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Image Sharpening

```
addpath('../../common/');
```

Input Images and parameter

```
moon_gaussina_dimension = [10, 10];
moon_scalar = 20;
lion_gaussian_dimension = [15, 15];
lion_scalar = 25;
```

Super Moon

```
load '../data/superMoonCrop.mat';
superMoonCrop = myLinearContrastStretching(imageOrig);
[srows, scols] = size(superMoonCrop);
```
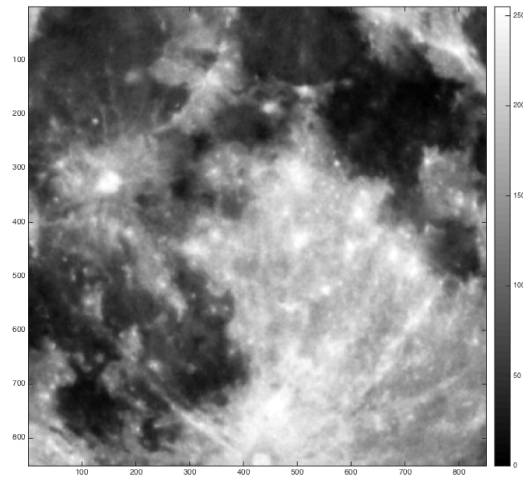
Lion Crop

```
load '../data/lionCrop.mat';
lionCrop = myLinearContrastStretching(imageOrig);
[lrows, lcols] = size(lionCrop);
```

Original Super Moon Crop

```
disp(['Original Super Moon Crop']);
images = zeros(srows, scols, 1);
images(:, :, 1) = superMoonCrop;
myShowImages(images, 'Original Super Moon Crop');

Original Super Moon Crop
```
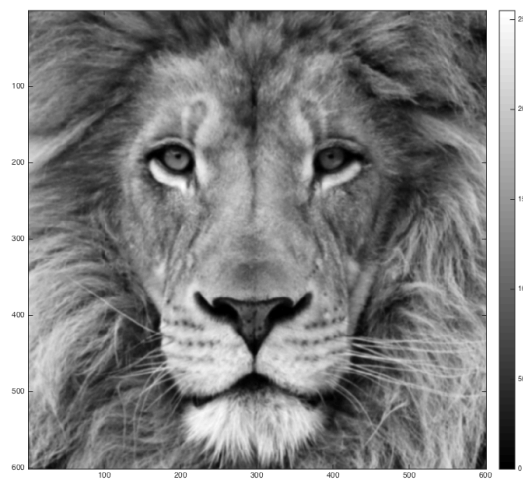
Original Super Moon Crop

Original Lion Crop

```
disp(['Original Lion Crop']);
images = zeros(lrows, lcols, 1);
images(:, :, 1) = lionCrop;
myShowImages(images, 'Original Lion Crop');
```

Original Lion Crop
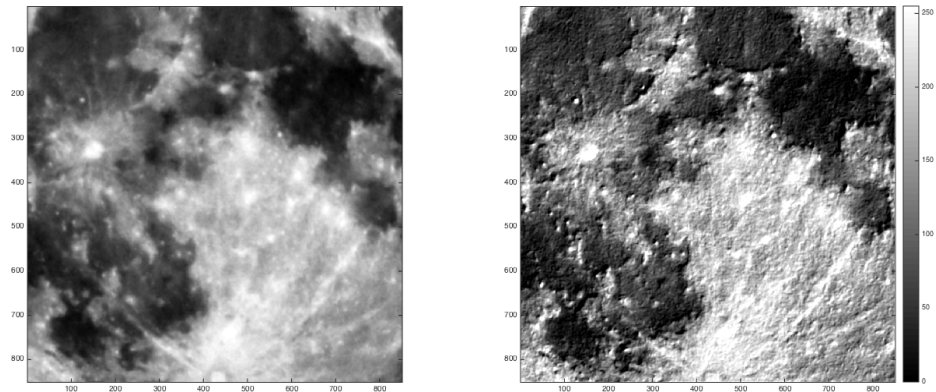

Original Lion Crop

Sharpened Super Moon

```
sharped_superMoonCrop = myUnsharpMasking(superMoonCrop,...
    moon_gaussina_dimension, moon_scalar);
```

```matlab
images = zeros(srows, scols, 2);
images(:, :, 1) = superMoonCrop;
images(:, :, 2) = sharped_superMoonCrop;
myShowImages(images, 'Sharp image Super Moon');
```
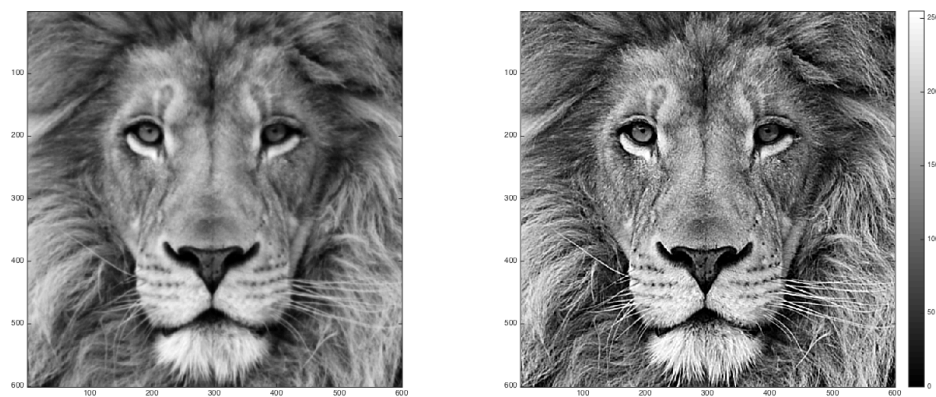
Sharp image Super Moon

Sharpened Lion

```matlab
sharped_lionCrop = myUnsharpMasking(lionCrop,...
    lion_gaussian_dimension, lion_scalar);
images = zeros(lrows, lcols, 2);
images(:, :, 1) = lionCrop;
images(:, :, 2) = sharped_lionCrop;
myShowImages(images, 'Sharp lion');
```

Sharp lion

Best Parameters

```
disp(['Gaussian Dimensions for Super Moon = [', num2str(moon_gaussina_dimension(1,
    ', ', num2str(moon_gaussina_dimension(1,2)), ']']);
disp(['Gaussian Dimensions for Lion = [', num2str(lion_gaussian_dimension(1,1)), .
    ', ', num2str(lion_gaussian_dimension(1,2)), ']']);
disp(['Scaling Parameter for Super Moon = ', num2str(moon_scalar)]);
disp(['Scaling Parameter for Lion = ', num2str(lion_scalar)]);
```

```
Gaussian Dimensions for Super Moon = [10, 10]
Gaussian Dimensions for Lion = [15, 15]
Scaling Parameter for Super Moon = 20
Scaling Parameter for Lion = 25
```

Tested on

- Gaussian Dimensions: [5,5], [10, 10], [15, 15], [20, 20] for both images

- Scaling: 5, 10, 15, 20, 25, 50, 100 for both images

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