Larry Gates & Aaron Mercier

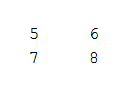
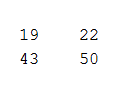
CSSE463

Lab 3

**Lab 3: Edge Features**

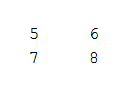
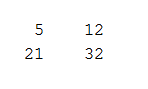
1. **Type these (2 choices for multiplication) in and explain the answers you get:**

Using the \* symbol produces dot product of rows and columns



\* =

Thedoes scalar multiplication



\* =

1. **Submit the 5x5 matrix what you used as a filter. Then explain any differences between it and the “true” Gaussian.**

Our approximation:

Correct results:

Explain Differences:

Our 5x5 matrix didn’t rely on exponential change. The correct Gaussian filter weighted the center extremely heavily, more than ½, and weighed the edges lowly. Anything that is not on the same row or column as the center was 0 or very close to zero, excluding the immediate corners. Since the neighbor corners of the center are still closer than the far edges, they have some impact.

1. **Sobel Images**
2. **Original**

Image from the site: <https://ironyisapoormaster.wordpress.com/2016/06/23/return-0-person-of-interest-review-season-5-episode-13/>

Image Link: <https://ironyisapoormaster.files.wordpress.com/2016/06/person-of-interest-reese-jim-finch-root-finale-return-0.jpg>



1. **Horizontal Edges**

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1. **Vertical Edges**

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1. **Sum of (b) and (c)**

****

1. **Magnitude of the gradient**

****

1. **Direction of the gradient**

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1. **Directions and Magnitude**

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