Harris Corner Detection

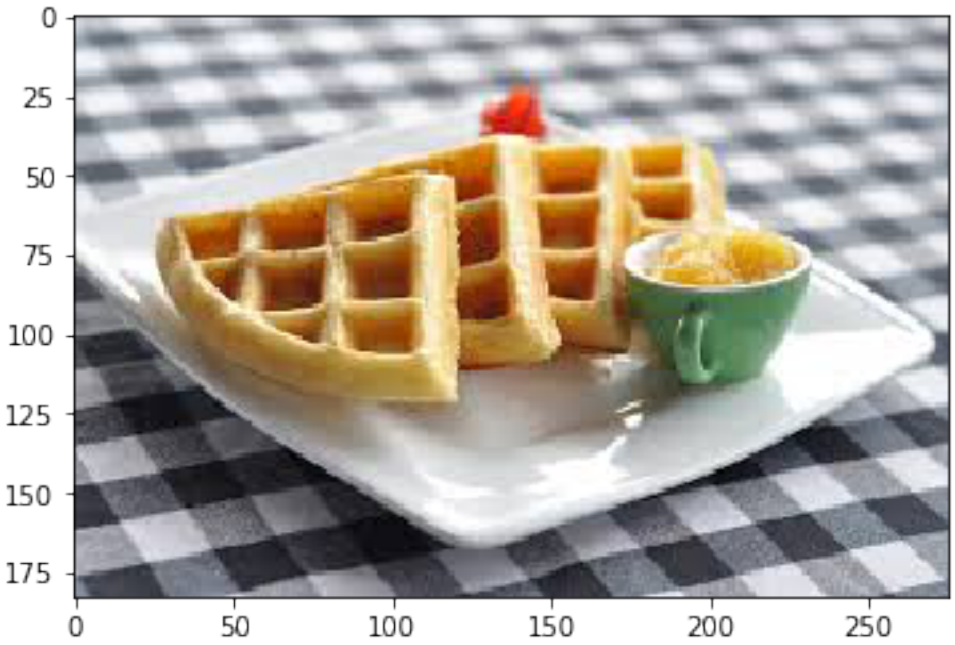
May 25, 2020

1 Harris Corner Detection

1.0.1 Import resources and display image

In [1]:
```
import matplotlib.pyplot as plt
import numpy as np
import cv2

%matplotlib inline

# Read in the image
image = cv2.imread('images/waffle.jpg')

# Make a copy of the image
image_copy = np.copy(image)

# Change color to RGB (from BGR)
image_copy = cv2.cvtColor(image_copy, cv2.COLOR_BGR2RGB)

plt.imshow(image_copy)
```

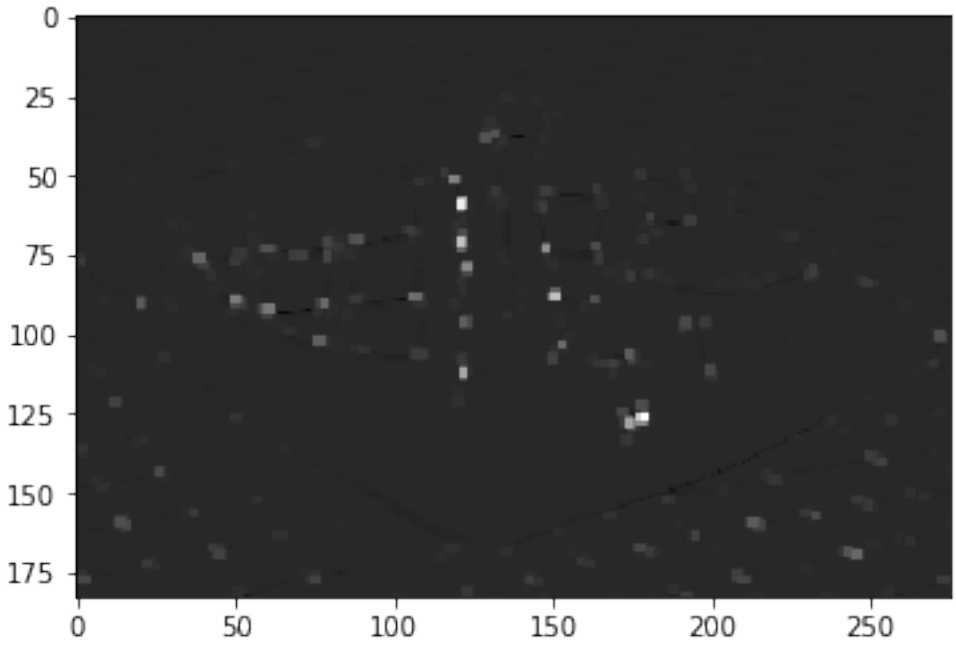
Out[1]:
```
<matplotlib.image.AxesImage at 0x7f80860552b0>
```



1.0.2 Detect corners

In [2]:
```
# Convert to grayscale
gray = cv2.cvtColor(image_copy, cv2.COLOR_RGB2GRAY)
gray = np.float32(gray)

# Detect corners
dst = cv2.cornerHarris(gray, 2, 3, 0.04)

# Dilate corner image to enhance corner points
dst = cv2.dilate(dst,None)

plt.imshow(dst, cmap='gray')
```

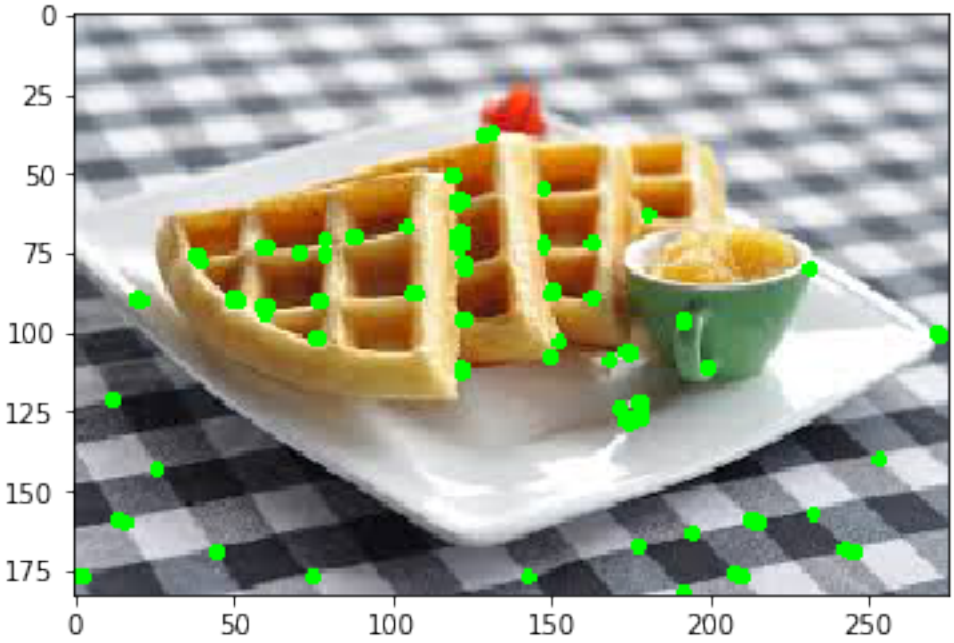
Out[2]: <matplotlib.image.AxesImage at 0x7f8085ff7e10>



1.0.3 Extract and display strong corners

In [13]:
```
## TODO: Define a threshold for extracting strong corners
# This value vary depending on the image and how many corners you want to detect
# Try changing this free parameter, 0.1, to be larger or smaller ans see what happens
thresh = 0.1*dst.max()

# Create an image copy to draw corners on
corner_image = np.copy(image_copy)

# Iterate through all the corners and draw them on the image (if they pass the threshol
for j in range(0, dst.shape[0]):
    for i in range(0, dst.shape[1]):
        if(dst[j,i] > thresh):
            # image, center pt, radius, color, thickness
            cv2.circle( corner_image, (i, j), 1, (0,255,0), 1)

plt.imshow(corner_image)
```

Out[13]:
```
<matplotlib.image.AxesImage at 0x7f804cdf6a90>
```



In [ ]: