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Python 3.9.0 (tags/v3.9.0:9cf6752, Oct 5 2020, 15:34:40) [MSC v.1927 64 bit
(AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> import numpy as np
>>> import matplotlib.pyplot as plt
>>> from scipy.stats import norm
>>> from PIL import Image
>>> im = Image.open('magic-cube-1976725_640.jpg')
>>> gray = np.mean(im, axis=2)
>>> plt.imshow(gray, cmap='gray')
<matplotlib.image.AxesImage object at 0x000002852F748CA0>
>>> plt.show()
>>> x = np.linspace(-6, 6, 50)
>>> fx = norm.pdf(x, loc=0, scale=1)
>>> fx
array([6.07588285e-09, 2.56290777e-08, 1.01814527e-07, 3.80925197e-07,
       1.34221732e-06, 4.45409176e-06, 1.39203022e-05, 4.09723953e-05,
       1.13576172e-04, 2.96507911e-04, 7.29018461e-04, 1.68808360e-03,
       3.68131144e-03, 7.56074086e-03, 1.46244429e-02, 2.66408140e-02,
       4.57055390e-02, 7.38487866e-02, 1.12375355e-01, 1.61046753e-01,
       2.17363217e-01, 2.76295186e-01, 3.30760596e-01, 3.72912892e-01,
       3.95962642e-01, 3.95962642e-01, 3.72912892e-01, 3.30760596e-01,
       2.76295186e-01, 2.17363217e-01, 1.61046753e-01, 1.12375355e-01,
       7.38487866e-02, 4.57055390e-02, 2.66408140e-02, 1.46244429e-02,
       7.56074086e-03, 3.68131144e-03, 1.68808360e-03, 7.29018461e-04,
       2.96507911e-04, 1.13576172e-04, 4.09723953e-05, 1.39203022e-05,
       4.45409176e-06, 1.34221732e-06, 3.80925197e-07, 1.01814527e-07,
       2.56290777e-08, 6.07588285e-09])
>>> filt = np.outer(fx, fx)
>>> plt.imshow(filt)
<matplotlib.image.AxesImage object at 0x000002853952CC40>
>>> plt.show()
>>> from scipy.signal import convolve2d
>>> out = convolve2d(gray, filt)
>>> plt.subplot(1,2,1) #plt.subplot(rows, cols, position)
<AxesSubplot:>
>>> plt.imshow(gray, cmap = 'gray')
<matplotlib.image.AxesImage object at 0x000002852FDC2160>
>>> plt.subplot(1,2,2)
<AxesSubplot:>
>>> plt.imshow(out, cmap='gray')
<matplotlib.image.AxesImage object at 0x000002852FFA28B0>
>>> plt.show()
>>>

```