```python
import matplotlib.pyplot as plt
from skimage import io, color, filters, feature
from skimage.feature import blob_dog
from skimage.draw import circle_perimeter

# Load the image
image = io.imread('animal.jpg')

# Convert the image to grayscale
gray_image = color.rgb2gray(image)

# Perform edge detection using the Sobel filter
edges = filters.sobel(gray_image)

# Perform object detection (blob detection using Difference of Gaussian)
blobs = blob_dog(gray_image, max_sigma=30, threshold=0.1)

# Draw detected blobs (objects) on the original image
detected_image = image.copy()
for blob in blobs:
    y, x, r = blob
    rr, cc = circle_perimeter(int(y), int(x), int(r), shape=image.shape)
    detected_image[rr, cc] = (255, 0, 0)  # Red color for the detected circles

# Display the original, grayscale, edge-detected, and object-detected images
plt.figure(figsize=(12, 8))

# Original Image
plt.subplot(1, 4, 1)
plt.title('Original Image')
plt.imshow(image)

# Grayscale Image
plt.subplot(1, 4, 2)
plt.title('Grayscale Image')
plt.imshow(gray_image, cmap='gray')

# Edge Detection
plt.subplot(1, 4, 3)
plt.title('Edge Detection')
plt.imshow(edges, cmap='gray')

# Object Detection
plt.subplot(1, 4, 4)
```

```python
plt.title('Object Detection')
plt.imshow(detected_image)

plt.tight_layout()
plt.show()
```