**Fundamentals of Computer Vision**
**Fall – 2016 (Section A)**
**Quiz # 2**

Briefly discuss in two lines what is the difference between Sobel & Laplacian operators for edge detection.

***Operators(provide mask):***

| **Sobel** | **Laplacian** |
|---|---|
| VERTICAL EDGE HORIZONTAL EDGE<br>$\begin{bmatrix} -1 & -2 & -1 \\ 0 & 0 & 0 \\ 1 & 2 & 1 \end{bmatrix}$ $\begin{bmatrix} -1 & 0 & 1 \\ -2 & 0 & 2 \\ -1 & 0 & 1 \end{bmatrix}$<br>If someone multiplied it with 1/8 ….that is also correct | Type 1 Type 2 Type 3<br>$\begin{bmatrix} 0 & -1 & 0 \\ -1 & 4 & -1 \\ 0 & -1 & 0 \end{bmatrix}$ $\begin{bmatrix} -2 & 1 & -2 \\ 1 & 4 & 1 \\ -2 & 1 & -2 \end{bmatrix}$ $\begin{bmatrix} -1 & -1 & -1 \\ -1 & 8 & -1 \\ -1 & -1 & -1 \end{bmatrix}$<br>*Any one of these 3 types is correct* |

**Difference:**

*Sobel takes first derivative and Laplacian takes second*