

第六節

Transformations

1

Transformation

影像處理

2

Rotate

處理技巧

3

Rescaling

處理技巧

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^^

課程檔案下載

巨匠電腦線上真人

開課查詢

免費體驗專區

課程總覽

專業師資

學員專區

講師專區

最新消息



您好! [登出](#)

程式語言 好難學?

那是因為
你還沒學過Python!

(線上老師 **LIVE** 直播教學 · 搶先看)

巨匠電腦真人課程

點數卡產品兌換

APCS檢測專區

公告專區

我的課表

IT真人課程劃位

電腦分校課程劃位

外語真人課程劃位

美語分校課程劃位

取消劃位

課程檔案下載

上課權益查詢

教學平台測試

學習諮詢

常見問題

個資維護

忘記密碼

登出

課程檔案下載

ZOOM 學員操作說明

The screenshot shows the Zoom interface with several key areas highlighted for student use:

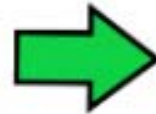
- Annotation Menu:** A dropdown menu is open, showing options: 原始大小 (Original Size), 請求遠端控制 (Request Remote Control), 共同註記 (Annotate) - highlighted with an orange box and arrow, and 退出全螢幕 (Exit Full Screen).
- Toolbar:** The bottom toolbar contains icons for 游鼠 (Cursor), 文字 (Text), 筆 (Pen) - highlighted with an orange box and arrow, 擦除 (Erase), 格式 (Format), 撤銷 (Undo), 重做 (Redo), and 清除 (Clear).
- Participants Window:** A window titled "與會者 (15)" (Participants 15) is open, showing a list of participants. The "舉手" (Raise Hand) button is highlighted with an orange box and arrow.
- Bottom Bar:** The bottom bar contains icons for 解除靜音 (Unmute), 啟動視訊 (Start Video), 邀請 (Invite), 與會者 (Participants) - highlighted with an orange box and arrow, 共享螢幕 (Share Screen), 聊天 (Chat) - highlighted with an orange box and arrow, and 錄影 (Record).

Numbered annotations provide further instructions:

- 1 聊天** (Chat)
- 2 共享螢幕** (Share Screen) (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
- 3 與會者/舉手** (Participants/Raise Hand)
- 4 解除靜音** (Unmute)
- 5 查看選項/共同註記/筆** (連連看)
(View Options/Annotate/Pen)

Why transform images?

- Preparing images for classification Machine Learning models
- Optimization and compression of images
- Save images with same proportion

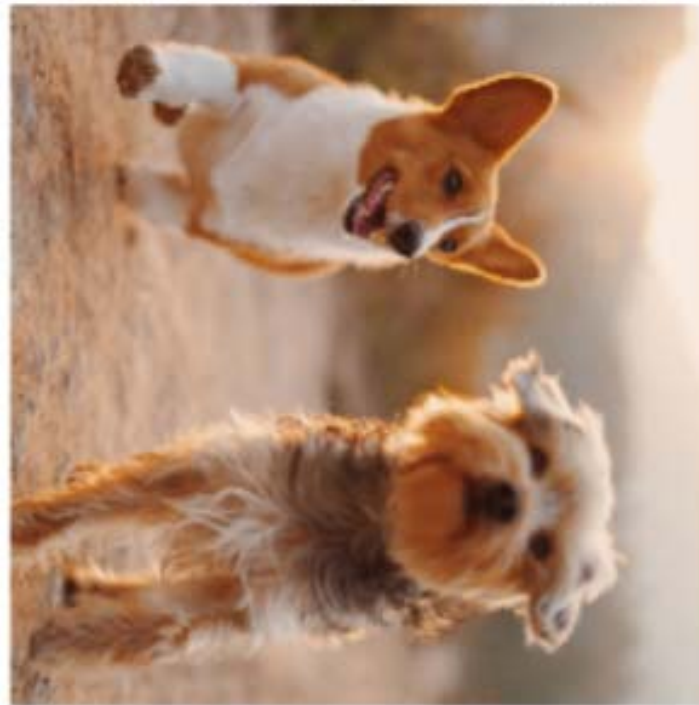


Rotating

Original



Rotated 90 degrees clockwise



Rotating

Original



Rotated 90 degrees anticlockwise



Rotating clockwise

```
from skimage.transform import rotate

# Rotate the image 90 degrees clockwise
image_rotated = rotate(image, -90)

show_image(image_rotated, 'Original')
show_image(image_rotated, 'Rotated 90 degrees clockwise')
```

Original



Rotated 90 degrees clockwise



Rotating anticlockwise

```
from skimage.transform import rotate

# Rotate an image 90 degrees anticlockwise
image_rotated = rotate(image, 90)

show_image(image, 'Original')
show_image(image_rotated, 'Rotated 90 degrees anticlockwise')
```

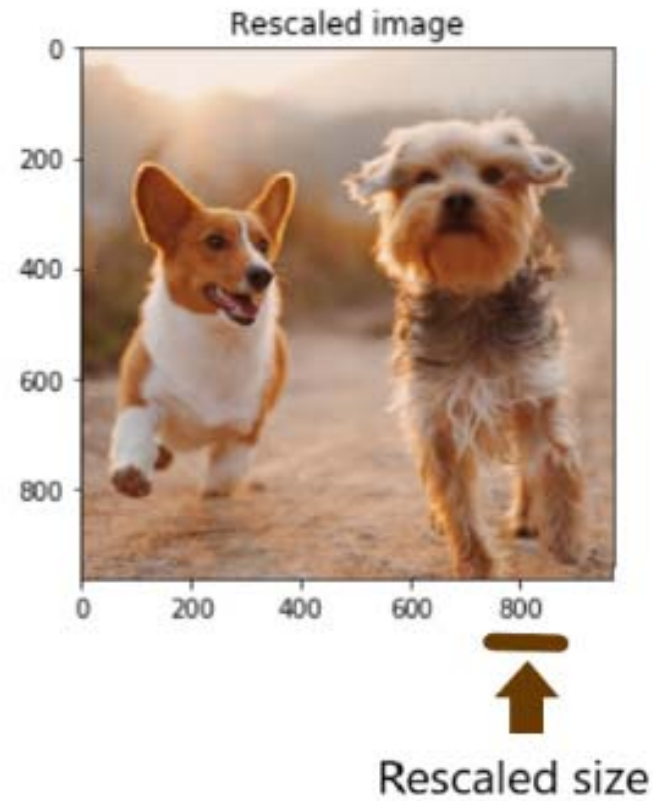
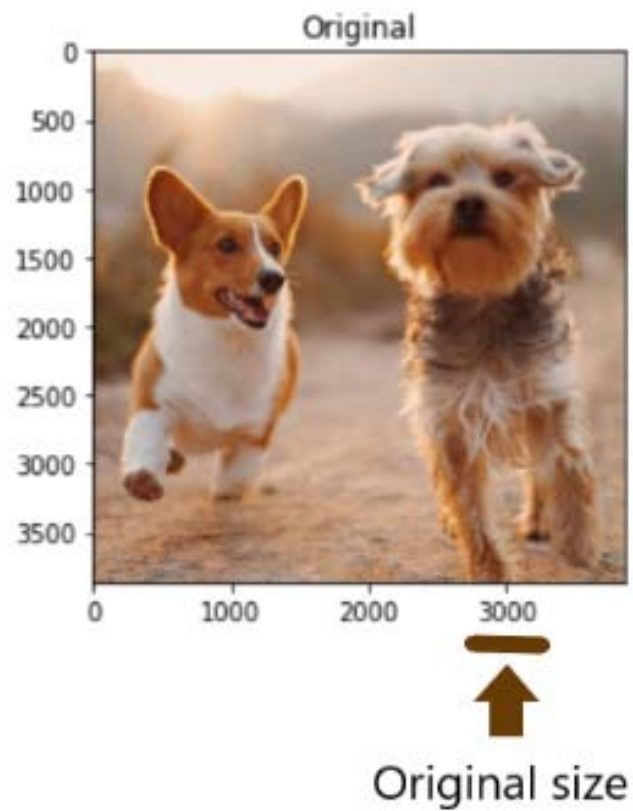
Original



Rotated 90 degrees anticlockwise



Rescaling



Rescaling

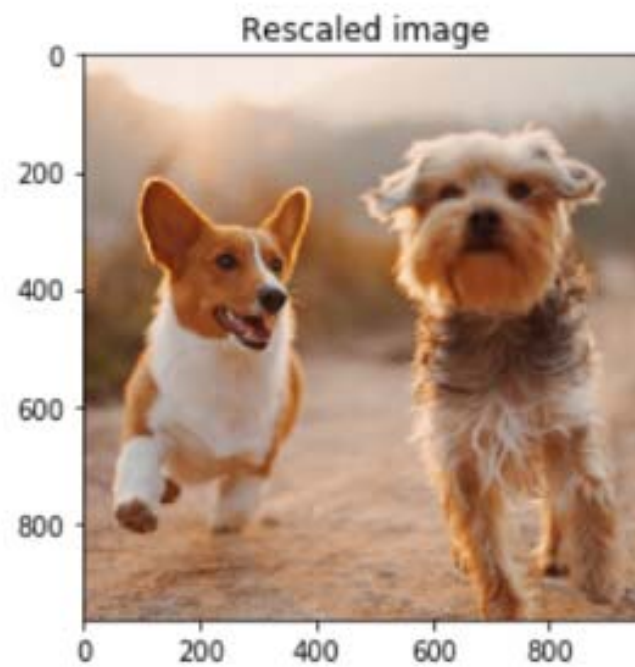
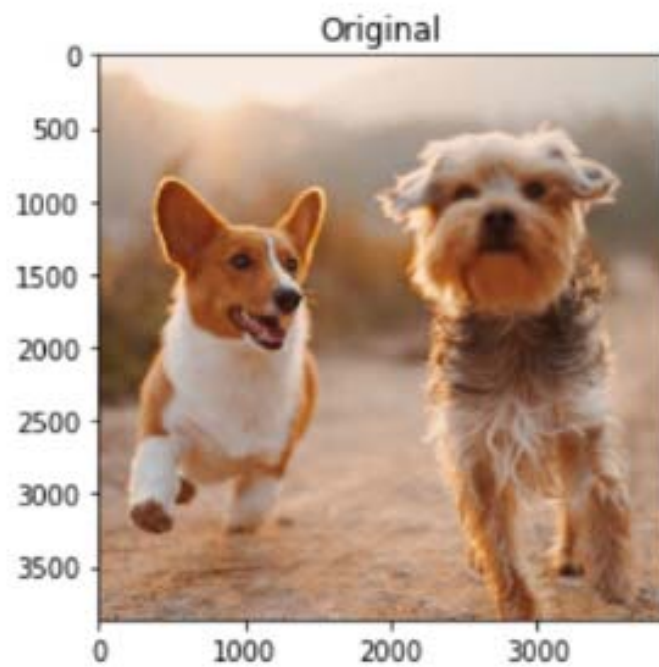
Downgrading

```
from skimage.transform import rescale

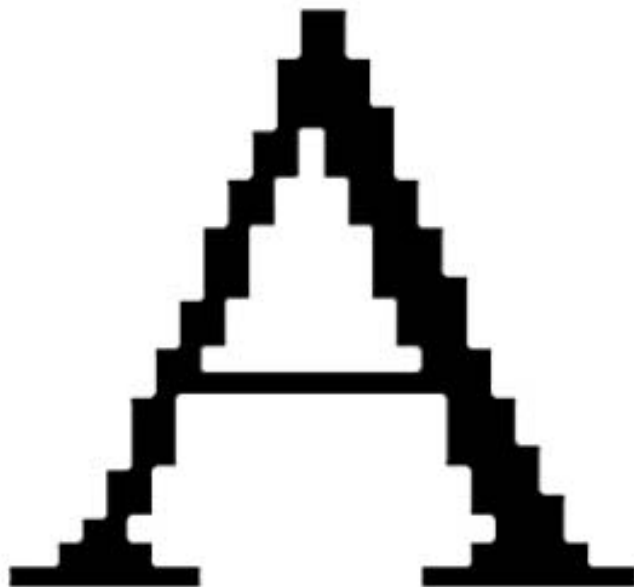
# Rescale the image to be 4 times smaller
image_rescaled = rescale(image, 1/4, anti_aliasing=True, multichannel=True)

show_image(image, 'Original image')
show_image(image_rescaled, 'Rescaled image')
```

Rescaling



Aliasing in digital images

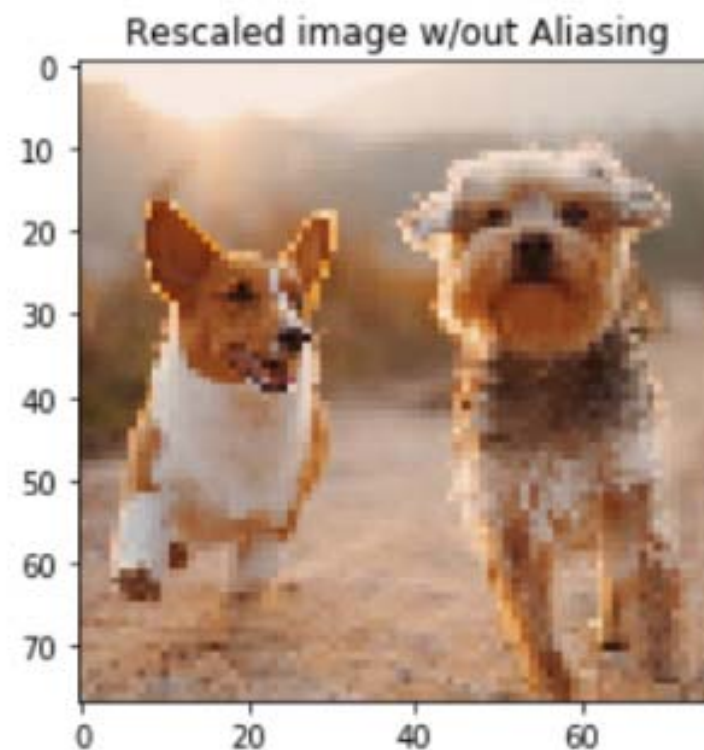
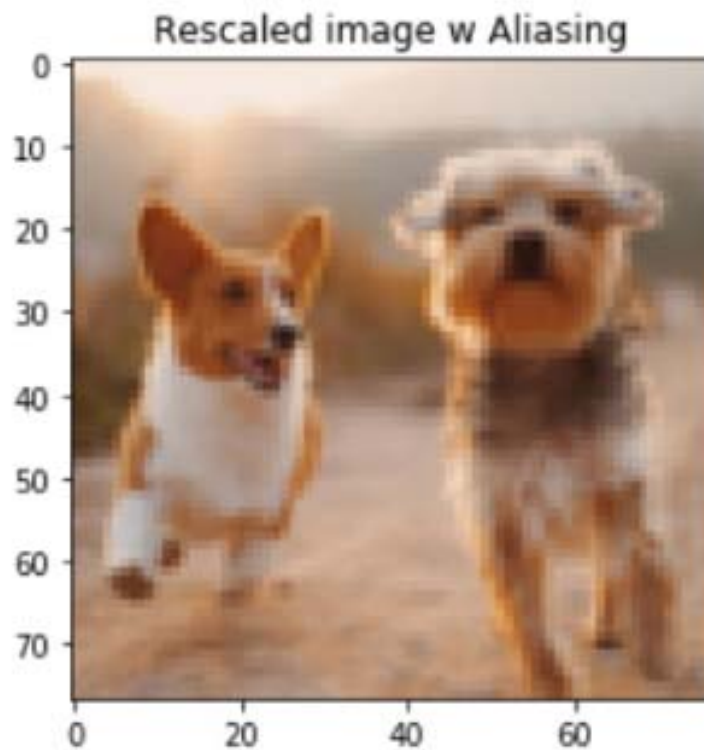


Original letter A

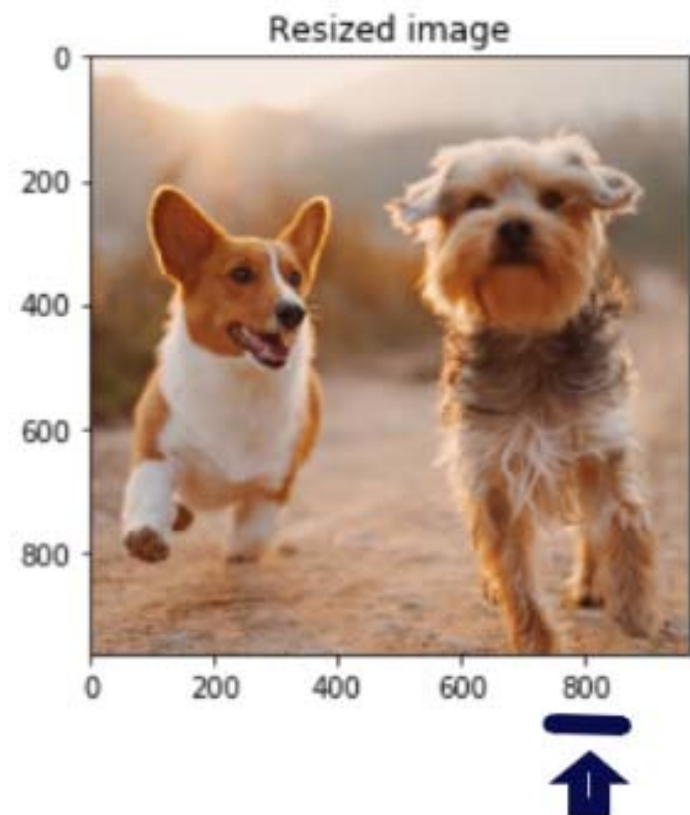
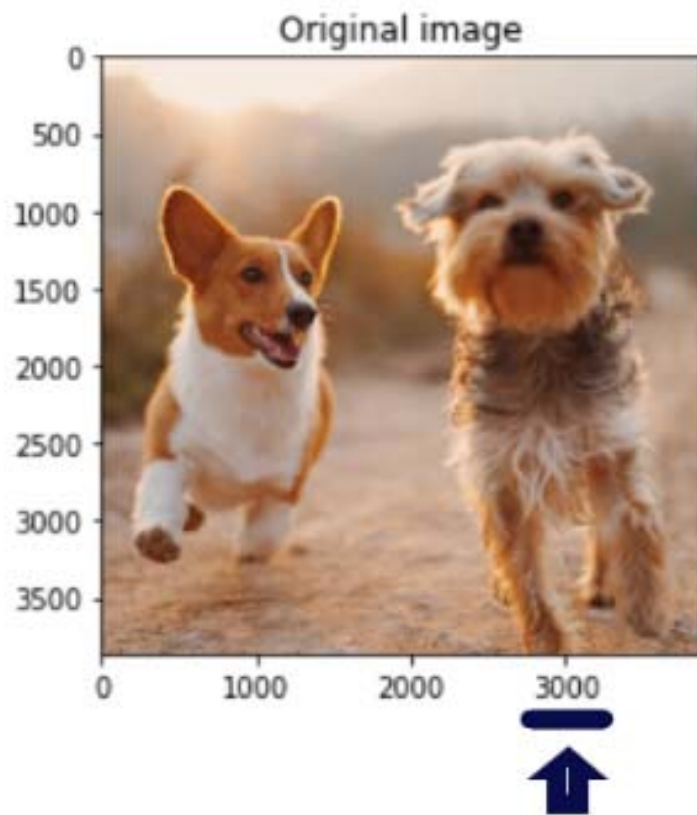


Aliased letter A

Aliasing in digital images



Resizing



Resizing

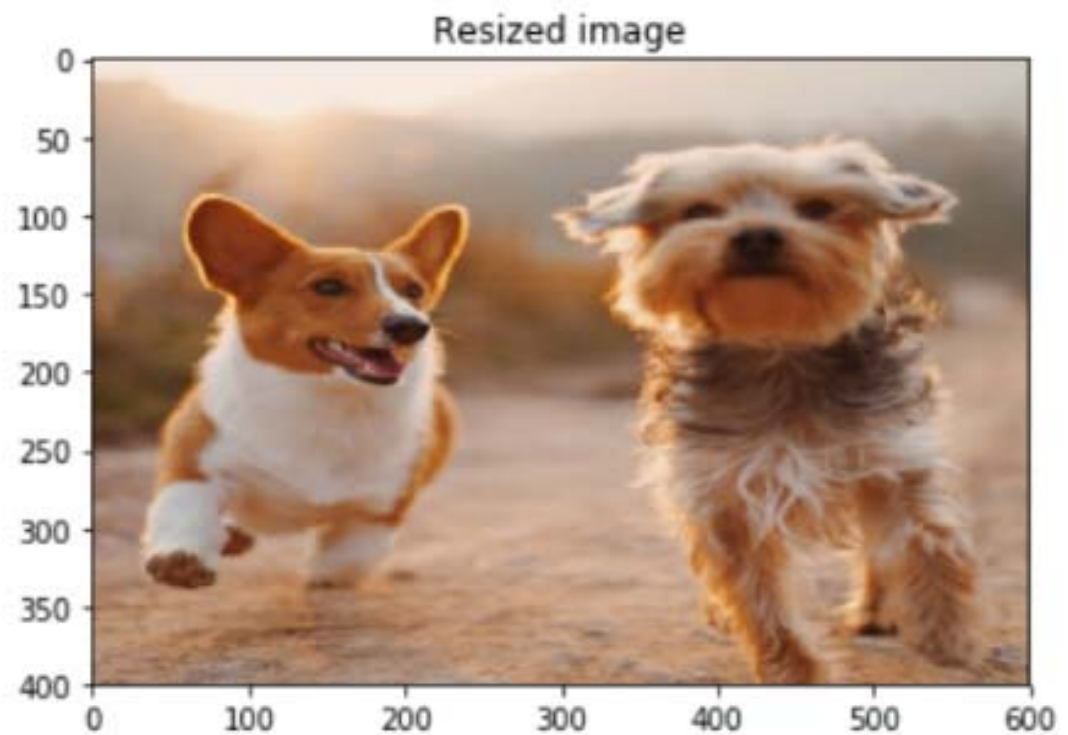
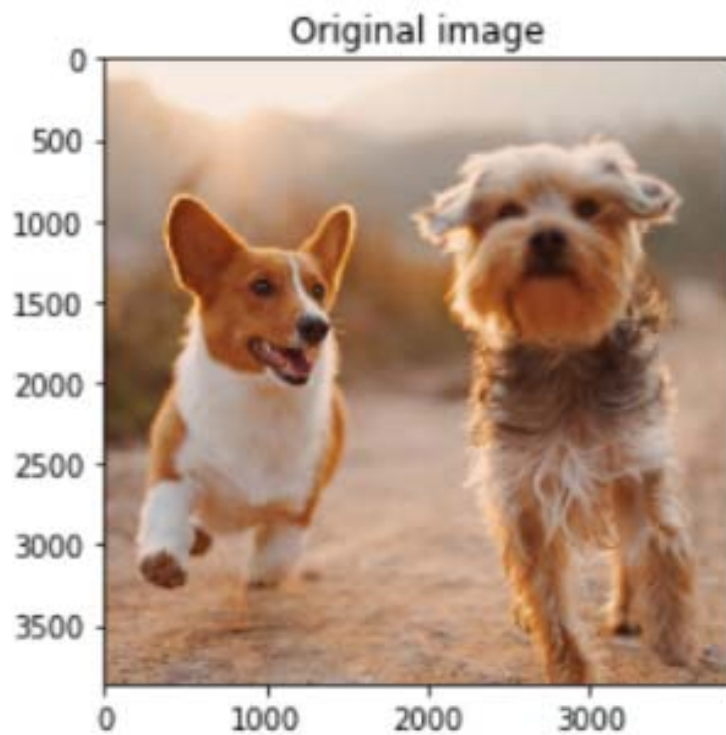
```
from skimage.transform import resize

# Height and width to resize
height = 400
width = 500

# Resize image
image_resized = resize(image, (height, width), anti_aliasing=True)

# Show the original and resulting images
show_image(image, 'Original image')
show_image(image_resized, 'Resized image')
```


Resizing



Resizing proportionally

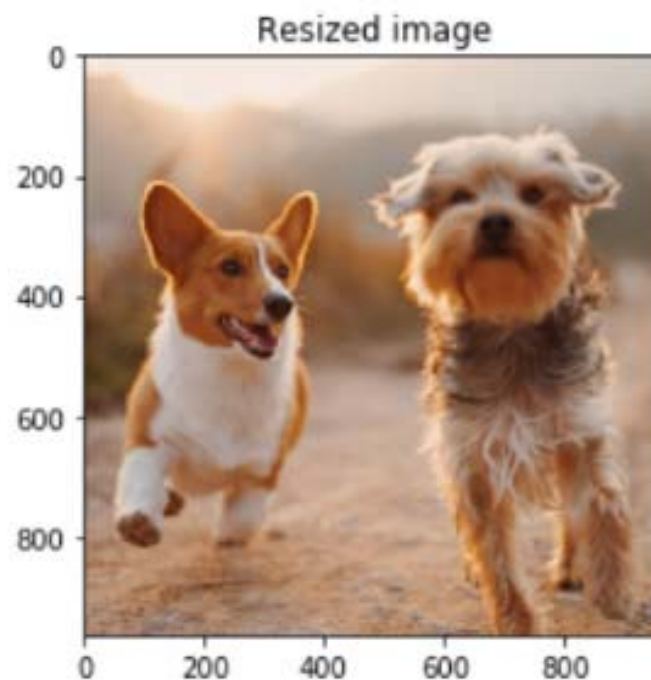
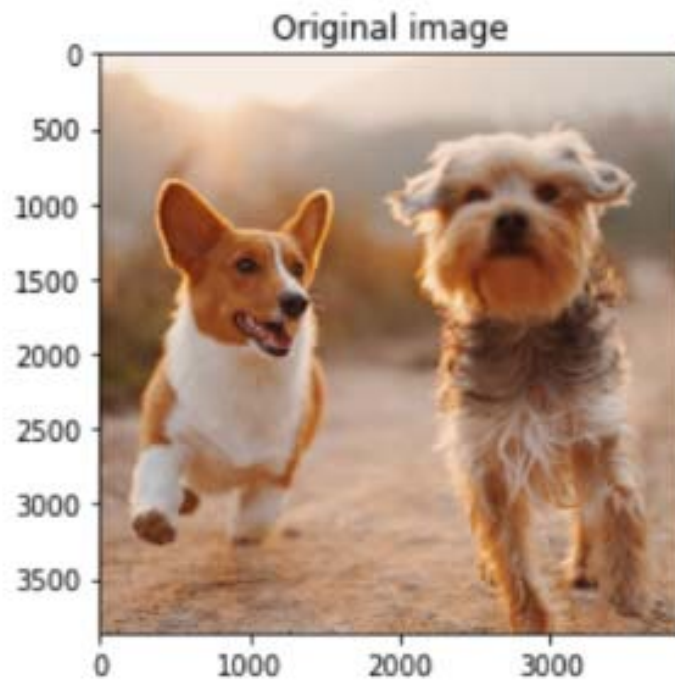
```
from skimage.transform import resize

# Set proportional height so its 4 times its size
height = image.shape[0] / 4
width = image.shape[1] / 4

# Resize image
image_resized = resize(image, (height, width), anti_aliasing=True)

show_image(image_resized, 'Resized image')
```

Resizing proportionally



練習時間

Transformations.ipynb



jupyter Transformations Last Checkpoint: 2 hours ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted | Python 3 C

Code

練習

Aliasing, rotating and rescaling Let's look at the impact of aliasing on images.

Remember that aliasing is an effect that causes different signals, in this case pixels, to become indistinguishable or distorted.


You'll make this cat image upright by rotating it 90 degrees and then rescaling it two times. Once with the anti aliasing filter applied before rescaling and a second time without it, so you can compare them.


Little cute cat larnge preloaded as image_cat.













練習時間

Transformations.ipynb



jupyter Transformations Last Checkpoint: a minute ago (autosaved)  Logout

File Edit View Insert Cell Kernel Widgets Help Trusted | Python 3 

          Code  

練習

Enlarging images Have you ever tried resizing an image to make it larger? This usually results in loss of quality, with the enlarged image looking blurry.

The good news is that the algorithm used by scikit-image works very well for enlarging images up to a certain point.

In this exercise you'll enlarge an image four times!!

You'll do this by rescaling the image of a rocket, that will be loaded from the data module.

Rocket

Rocket



練習時間

Transformations.ipynb



jupyter Transformations Last Checkpoint: 2 minutes ago (autosaved)

Logout

File Edit View Insert Cell Kernel Widgets Help

Trusted

Python 3

Save + Run Code

練習

Proportionally resizing We want to downscale the images of a veterinary blog website so all of these have the same compressed size.

It's important that you do this proportionally, meaning that these are not distorted.

First, you'll try it out for one image so you know what code to test later in the rest of pictures.

The image preloaded as dogs_banner. Remember that by looking at the shape of the image, you can know its width and height.



問卷

<http://www.pcschoolonline.com.tw>

開課查詢

免費體驗專區

課程總覽

專業師

1

學員專區

講師專區



> 課程檔案下載：

學員的「上課教材」，下載檔案為壓縮檔 ([解壓縮操作步驟](#))。
如無法觀看上課教材，請安裝 [PDF閱讀軟體](#)。

公告專區

我的課表

課程劃位

取消劃位

2

課程檔案下載

自107年1月1日起，課程錄影檔由180天改為365天(含)內無限次觀看 (上課隔日18:00起)。

問卷

上課日期	課程名稱	課程節次	教材下載		
2017/12/27 2000 ~ 2200	線上真人-ZBrush 3D動畫造型設計	18	上課教材	錄影 3	課堂問卷
2017/12/20 2000 ~ 2200	線上真人-ZBrush 3D動畫造型設計	17	上課教材	錄影檔	
2017/12/18 2000 ~ 2200	線上真人-ZBrush 3D動畫造型設計	16	上課教材	錄影檔	



巨匠線上真人

www.pcschoolonline.com.tw