python™

第八節 Image restoration

1

Restore

處理技術說明

2

認識 Image reconstruction scikit-image

3

熟悉 **Masks**

同學，歡迎你參加本課程

- 請關閉你的FB 、Line等溝通工具，以免影響你上課。
- 考量頻寬，請預設關閉麥克風、攝影機，若有需要再打開。
- 隨時準備好，老師會呼叫你的名字進行互動。
- 如果有緊急事情，你必需離開線上教室，請用聊天室私訊給老師，以免老師癡癡呼喚你的名字。
- 先倒好水、上個洗手間，準備上課囉^^

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那是因為
你還沒學過Python!
線上老師LIVE直播教學．搶先看
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巨匠電腦真人課程

ZOOM 學員操作說明

www.pcschool.com.tw
您正在觀看蘇世宗的螢幕
查看選項
原始大小
請求遠端控制
共同註記
退出全螢幕
5 查看選項/共同註記/筆（連連看）
滑鼠
文字
筆
箭頭
擦除
格式
撤銷
重做
清除
與會者 (15)
查找參會者
張 張齡月 (我)
婷 婷婷
解除靜音
舉手
2 共享螢幕（指導演練；點評作品）
老師須先停止共享螢幕
才能請學生共享螢幕
1 聊天
解除靜音
啟動視訊
邀請
與會者
共享螢幕
聊天
錄影
4 解除靜音
3 與會者/舉手

Restore an image

Image to restore

Image restored

Image reconstruction

- Fixing damaged images
- Text removing
- Logo removing
- Object removing

Image reconstruction

Inpainting

- Reconstructing lost parts of images
- Looking at the non-damaged regions

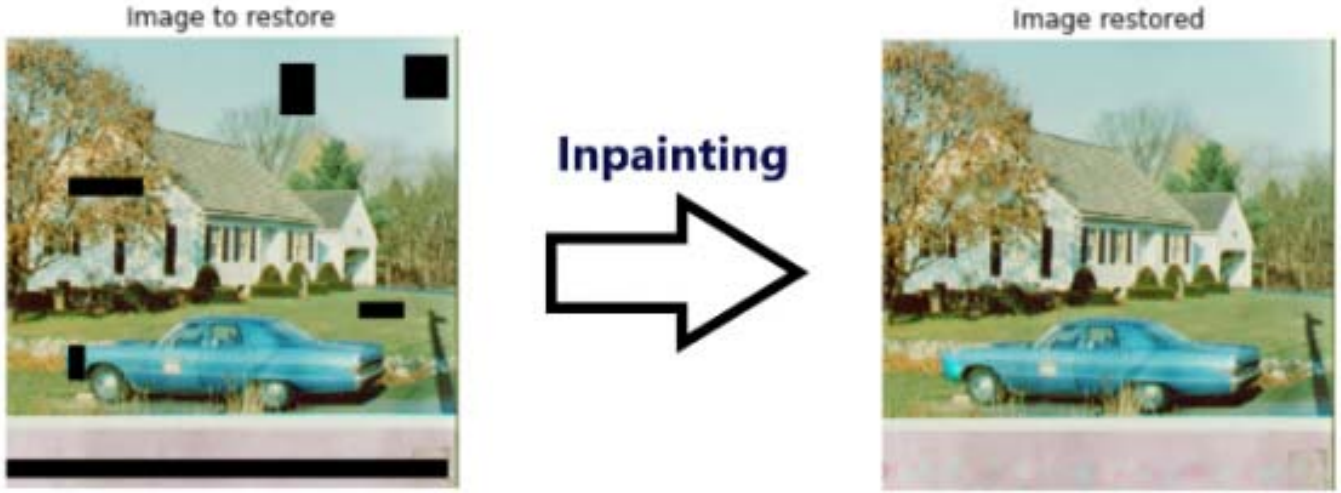
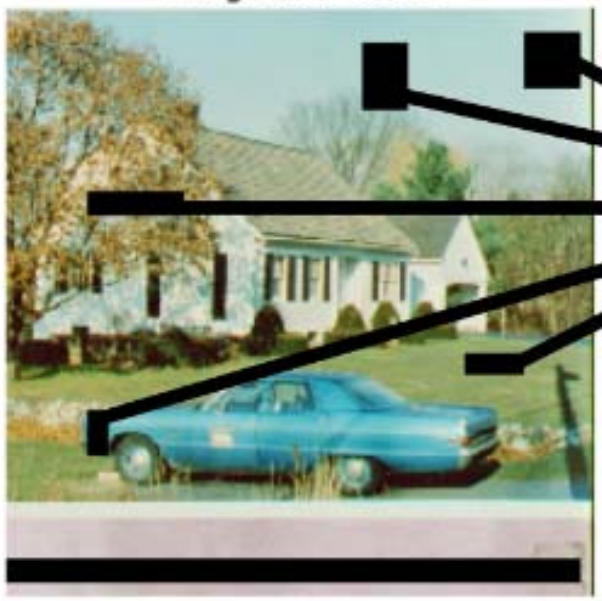


Image reconstruction

Image to restore



Damaged pixels

⇩

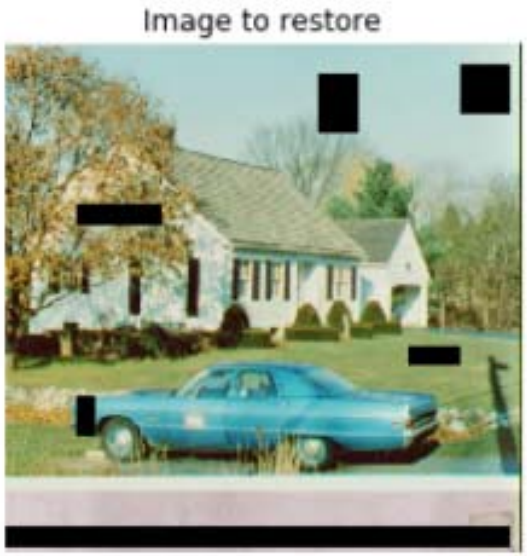
Set as a mask

Image reconstruction in scikit-image

```
from skimage.restoration import inpaint

# Obtain the mask
mask = get_mask(defect_image)

# Apply inpainting to the damaged image using the mask
restored_image = inpaint.inpaint_biharmonic(defect_image,
                                            mask,
                                            multichannel=True)

# Show the resulting image
show_image(restored_image)
```

Image reconstruction in scikit-image

```
# Show the defect and resulting images
show_image(defect_image, 'Image to restore')
show_image(restored_image, 'Image restored')
```



Masks

Image to restore

Mask

Masks

```
def get_mask(image):
    ''' Creates mask with three defect regions '''
    mask = np.zeros(image.shape[:-1])

    mask[101:106, 0:240] = 1

    mask[152:154, 0:60] = 1
    mask[153:155, 60:100] = 1
    mask[154:156, 100:120] = 1
    mask[155:156, 120:140] = 1

    mask[212:217, 0:150] = 1
    mask[217:222, 150:256] = 1
    return mask
```

練習時間

Image Restoration.ipynb

jupyter 8.Image Restoration Last Checkpoint: 14 hours ago (autosaved)

Logout

File Edit View Insert Cell Kernel Widgets Help

Trusted | Python 3

Run Markdown

original

Astronaut

練習時間

Image Restoration.ipynb

jupyter 8.Image Restoration Last Checkpoint: 15 hours ago (autosaved)

Logout

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Run Markdown

練習

Removing logos As we saw in the video, another use of image restoration is removing objects from an scene. In this exercise, we'll remove the Datacamp logo from an image.

Landscape with small datacamp logo Image loaded as image_with_logo. You will create and set the mask to be able to erase the logo by inpainting this area.

Remember that when you want to remove an object from an image you can either manually delineate that object or run some image analysis algorithm to find it.

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