yanz4_mp2_part1_code

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1 Part 1

2 c1 + c2

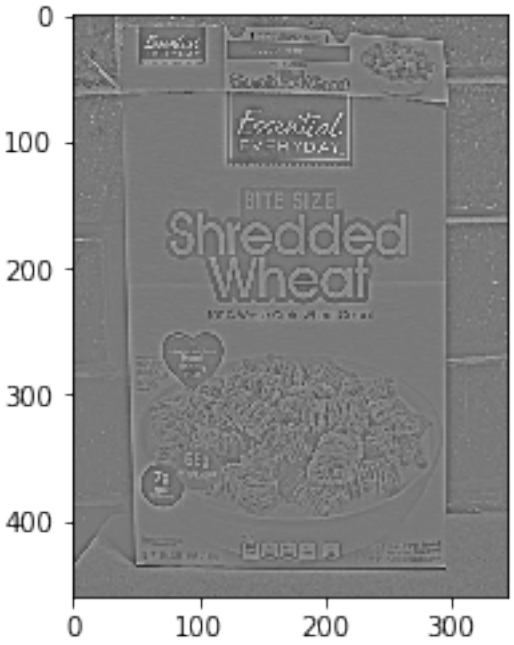
In [55]:
```
import numpy as np
import cv2
import matplotlib.image as mpimg
import matplotlib.pyplot as plt
import skimage
import scipy
from scipy.ndimage import gaussian_filter
%matplotlib inline
```

In [56]:
```
# c1 + c2
img1 = np.float64(cv2.imread('c1.jpg', 0))
a1 = gaussian_filter(img1, sigma=2)

img2 = np.float64(cv2.imread('c2.jpg', 0))
a2 = gaussian_filter(img2, sigma=3)

h = (img1 - a1 + a2) / 2

h = (h - np.min(h)) / (np.max(h) - np.min(h)) * 255
```

2.0.1 high-pass filtered images

In [57]:
```
plt.imshow(img1 - a1, cmap='gray')
```

Out[57]:
```
<matplotlib.image.AxesImage at 0x204a8db2ac8>
```

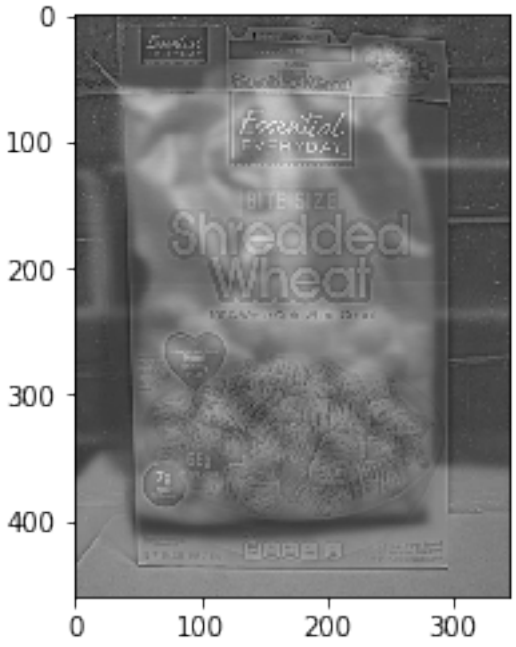


2.0.2 low-pass filtered images

```
In [58]: plt.imshow(a2, cmap='gray')
         plt.show()
```

2.0.3 hybrid images

```
In [59]: plt.imshow(h, cmap='gray')
         plt.show()
```

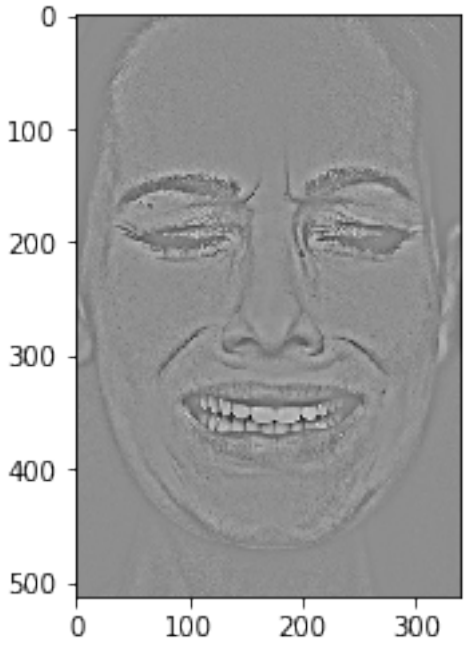


3 Sad + Happy

```
In [60]: # Sad + Happy
         img1 = np.float64(cv2.imread('sad.jpg', 0))
         a1 = gaussian_filter(img1, sigma=4)

         img2 = np.float64(cv2.imread('happy.jpg', 0))
         a2 = gaussian_filter(img2, sigma=6)

         h = (img1 - a1 + a2) / 2

         h = (h - np.min(h)) / (np.max(h) - np.min(h)) * 255
```

3.0.4 high-pass filtered images

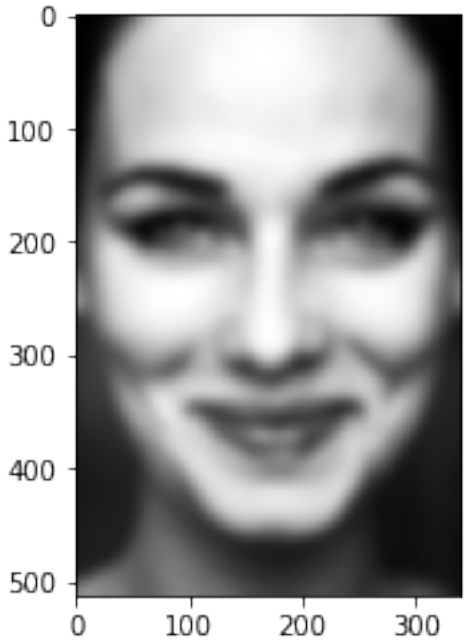
```
In [61]: plt.imshow(img1 - a1, cmap='gray')

Out[61]: <matplotlib.image.AxesImage at 0x204a98f33c8>
```



3.0.5 low-pass filtered images

In [62]:
```
plt.imshow(a2, cmap='gray')
```

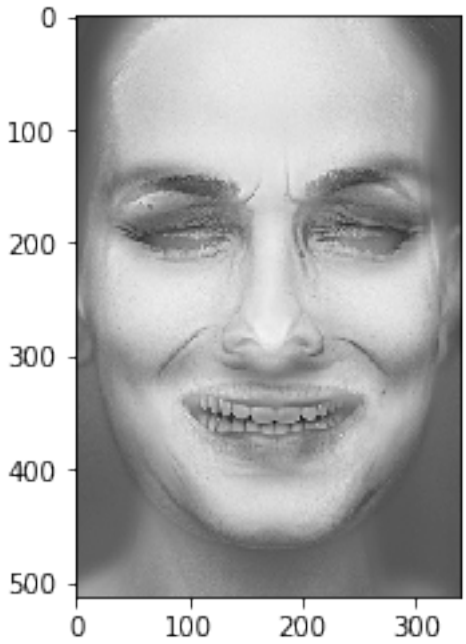
Out[62]:
```
<matplotlib.image.AxesImage at 0x204a92d2860>
```



3.0.6 hybrid images

```
In [63]: plt.imshow(h, cmap='gray')
```

```
Out[63]: <matplotlib.image.AxesImage at 0x204a9325d68>
```



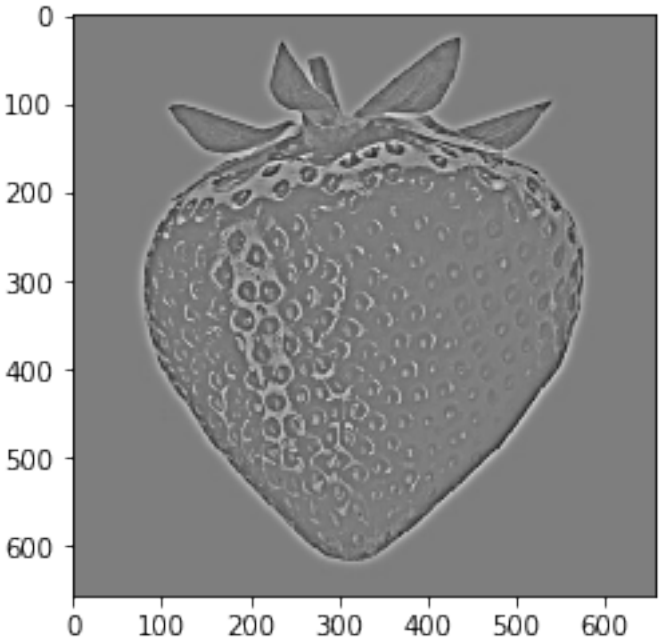
4 Apple + Strawberry

```
In [64]: # Apple + Strawberry
         img1 = np.float64(cv2.imread('s.jpg', 0))
         a1 = gaussian_filter(img1, sigma=5)

         img2 = np.float64(cv2.imread('apple.jpg', 0))
         a2 = gaussian_filter(img2, sigma=20)

         h = (img1 - a1 + a2) / 2

         h = (h - np.min(h)) / (np.max(h) - np.min(h)) * 255
```

4.0.7 high-pass filtered images

```
In [65]: plt.imshow(img1 - a1, cmap='gray')
```

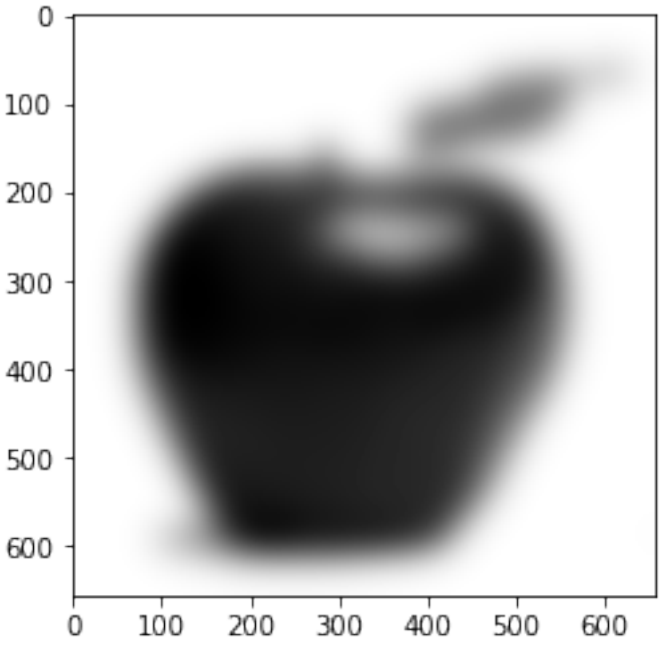
Out[65]: <matplotlib.image.AxesImage at 0x204a9384588>



4.0.8 low-pass filtered images

In [66]: plt.imshow(a2, cmap='gray')

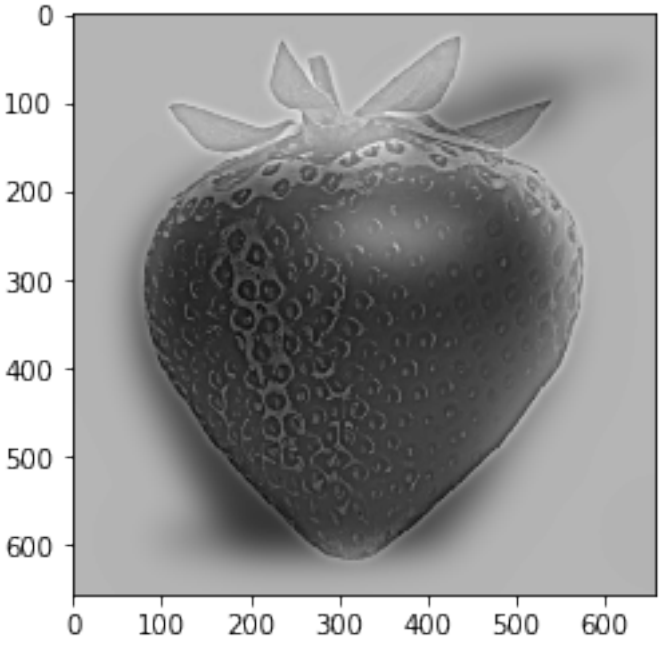
Out[66]: <matplotlib.image.AxesImage at 0x204a9f50da0>



4.0.9 hybrid images

In [67]:
```
plt.imshow(h, cmap='gray')
```

Out[67]:
```
<matplotlib.image.AxesImage at 0x204a9fb3668>
```



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