画像信号処理特論

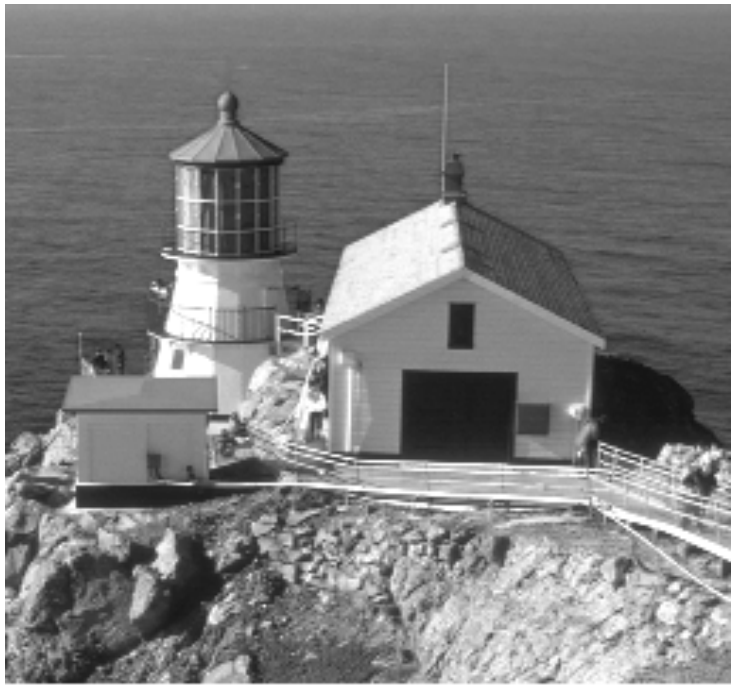
2020年度

高橋桂太

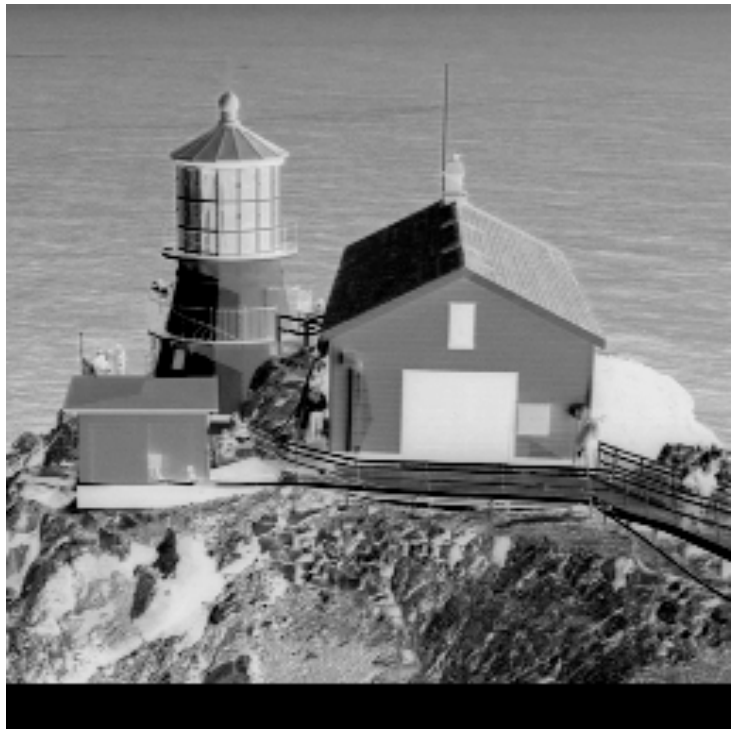
Today’s contents

Today's goal

- "Hello world" of image processing



Input

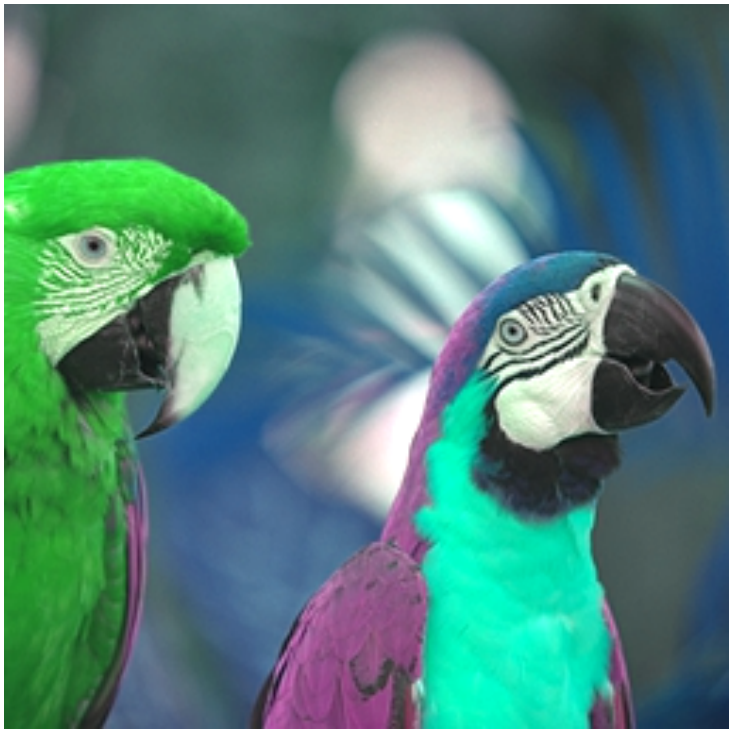


output

Today's goal

- "Hello world" of image processing

Input



output

Image format

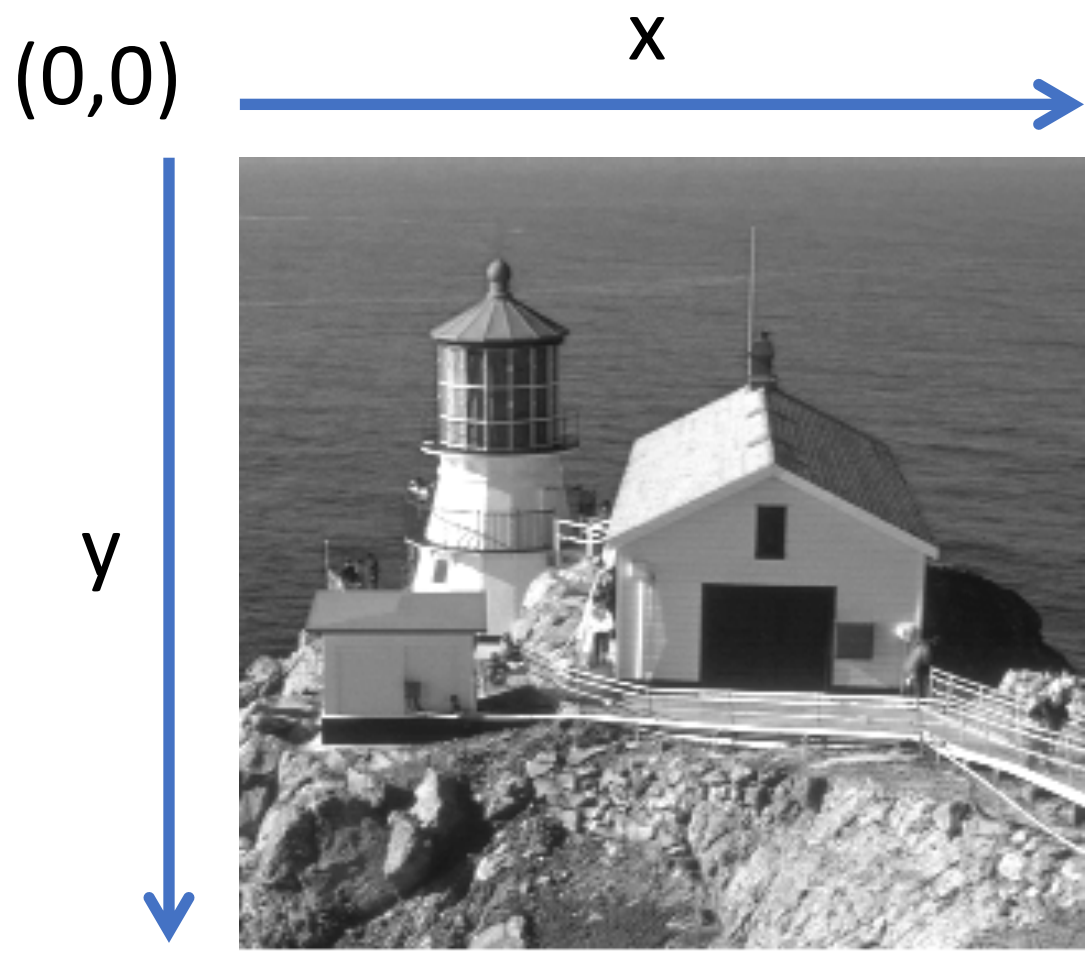


Image format

Pixel = picture element

Holding a grey level

(an integer in 0~255)

0: black, 255: white

8 bits for each pixel

Image format

Pixel = picture element

Holding three (RGB) color channels, each of which takes an integer in 0~255.

24 bits for each pixel

myImageData class

- Create an instance

  myImageData *img = new myImageData();

- Initialize

  img->init(640, 480, 1); // 640x480, grey scale

  img->init(640, 480, 3); // 640x480, RGB color

- Delete the instance

  delete img;

myImageData class

- Read an image from a file

  img->read(“inputfile.pgm”);

- Write an image to a file

  img->save(“outputfile”);

- Get image properties

  int W = img->getWidth();

  int H = img->getHeight();

  int CH = img->getCH();

myImageData class

- Get a pixel value

```
double v = img->get(x,y);     // for grey scale images
double v = img->get(x,y,1);  // for RGB color images
                              // last parameter = color channel
                              //  should be 0, 1, or 2
```

- Set a pixel value

```
img->set(x,y,value); // for grey scale images
img->set(x,y,2,value); // for RGB color images
```

Exercises

- Build and execute “sample1”
- Implement
  - Luminance inversion of a gray scale image
  - Color channel swapping of a color image
  - Any other process you like