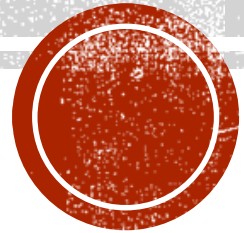
多媒體實習-Opencv教學1



OUTLINE

- Mat 基本應用及介紹
- Color Image 介紹
- Rgb to Gray

MAT基本應用

- Mat是OpenCV訂定的資料型態，代表的是矩陣(Matrix)
- 程式碼demo

MAT TYPE

- 每個通道的資料型態:
- 8U: Unsigned 8 bits
  8S: Signed 8 bits
  16U: Unsigned 16 bits
  16S: Signed 16 bits
  32F: Float
  64F: Double

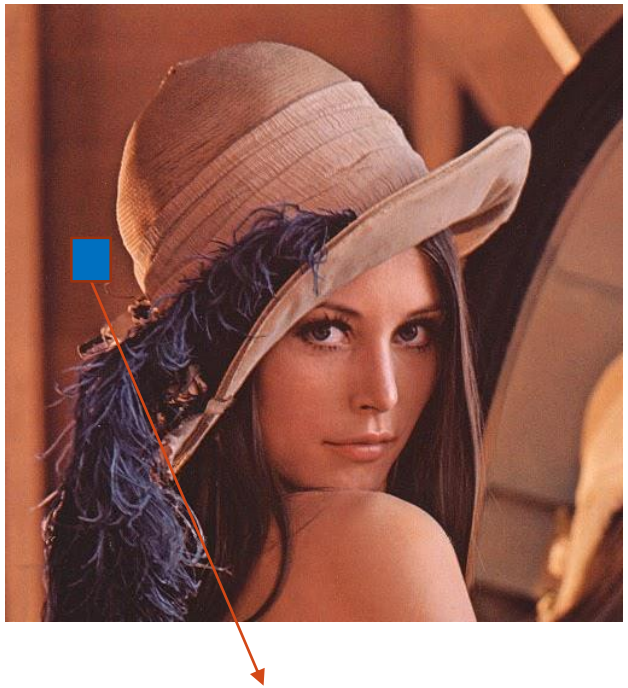
A Mapping of Type to Numbers in OpenCV

	C1	C2	C3	C4
CV_8U	0	8	16	24
CV_8S	1	9	17	25
CV_16U	2	10	18	26
CV_16S	3	11	19	27
CV_32S	4	12	20	28
CV_32F	5	13	21	29
CV_64F	6	14	22	30

- 圖片通道數量
- 他們對應到的格式代號

- 範例: 最常使用的3通道RGB的型態就是CV_8UC3

COLOR IMAGE



(B, G, R)

(0 ~ 255)

讀取圖片

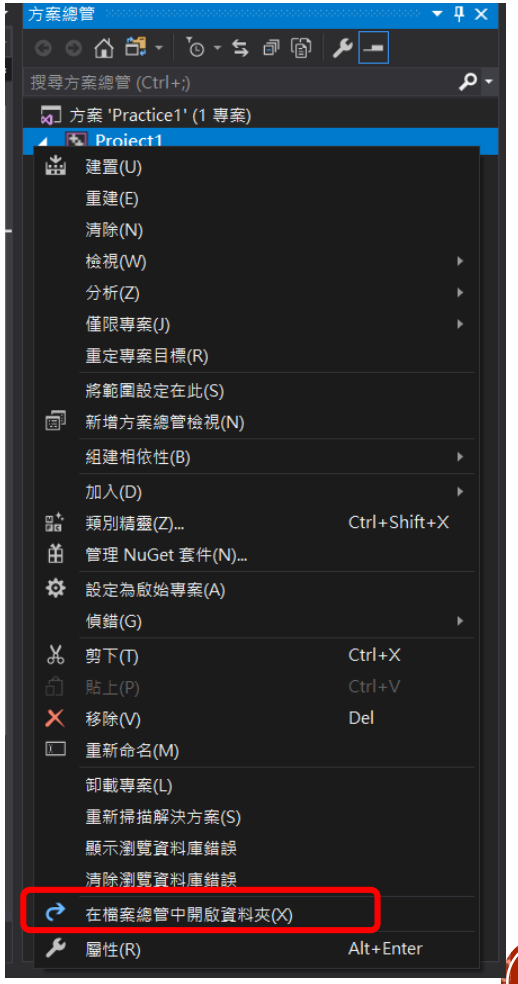
https://docs.opencv.org/3.4/d8/d6a/group__imgcodecs__flags.html#ga61d9b0126a3e57d9277ac48327799c80

imread()

```
Mat cv::imread ( const String &  filename,
                 int             flags = IMREAD_COLOR
               )
```

- **filename:** 檔案名稱，檔案必須放在專案同個資料夾當(資料夾開啟路徑如右)
- **flags:** 支援的色彩通道格式

```
enum  cv::ImreadModes {
        cv::IMREAD_UNCHANGED = -1,
        cv::IMREAD_GRAYSCALE = 0,
        cv::IMREAD_COLOR = 1,
        cv::IMREAD_ANYDEPTH = 2,
        cv::IMREAD_ANYCOLOR = 4,
        cv::IMREAD_LOAD_GDAL = 8,
        cv::IMREAD_REDUCED_GRAYSCALE_2 = 16,
        cv::IMREAD_REDUCED_COLOR_2 = 17,
        cv::IMREAD_REDUCED_GRAYSCALE_4 = 32,
        cv::IMREAD_REDUCED_COLOR_4 = 33,
        cv::IMREAD_REDUCED_GRAYSCALE_8 = 64,
        cv::IMREAD_REDUCED_COLOR_8 = 65,
        cv::IMREAD_IGNORE_ORIENTATION = 128
      }
```



RGB TO GRAY(練習)

- Gray = 0.299 * Red + 0.587 * Green + 0.114 * Blue