
Part 1: Gaussian Pyramid

```
images = ["../images/CARTOON.jpg", "../images/flowergray.jpg", "../images/kitty.jpg", ...
          "../images/polarcities.jpg", "../images/text.jpg" ];

filter = [0.25,0.25; 0.25,0.25];

for image = images

    img = im2double(imread(image));
    [height, width] = size(img);

    n = log2(height);

    figure;
    subplot(3, 3, 1);
    imshow(img);
    title('Original image')

    for i= 1:n
        img = imfilter(img, filter, 'replicate', 'same');
        [height, width] = size(img);

        % Half size
        img = img(1:2:height, 1:2:width);

        % Produce same size of original image
        biImage = imresize(img, 2^i, 'bilinear');

        subplot(3, 3, 1+i);
        imshow(biImage);
        title(sprintf('%d times filtering', 2 ^ i));
    end
end
```

Original image



2 times filtering



4 times filtering



8 times filtering



16 times filtering



32 times filtering



64 times filtering



128 times filtering



256 times filtering



Original image



2 times filtering



4 times filtering



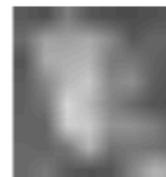
8 times filtering



16 times filtering



32 times filtering



64 times filtering



128 times filtering



256 times filtering



Original image



2 times filtering



4 times filtering



8 times filtering



16 times filtering



32 times filtering



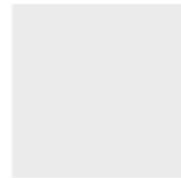
64 times filtering



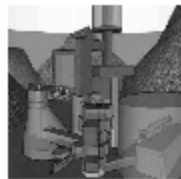
128 times filtering



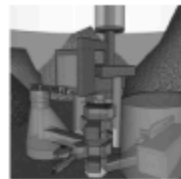
256 times filtering



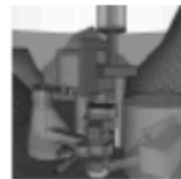
Original image



2 times filtering



4 times filtering



8 times filtering



16 times filtering



32 times filtering



64 times filtering



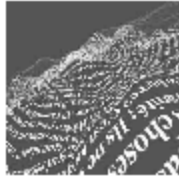
128 times filtering



256 times filtering



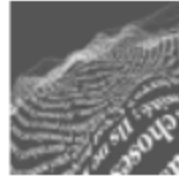
Original image



2 times filtering



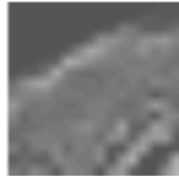
4 times filtering



8 times filtering



16 times filtering



32 times filtering



64 times filtering



128 times filtering



256 times filtering



Published with MATLAB® R2019b