

EN-74 ECE: Introduction to Image Processing
Tufts University
Fall 2007
Problem Set 2
Due Sept. 20, 2007

1. Write two Matlab functions that convert between row column and lexicographic ordering for indexing into an image. The functions should have the form

```
l = rc2lex(m,n,M,N);  
[m,n] = lex2rc(l,M,N);
```

where

- l = lexicographic index of the pixel of interest
- m, n = row and column indices of the pixel of interest
- M, N = number of rows and columns in the image

Prove with some examples that your functions work correctly

2. Exercises 2.1, 2.2, and 2.3 in the McAndrew text
3. Load the cameraman image into Matlab and, by trial and error extract the sub-image that corresponds to his face. To be a bit more specific, suppose that the variable `cman` holds the full image. The problem here is to find the variable `r_start`, `r_end`, `c_start`, `c_end` such that the following code snippet displays the face

```
face = cman(r_start:r_end, c_start:c_end)  
imshow(face)
```