**Image Processing Project 1b**

**Materials and Implementation of**

1. Learn the difference between double and uint8 operations. Why we always convert an image to double?
2. learn and implement a list of linear and nonlinear filters;
3. Including (but not limited) all types of mean filters and morphological filters, Kuwahara filter, all types of median filters, order statistic filter, polynomial filters, quadratic filter, Teager filter. Please also try to include more filters in this project.

**Additional project:**

1. The concept of image morphology; Implementation of some related operation, such as Dilation and Erosion;

2. Learn the evaluation methods and use them to measure the image quality, e.g. PSNR, MSE, SSIM (not limited).

3. Using these quality measures to improve the image denoising methods by changing the parameters based on different filters.

4. List all of the results and explain the improving process.

**Submission:**

(1) You should show me a project report with your source codes as appendix. One sample reports is attached for your reference.

(2) You are expected to give a 20-minute presentation in English to me (recommended) such that I will know how much you have learnt from the project. You also are recommended to send your PPT file to me before the presentation day.