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Matkul : Pengolahan Citra

1) Diketahui citra keabuan $f(x,y)$ yang berukuran 5×5 mempunyai 8 skala keabuan hendak diproses menggunakan filter berukuran 3×3. Proses adalah sebagai berikut.

$f(x,y) =$

5	3	2	0	4
4	2	2	3	4
6	3	2	1	6
7	0	0	7	0
7	4	2	1	0

Gambarkan citra hasil perhitungan menggunakan filter rata-rata!

=> $g(x,y) = \frac{1}{9}[1$

* | 5 | 3 | 2 |
| 4 | 2 | 2 |
| 6 | 3 | 2 |

$g(x,y) = \frac{1}{9}(1\times5) + (1\times3) + (1\times2) + (1\times4) + (1\times2) + (1\times2) + (1\times6) + (1\times3) + (1\times2)$
$= 3$

* | 3 | 2 | 0 |
| 2 | 2 | 3 |
| 6 | 3 | 2 |

$g(x,y) = \frac{1}{9}(1\times3) + (1\times2) + (1\times0) + (1\times2) + (1\times2) + (1\times3) + (1\times3) + (1\times2) + (1\times1)$
$= 2$

* | 2 | 0 | 4 |
| 2 | 3 | 4 |
| 3 | 4 | 6 |

$g(x,y) = \frac{1}{9}(1\times2) + (1\times0) + (1\times4) + (1\times2) + (1\times3) + (1\times4) + (1\times2) + (1\times1) + (1\times6)$
$= 3$

* | 4 | 2 | 2 |
| 6 | 3 | 2 |
| 7 | 0 | 0 |

$g(x,y) = \frac{1}{9}(1\times4) + (1\times2) + (1\times2) + (1\times6) + (1\times3) + (1\times2) + (1\times7) + (1\times0) + (1\times0)$
$= 3$

* | 2 | 2 | 3 |
| 3 | 2 | 2 |
| 0 | 0 | 7 |

$g(x,y) = \frac{1}{9}(1\times2) + (1\times2) + (1\times3) + (1\times3) + (1\times2) + (1\times1) + (1\times0) + (1\times0) + (1\times7)$
$= 2$

2	3	4
2	4	6
0	4	0

$f(x,y) = \frac{1}{9}(1\times2) + (1\times3) + (1\times4) + (1\times2) + (1\times1) + (1\times6) + (1\times0) + (1\times7) + (1\times0)$

$= 3$

6	3	2
4	0	0
4	4	2

$f(x,y) = \frac{1}{9}(1\times6) + (1\times3) + (1\times2) + (1\times7) + (1\times0) + (1\times0) + (1\times4) + (1\times2)$

$= 3$

3	2	1
0	0	4
4	2	1

$f(x,y) = \frac{1}{9}(1\times3) + (1\times2) + (1\times1) + (1\times0) + (1\times0) + (1\times7) + (1\times4) + (1\times2) + (1\times1)$

$= 2$

2	1	6
0	7	0
3	1	0

$f(x,y) = \frac{1}{9}(1\times2) + (1\times1) + (1\times6) + (1\times0) + (1\times7) + (1\times0) + (1\times2) + (1\times1) + (1\times0)$

$= 2$

Hasil =

5	3	2	0	4
4	3	2	3	4
6	3	2	3	6
7	3	2	2	0
7	4	2	1	0

2) Gambarkan citra hasil perhitungan menggunakan filter median, minimum dan maksimum!

=>

3	3	2
4	2	2
6	3	2

Median = 3
Minimum = 2
Maksimum = 6

3	2	0
2	2	3
3	2	1

Median = 2
Minimum = 0
Maksimum = 3

*

2	0	4
2	3	4
2	1	6

Median : 2
Minimum : 0
Maksimum : 6

*

4	2	2
6	3	2
7	0	0

Median : 2
Minimum : 0
Maksimum : 7

*

2	2	3
3	2	1
0	0	7

Median : 2
Minimum : 0
Maksimum : 7

*

2	3	4
4	1	6
0	7	0

Median : 2
Minimum : 0
Maksimum : 7

*

6	3	2
7	0	6
4	4	2

Median : 3
Minimum : 0
Maksimum : 7

*

2	2	1
0	0	7
4	2	1

Median : 2
Minimum : 0
Maksimum : 7

*

2	1	6
0	7	0
2	1	0

Median : 1
Minimum : 0
Maksimum : 7

Median :

5	3	2	0	4
4	3	2	2	4
6	2	2	2	6
7	3	2	1	0
7	4	2	1	0

Minimum :

5	3	2	0	4
4	2	0	0	4
6	0	0	0	6
7	0	0	0	0
7	4	2	1	0