

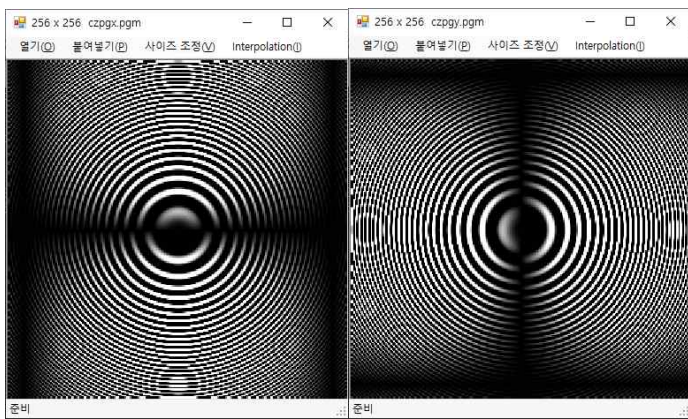
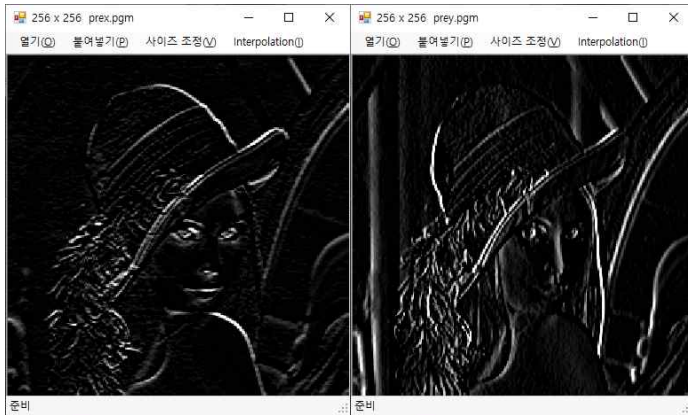
15012974 최태호 영상처리 실습5

지난 시간의 실습 결과와 Lena, Zone plate 영상을 이용하여 다음의 미분 연산자의 특성들을 확인하라.

Prewitt operator : Gx, Gy 성분 영상 확인

```
float mask[3][3] = { {-1,-1,-1},{0,0,0}, {1,1,1} };
```

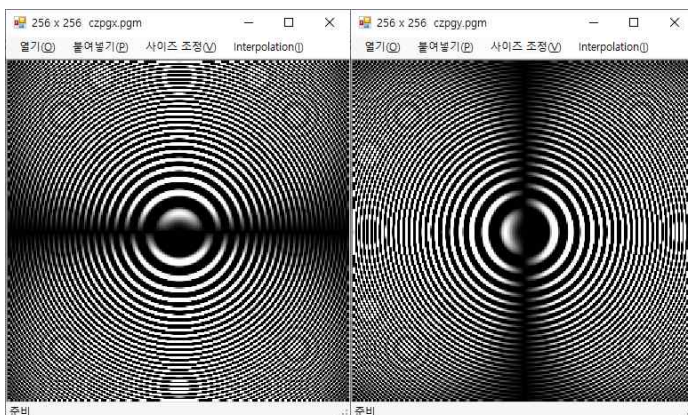
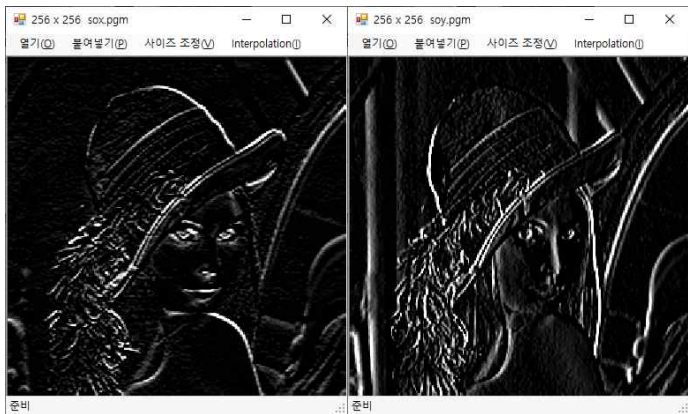
```
float mask[3][3] = { {-1,0,1},{-1,0,1}, {-1,0,1} };
```



Sobel operator : Gx, Gy 성분 영상 확인

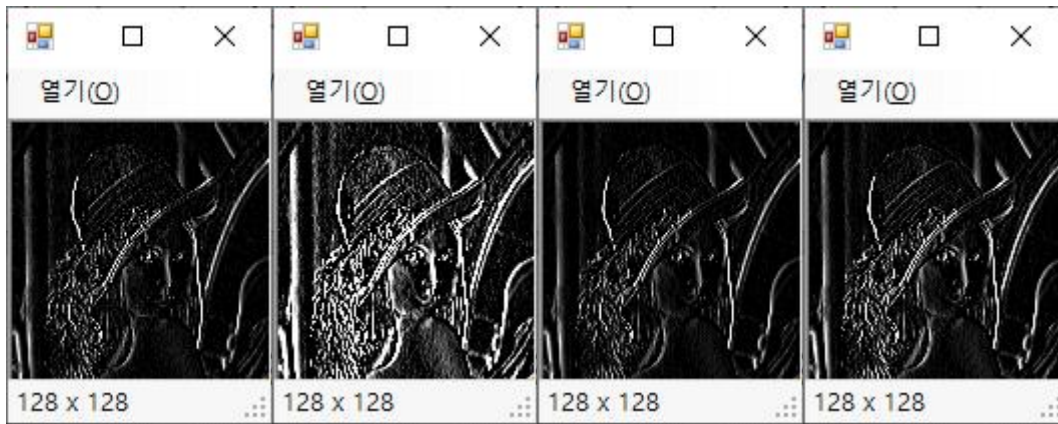
```
float mask[3][3] = { {-1,-2,-1},{0,0,0}, {1,2,1} };
```

```
float mask[3][3] = { {-1,0,1},{-2,0,2}, {-1,0,1} };
```

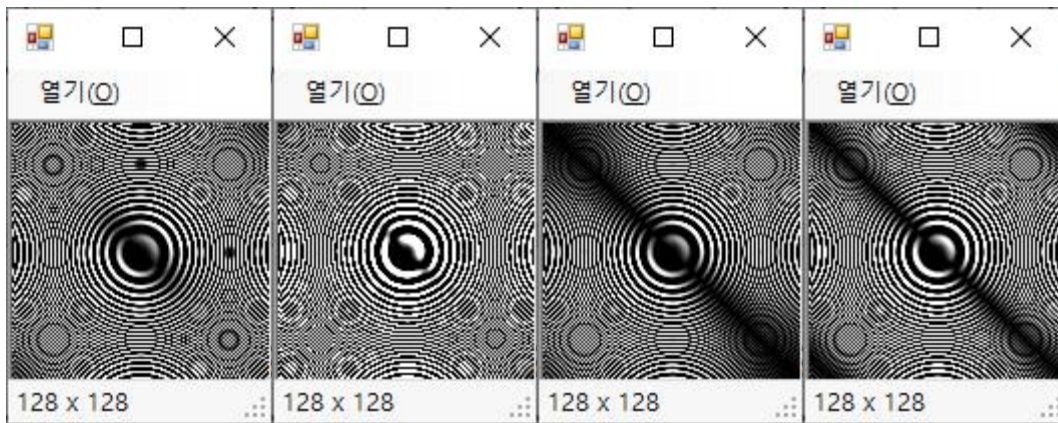


Compass 기울기 연산자의 다양한 방향 성분 기울기 검출

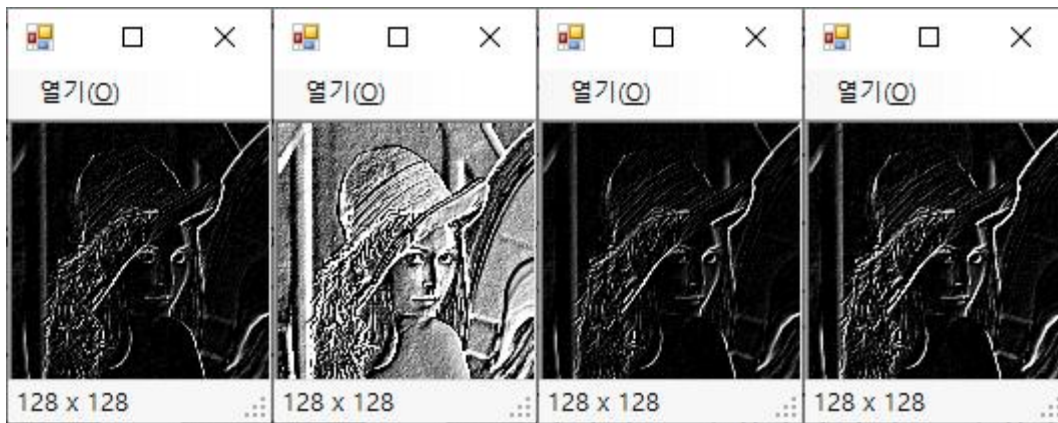
▪ Prewitt ▪ Kirsh ▪ Robinson 3-level ▪ Robinson 5-level [West]



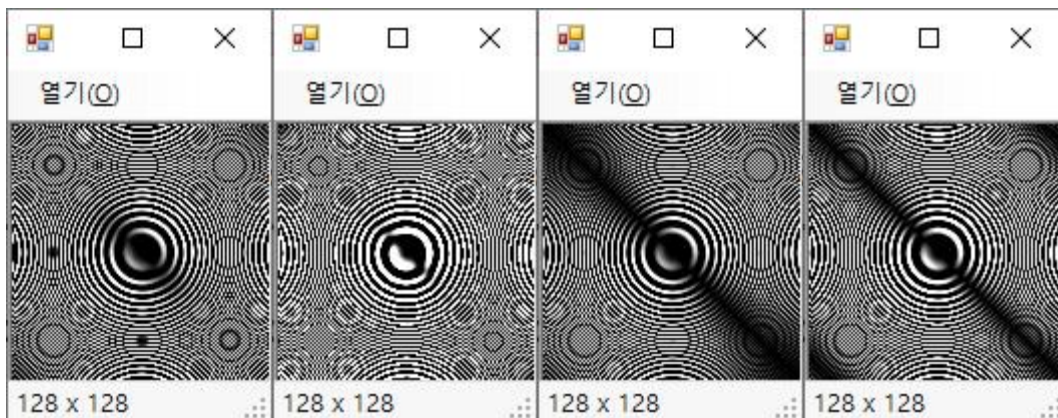
▪ Prewitt ▪ Kirsh ▪ Robinson 3-level ▪ Robinson 5-level [NorthEast]



▪ Prewitt ▪ Kirsh ▪ Robinson 3-level ▪ Robinson 5-level [SouthEast]



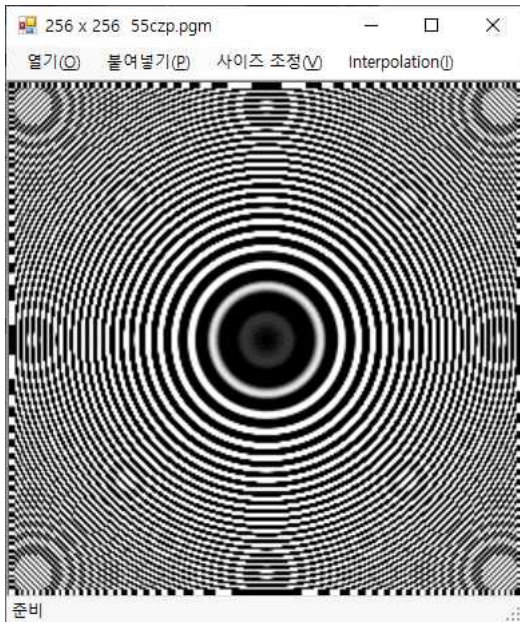
▪ Prewitt ▪ Kirsh ▪ Robinson 3-level ▪ Robinson 5-level [SouthWest]




```
//float mask[3][3] = { {-1,1,1},{-1, -2, 1}, {-1, 1,1} }; //preW
//float mask[3][3] = { {-3,-3,5},{-3, 0, 5}, {-3, -3,5} }; //kirW
// float mask[3][3] = { {-1,0,1},{-1, 0, 1}, {-1, 0,1} }; //3levW
// float mask[3][3] = { {-1,0,1},{-2, 0, 2}, {-1, 0,1} }; //5levW
//float mask[3][3] = { {1,-1,-1},{1, -2, -1}, {1,1,1} }; //preNE
// float mask[3][3] = { {-3,-3,-3},{5, 0, -3}, {5, 5,-3} }; //kirNE
//float mask[3][3] = { {0,-1,-1},{1, 0, -1}, {1, 1,0} }; //3levNE
// float mask[3][3] = { {0,-1,-2},{1, 0, -1}, {2, 1,0} }; //5levNE
// float mask[3][3] = { {1,1,1},{1, -2, -1}, {1,-1,-1} }; //preSE
//float mask[3][3] = { {5,5,-3},{5, 0, -3}, {-2, -3,-3} }; //kirSE
// float mask[3][3] = { {1,1,0},{1, 0, -1}, {0, -1,-1} }; //3levSE
// float mask[3][3] = { {2,1,0},{1, 0, -1}, {0,-1,-2} }; //5levSE
// float mask[3][3] = { {1,1,1},{-1, -2, 1}, {-1,-1,1} }; //preSW
// float mask[3][3] = { {-3,5,5},{-3, 0, 5}, {-3, -3,-3} }; //kirSW
//float mask[3][3] = { {0,1,1},{-1, 0, 1}, {-1, -1,0} }; //3levSW
//float mask[3][3] = { {0,1,2},{-1, 0, 1}, {-2,-1,0} }; //5levSW
```

convolution 마스크 크기를 5x5로 확장한 후 다음의 LoG 연산자를 구현하고 Lena, Zone plate 영상에 대해서 적용한 결과를 관찰하라.

```
float mask[5][5] = { {0,0,-1,0,0},{0,-1,-2,-1,0}, {-1,-2,16,-2,-1},{0,-1,-2,-1,0},{0,0,-1,0,0} };
convolve(buffer, cols, rows, 5, 5, mask, 0, fileout);
```

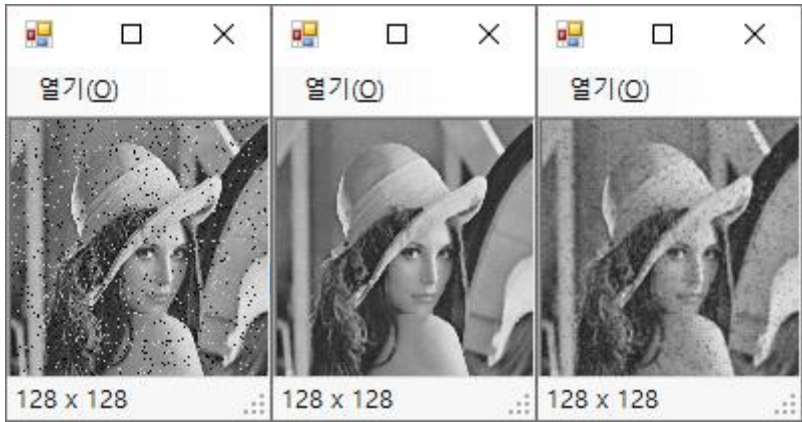


첨부된 source code (median_filt.c)와 아래와 같이 서로 다른 종류의 잡음이 첨가된 lena 영상을 이용하여 3x3 크기의 median/mean filter operation을 수행한 결과를 관찰하라.

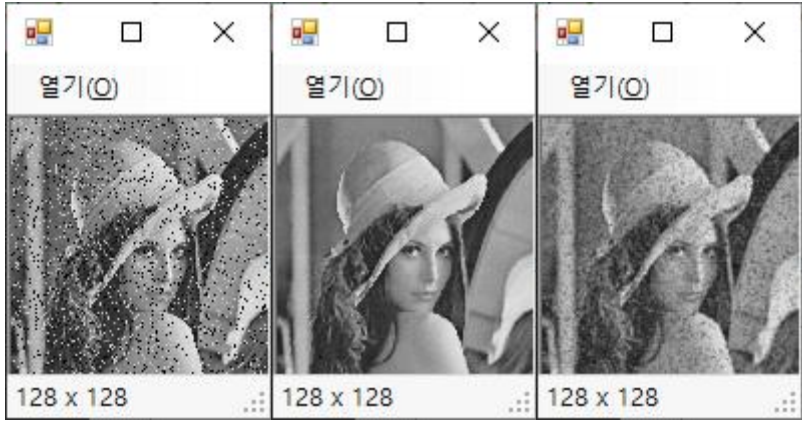
```
median_filt(buffer, cols, rows, fileout, 3); //median
```

```
float mask[3][3] = { {1 / 9.0,1 / 9.0,1 / 9.0},{1 / 9.0,1 / 9.0, 1 / 9.0}, {1 / 9.0, 1 / 9.0,1 / 9.0} }; //mean
```

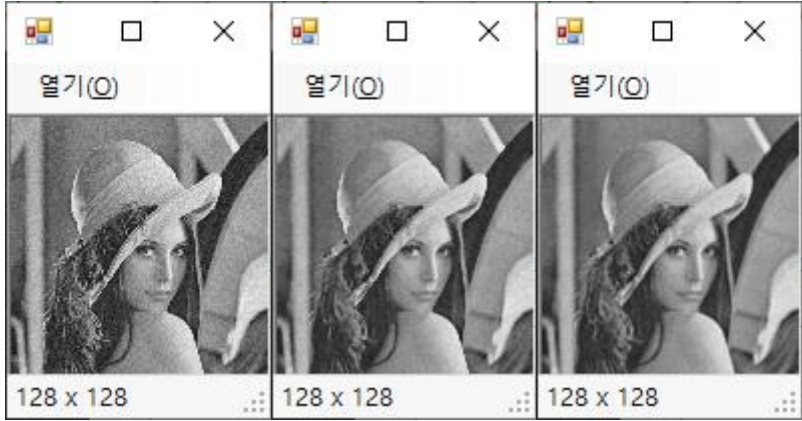
원본 -> Median -> Mean 순서



원본 -> Median -> Mean 순서



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원본 -> Median -> Mean 순서

