

# CMT107 : Visual Computing - Lab Sheet 7

## Image Filtering

Download the files VC07.java and Daffodil.jpg from Learning Central. This program implemented image filtering using filter() function in BufferedImageOp, and partially implemented image filtering without using filter() function (commented out in the sourcecode). The program first load the colour image file Daffodil.jpg. The image is blurred when key 'p' is pressed. The result can be saved into a file named DaffodilG.jpg if key 's' is pressed. Note that to read in the image file Daffodil.jpg correctly, you should put it in the project root directory.

Run the program to check that it works, and then do the following:

- Modify the function processing(), replacing ConvolveOp.EDGE\_NO\_OP by ConvolveOp.EDGE\_ZERO\_FILL. Run it to check the difference between the results before and after the modification.
- Replace the kernel matrix BLUR3x3 by SHARPEN3x3. Run the program again to see the effect.
- Comment out the first function processing() (//image filtering using filter()), and uncomment the second processing() (//image filtering without using filter()), which implemented filtering on the red band. Implement filtering algorithm on the other two colour bands (green and blue), and then run the program to check the result. This result should be the same as was generated by the first processing() when ConvolveOp.EDGE\_NO\_OP was used.
- Modify the second processing() to generate the same result as the first processing() did when ConvolveOp. EDGE\_ZERO\_FILL was used.
- Now modify the second processing() again to filter the boundary pixels using extrapolation methods of “wrapping around”, and “reflecting across edge”.
- Finally, define another processing() function to implement median filtering. Run the program to check whether you can get your expected result.