

**ВИЯВЛЕННЯ КОНТУРІВ
У ЦИФРОВИХ ЗОБРАЖЕННЯХ
ІЗ ВИКОРИСТАННЯМ НЕЧІТКОЇ ЛОГІКИ**

...

[1, 2].

8

3x3

(. 1).

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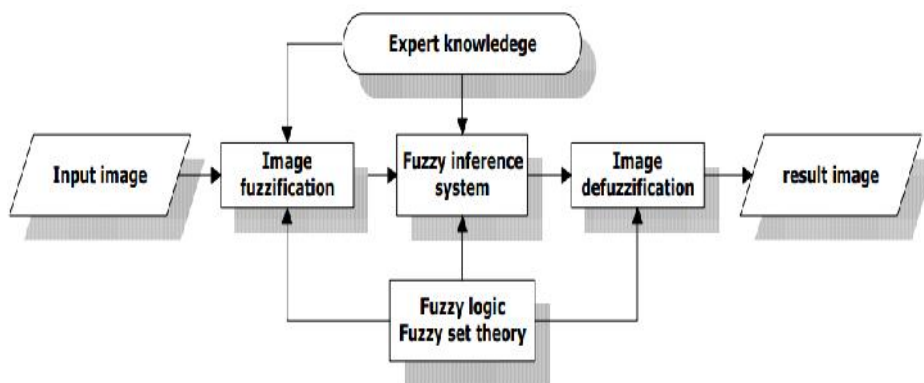
()

(0 255.) 8-

« » « ».

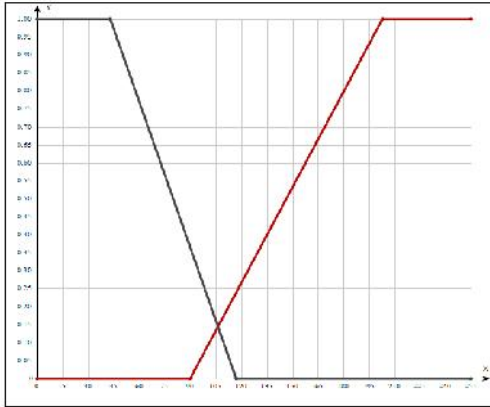
. 2,

. 3.

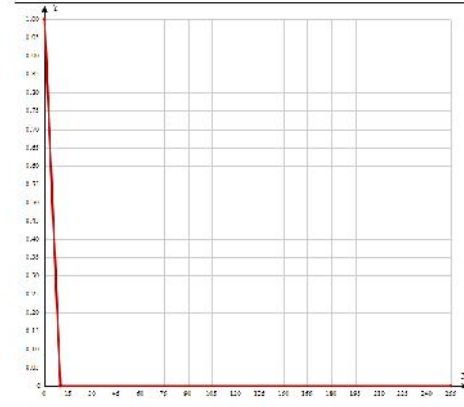


. 1

O .



. 2

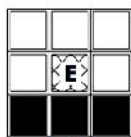


. 3

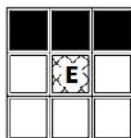
3x3

(. 4).

(. 5).



Rule1



Rule2

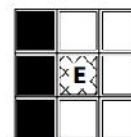
Rule1 If $\{(i-1, j-1) \& (i-1, j) \& (i-1, j+1)\}$ are whites
If $\{(i, j-1) \& (i, j) \& (i, j+1)\}$ are whites
If $\{(i+1, j-1) \& (i+1, j) \& (i+1, j+1)\}$ are blacks

Rule2 If $\{(i-1, j-1) \& (i-1, j) \& (i-1, j+1)\}$ are blacks
If $\{(i, j-1) \& (i, j) \& (i, j+1)\}$ are whites
If $\{(i+1, j-1) \& (i+1, j) \& (i+1, j+1)\}$ are whites

Rule3 If $\{(i-1, j-1) \& (i, j-1) \& (i+1, j-1)\}$ are blacks
If $\{(i-1, j) \& (i, j) \& (i+1, j)\}$ are whites
If $\{(i-1, j+1) \& (i, j+1) \& (i+1, j+1)\}$ are whites

Rule4 If $\{(i-1, j-1) \& (i, j-1) \& (i+1, j-1)\}$ are whites
If $\{(i-1, j) \& (i, j) \& (i+1, j)\}$ are whites
If $\{(i-1, j+1) \& (i, j+1) \& (i+1, j+1)\}$ are blacks

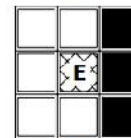
checked pixel
is Edge



Rule3

checked pixel
is Edge

checked pixel
is Edge

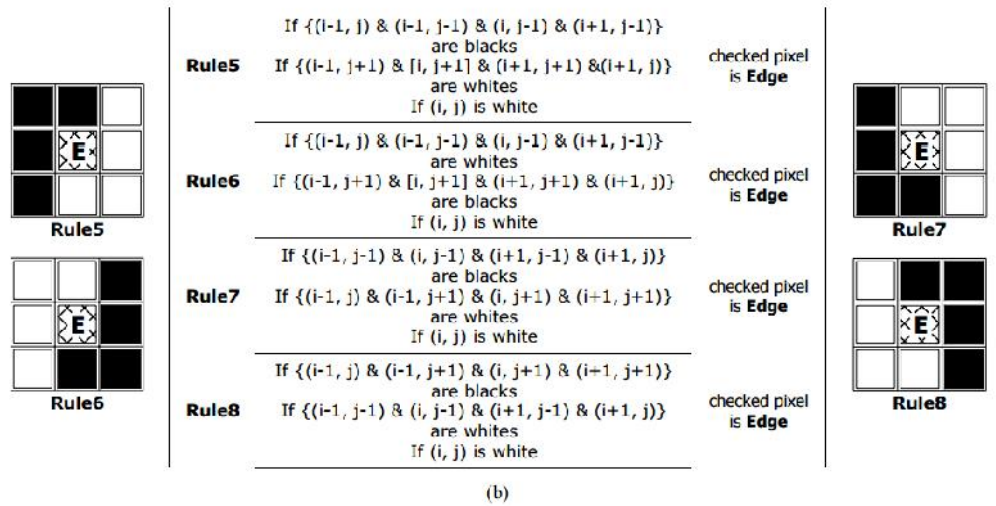


Rule4

checked pixel
is Edge

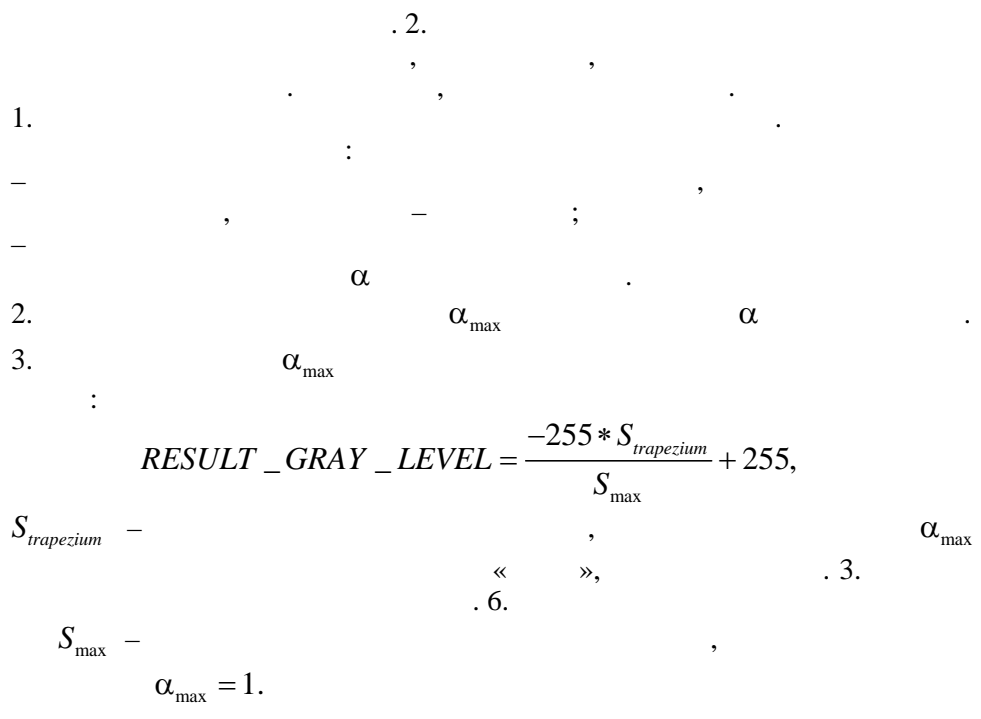
(a)

. 4

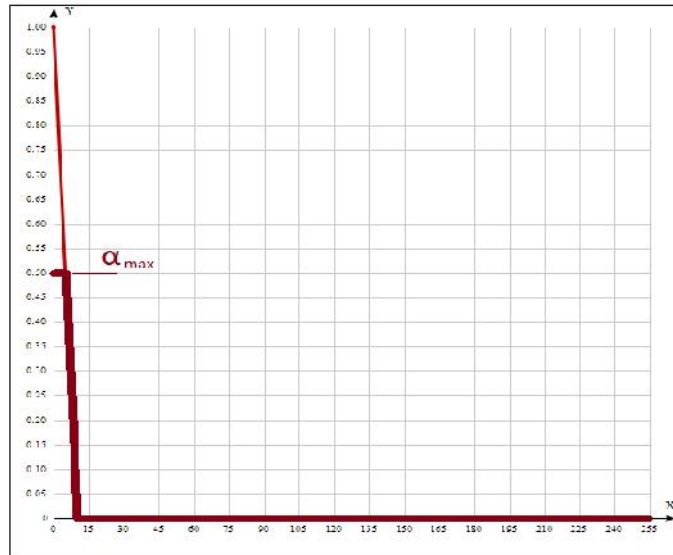


.5

$$GRAY_LEVEL = 0.299 * RED + 0.587 * GREEN + 0.114 * BLUE,$$



O .



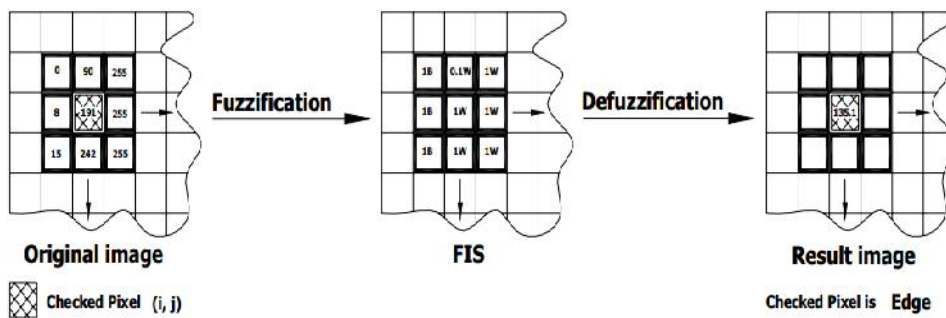
. 6

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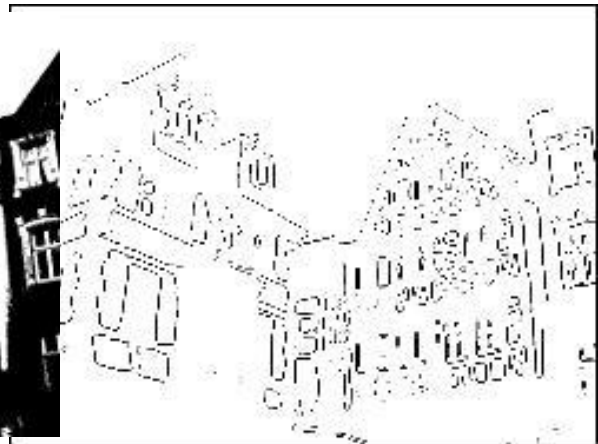
. 7.

$[i-1, j-1]$	$[i-1, j]$	$[i-1, j+1]$
$[i, j-1]$	$[i, j]$	$[i, j+1]$
$[i+1, j-1]$	$[i+1, j]$	$[i+1, j+1]$

Floating mask 3x3



. 7



3 3

.I. Moroz

FUZZY LOGIC BASED EDGE DETECTION IN DIGITAL IMAGES

The process of fuzzy logic image processing is considered. The algorithm of fuzzy logic based edge detection in digital images is proposed.

1. *Abdallah A. Alshennawy, Ayman A. Aly.* Edge Detection in Digital Images Using Fuzzy Logic Technique. *World Academy of Science, Engineering and Technology* 53. – 2009. P. 252 – 257.
2. *Bijuphukan Bhagabati, Chumi Das.* Edge Detection of Digital Images Using Fuzzy Rule Based Technique. *International Journal of Advanced Research in Computer Science and Software Engineering.* 2012. Vol. 2, Issue 6, June. P. 259 – 262.

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