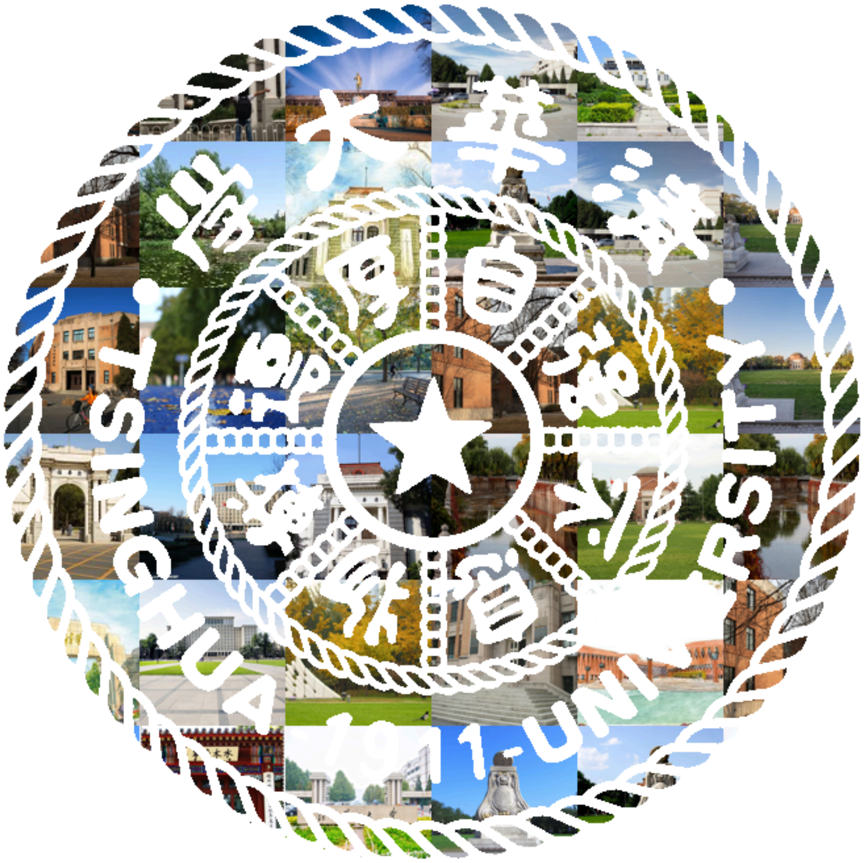
```
    result = mask;
    divided = mat2cell(result,
[s(1)/6,s(1)/6,s(1)/6,s(1)/6,s(1)/6,s(1)/6],
[s(2)/6,s(2)/6,s(2)/6,s(2)/6,s(2)/6,s(2)/6],3);
    block_size = size(divided{1});
    for iter = 1:length(filelist)

       name = filelist(iter).name;
       img = imread(name);
       tmp_size = size(img);
```

cut to square

```
       if tmp_size(2)>tmp_size(1)
       img = img(:,tmp_size(2)/2-
tmp_size(1)/2+1:tmp_size(2)/2+tmp_size(1)/2,:);
       else
          img = img(tmp_size(1)/2-
tmp_size(2)/2+1:tmp_size(1)/2+tmp_size(2)/2,:,:);
       end

       % resize and fit in one block
       img = imresize(img,block_size(1:2),'bicubic');
       divided{iter} = img;

    end
    %combine blocks
    result = cell2mat(divided);
    imshow(result);
```

process target image with mask

```
for i = 1:s(1)
    for j = 1:s(2)
        if (i-333)*(i-333)+(j-333)*(j-333) >106500
           result(i,j,:) = [255,255,255];
        end
        if mask(i,j,1) < 200
            result(i,j,:) = [255,255,255];
        end

    end
end

imshow(result);
```



divide target image into 9 images

```
gap = s (1)/3;

part = result(1:gap-1,1:gap-1,:);
imwrite(part,'thu1.png');
    part = result(gap:2*gap-1,1:gap-1,:);
imwrite(part,'thu4.png');
    part = result(2*gap:s(1),1:gap-1,:);
imwrite(part,'thu7.png');
part = result(1:gap-1,gap:2*gap-1,:);
imwrite(part,'thu2.png');
    part = result(gap:2*gap-1,gap:2*gap-1,:);
imwrite(part,'thu5.png');
    part = result(2*gap:s(1),gap:2*gap-1,:);
imwrite(part,'thu8.png');
    part = result(1:gap-1,2*gap:s(2),:);
imwrite(part,'thu3.png');
    part = result(gap:2*gap-1,2*gap:s(2),:);
imwrite(part,'thu6.png');
    part = result(2*gap:s(1),2*gap:s(2),:);
    imwrite(part,'thu9.png');
end
end
```

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