01418385 Digital Image Processing

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Lab 8 Cartoonization

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Cartoon Effect!!

STEP 1: Posterization (Image Quantization) :

```
threshRGB = multithresh(im,N);   %thresh is a 1xN vector which can be used to convert
                                 % image im into an image with N + 1 discrete levels.
value = [0 threshRGB(2:end) 255];
quantRGB = imquantize(im, threshRGB, value);
```

STEP 2: Image Smoothing

STEP 3: Edge Emphasizing

MATLAB functions	Example
`B = imfilter(I, h)`	Filter the image `A` with the filter `h`. Create a filter `h` using `fspecial()`

`h = fspecial(type, parameters)`	Creates a two-dimensional filter `h` of the specified *`type`*.
	• `h = fspecial('average', hsize)` returns an averaging filter `h` of size `hsize`. The argument `hsize` can be a vector specifying the number of rows and columns in `h`, or it can be a scalar, in which case `h` is a square matrix. The default value for `hsize` is `[3 3]`.
	• `h = fspecial('gaussian', hsize, sigma)` returns a rotationally symmetric Gaussian lowpass filter of size `hsize` with standard deviation `sigma` (positive). `hsize` can be a vector specifying the number of rows and columns in `h`, or it can be a scalar, in which case `h` is a square matrix. The default value for `hsize` is `[3 3]`; the default value for `sigma` is 0.5.
	• `h = fspecial('prewitt')` returns the 3-by-3 filter `h` (shown below) that emphasizes horizontal edges by approximating a vertical gradient. If you need to emphasize vertical edges, transpose the filter `h'`.
	`[ 1 1 1`
	`0 0 0`
	`-1 -1 -1 ]`
	To find vertical edges, or for *x*-derivatives, use `h'`.
	• `h = fspecial('sobel')` returns a 3-by-3 filter `h` (shown below) that emphasizes horizontal edges using the smoothing effect by approximating a vertical gradient. If you need to emphasize vertical edges, transpose the filter `h'`.
	`[ 1 2 1`
	`0 0 0`
	`-1 -2 -1 ]`