

## cv2 resize interpolation methods

Published by **chadrick\_author** on November 14, 2018

- **INTER\_NEAREST** - a nearest-neighbor interpolation
- **INTER\_LINEAR** - a bilinear interpolation (used by default)
- **INTER\_AREA** - resampling using pixel area relation. It may be a preferred method for image decimation, as it gives moire'-free results. But when the image is zoomed, it is similar to the **INTER\_NEAREST** method.
- **INTER\_CUBIC** - a bicubic interpolation over 4×4 pixel neighborhood
- **INTER\_LANCZOS4** - a Lanczos interpolation over 8×8 pixel neighborhood

from [the official docs](#).

I use this often when using **cv2.resize** method. For example,

```
import cv2

img = cv2.imread("testimage.png")
resized = cv2.resize(img, (100,100), interpolation=cv2.INTER_LINEAR)
```

## reducing resize results

here is the default image. (50×50)

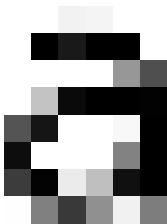


default image

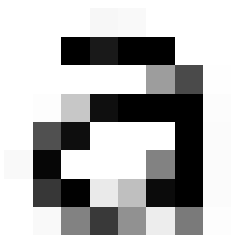
and here are the results of reducing it to 15×15 with various interpolation methods.



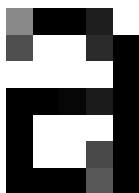
cv2.INTER\_AREA



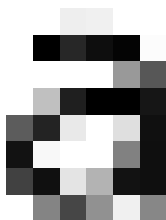
cv2.INTER\_CUBIC



cv2.INTER\_LANCZOS4



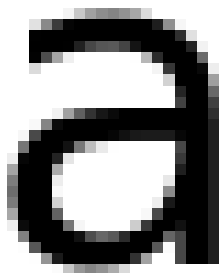
`cv2.INTER_NEAREST`



`cv2.INTER_LINEAR`

## enlarge resize results

with the same default image used above, here are the results when it is enlarged to 100x100



`cv2.INTER_AREA`

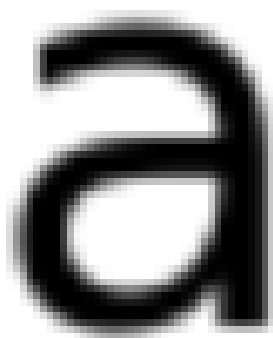


a

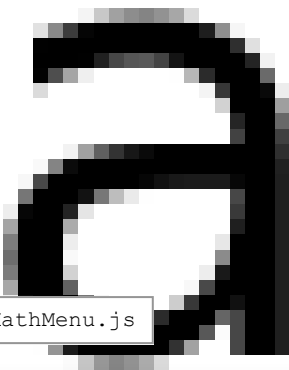
`cv2.INTER_CUBIC`

a

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cv2.INTER\_LINEAR



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Categories: PYTHON



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**makaros** · June 3, 2019 at 9:50 pm

How exactly does nearest-neighbor interpolation behaves when you downscale an image from  $50 \times 50$  to  $15 \times 15$ ? How is this  $15 \times 15$  images filled in with values ?

[↩ REPLY](#)

**nkumar** · September 26, 2019 at 3:48 pm

good discussion. are there any other method that retains the sharpness of edges when compressing? i feel edge detection is compromised when using the standard options.

[↩ REPLY](#)

**Pierre** · May 26, 2020 at 10:24 pm

That's was useful ! Thanks 😊

[↩ REPLY](#)

**Anonymous** · July 31, 2020 at 7:12 pm

good comparision

[↩ REPLY](#)

**Shraddha** · February 2, 2021 at 7:08 am

Thank you for creating this and showing a clear difference. it was useful.

[↩ REPLY](#)

**Ethan** · April 30, 2021 at 9:14 pm

REPLY



**Dan** · May 7, 2021 at 8:14 pm

Which method is the fastest, `INTER_LINEAR` maybe?

REPLY



**Jane Courtney** · June 28, 2021 at 8:55 pm

The simplicity of this post is helpful and joyous! Thank you.

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**Anonymous** · March 19, 2022 at 9:07 pm

Any paper as reference?

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