



计算机视觉

让Hello, world!做点事情

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第四节 让 Hello, world! 做点事情

1. 加些功能给"hello, world!"
2. 实践



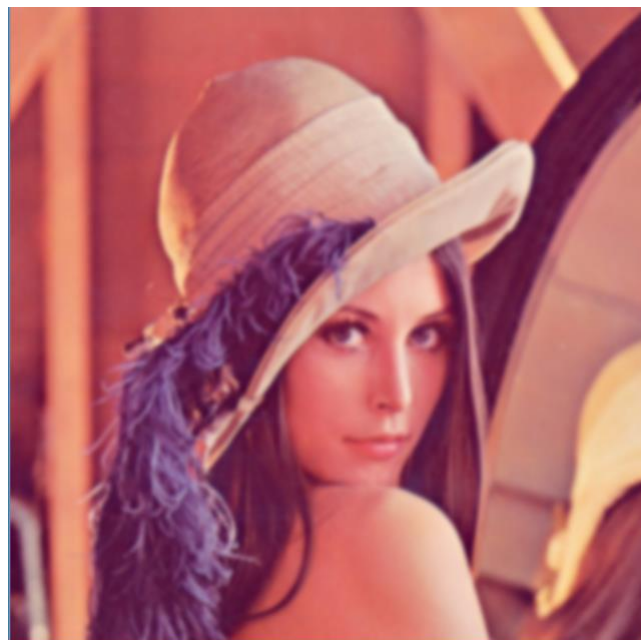
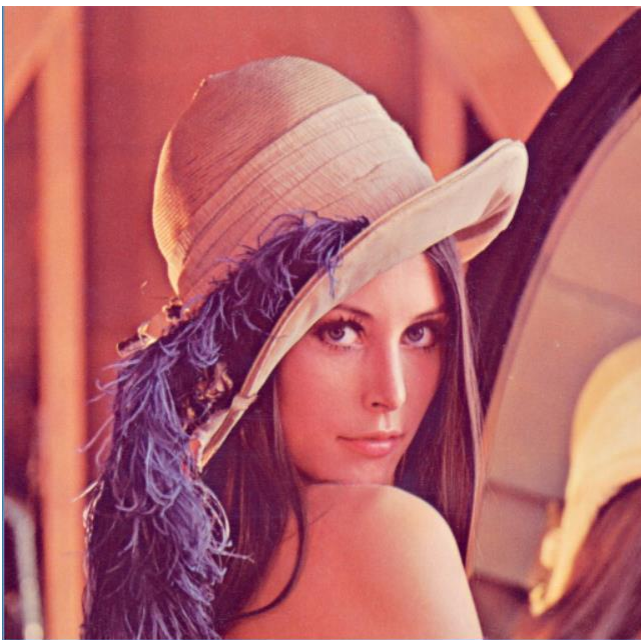
让“Hello, world!”做点事情

- 做点处理
- 程序演示

让我们的程序做点基本的事情

1. 图像改变大小
2. 图像平滑
3. 图像阈值化

高斯平滑

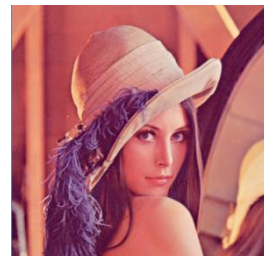
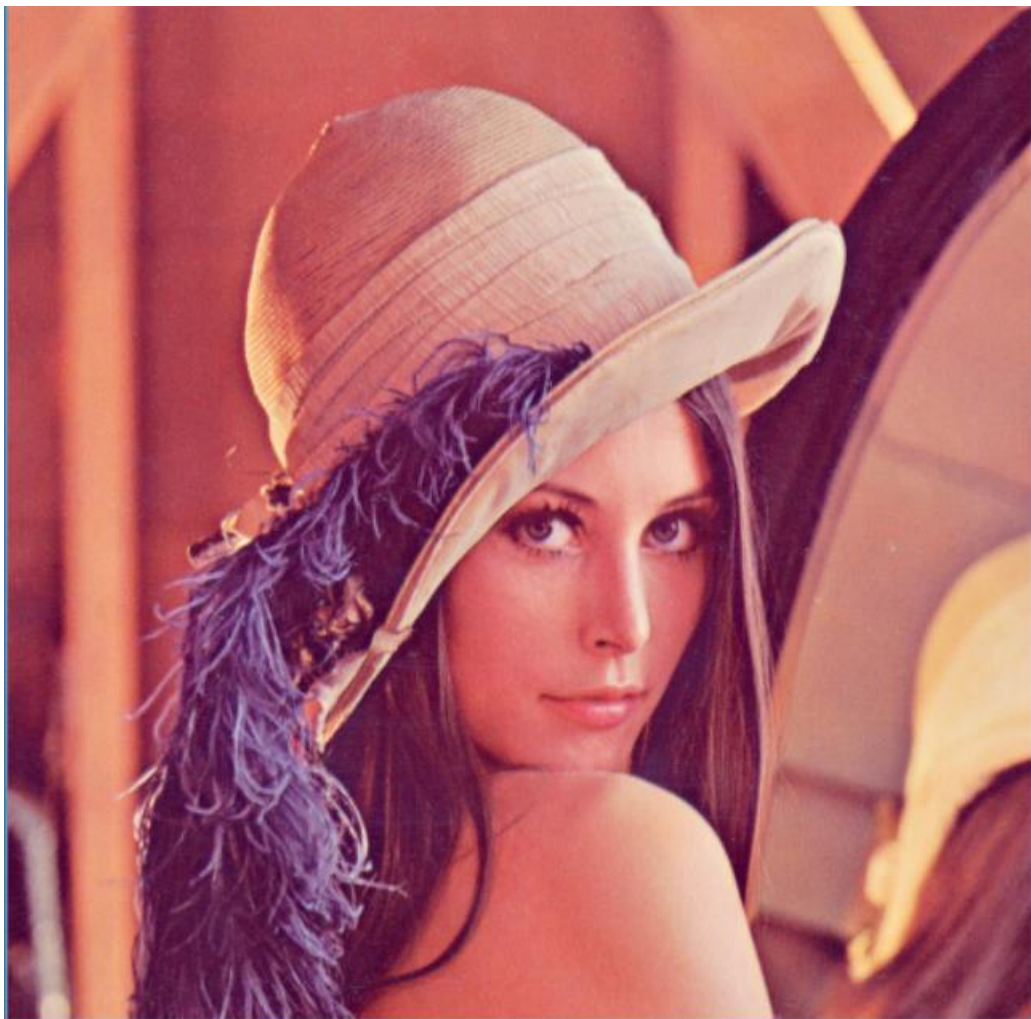


```
void GaussianBlur( const Mat& src, Mat& dst, Size ksize,double sigmaX, double sigmaY=0,int  
borderType=BORDER_DEFAULT );
```

高斯平滑

```
helloMore (全局范围) main()
1  #include "opencv2/opencv.hpp"
2
3  using namespace cv;
4
5  int main()
6  {
7      char *fn = "D:\\OpenCV\\sources\\samples\\data\\lena.jpg";
8      Mat image = imread(fn);
9
10     Mat imageGauss, image1, image2, gray, gray1, hsv, hsvChannels[3];
11
12     // 对图像做高斯平滑处理并显示
13     GaussianBlur(image, imageGauss, Size(5, 5), 0);
14     imshow("source image", image);
15     imshow("Gaussian filtered image", imageGauss);
16     waitKey();
17
18     // 对图像使用resize和pyrDown缩小一半再一半，显示各图像
19     resize(image, image1, Size(image.cols/2, image.rows/2));
20     pyrDown(image1, image2);
```

图像改变大小



```
void resize(InputArray src, OutputArray dst, Size dsize,  
double fx=0, double fy=0, int interpolation=INTER_LINEAR)
```

图像改变大小

```
helloMore (全局范围) main()
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2
3  using namespace cv;
4
5  int main()
6  {
7      char *fn = "D:\\OpenCV\\sources\\samples\\data\\lena.jpg";
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12     // 对图像做高斯平滑处理并显示
13     GaussianBlur(image, imageGauss, Size(5, 5), 0);
14     imshow("source image", image);
15     imshow("Gaussian filtered image", imageGauss);
16     waitKey();
17
18     // 对图像使用resize和pyrDown缩小一半再一半，显示各图像
19     resize(image, image1, Size(image.cols/2, image.rows/2));
20     pyrDown(image1, image2);
```


颜色空间转换和阈值化



```
void cvtColor(InputArray src, OutputArray dst, int code,int dstCn=0);  
Void threshold(InputArray src, OutputArray dst, double thresh,  
double maxval, int type);
```

颜色空间转换和阈值化

```
helloMore (全局范围) main()
13 GaussianBlur(image, imageGauss, Size(5, 5), 0);
14 imshow("source image", image);
15 imshow("Gaussian filtered image", imageGauss);
16 waitKey();
17
18 // 对图像使用resize和pyrDown缩小一半再一半, 显示各图像
19 resize(image, image1, Size(image.cols/2, image.rows/2));
20 pyrDown(image1, image2);
21 imshow("half size", image1);
22 imshow("quarter size", image2);
23 waitKey();
24
25 // 彩色转灰度并作阈值化, 显示
26 cvtColor(image, gray, COLOR_BGR2GRAY);
27 threshold(gray, gray1, 120, 0xff, THRESH_BINARY);
28 imshow("gray", gray);
29 imshow("threshold image", gray1);
30 waitKey();
31 }
```

1. 自己尝试使用Visual Studio+OpenCV实现课程讲述功能

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