

(530)

(discrete wavelet transform)

(540) 가

5

, DWT, , ,

) (digital imaging) , (digital imaging device)
(automatic focusing)

가 () (lensing sub-system)
(scene) ,
(photo-cell) , (scaling image en
()
hancement) r (flash card) 가 (removable)

」 (fuzziness) (sharpness)
(edge feature)
FIR(Finite Impulse Response) (entropy) 가
(intensity value)/ (color value) ,

가 CMOS(Complementary Metal-Oxide Semiconductor)

computational complexity) (motion imaging) (comp
ng) 가 (dual-mode) (still imagi

(still video) (motion video)

1
2
3
4
5

(computation)

(Fourier)

(assorted)

(sharpe)

(discontinuity)

(wavel

et analysis)

(exaggerated)

(Discrete Wavelet Transform, (discontinuity)

DWT)

(localized).

가

(-)

가

(variation)

DWT (discrete)

(full)

, DWT

DWT

(discrete)

, DWT

9-7

-

(bi-orthogonal spline) DWT (Very Large Scale integration Circuit)

DWT

DWT

DWT

, DWT

1 DWT

(l, 100)

1

2

DWT,

DWT

(row-wise)

(column-wise)

DWT

(sub-band)(LL, LH, HL, HH)

x110

(100)

M x N(

M

N)

가

, 2

DWT

M/2 x N/2

(1, 100)

LL

-

1/2(one-half)

가

, 2

(original image information)

. HL

-

(l, 100)

. LH

-

(l, 100)

. HH

-

(l, 100)

DWT

(adequacy)

DWT

(prominence)

(outline)

(region)

()

(gray scale intensity)

(highlight)

(edge discriminator)

가

(threshold)

DWT

(scaled-down version)

. LL

LL

가

, HH

, HH

가

2

(DWT) ()

DWT (content) (210).

(false edge) (spurious information)

DWT (x_{min}) (x_{max})

(lower threshold, T_L) $k_L \times x_{min}$

(device dependent

constant)). (k_L) (inclusive), 1.0 1.5 (upper threshold, T_H) k

$H \times X_{max}$ (k_H 0.5 1.0)

(S) T_L T_H DWT (entire image) (entire) (S_d)

(d) LH HL (210)

(N) (D_0, D_1, \dots, D_{N-1})

(d) (D_{21})

5) (S_d) (d) (220). (quality) DWT

(d-1) 'd-1'

(d)가 D_i (d-1) D_{i-1} (S_{d-1}) (230).

(evaluation) (S_d S_{d-1}) (235).

S_d 가 (235) S_{d-1} (d-1, d-2,)가

(

d+1)가 (d+1) (260). d가 D_i (discrete) (D_{i+1})

(d) (S_{d+1}) (265). (d-1)가 (235

S_d 가 S_{d+1} (d, d+1) (S_d S_{d+1})

, d가 가 (280). , S_d S_{d-1} S_d S_{d+1}

(d) 가 S_d 가 S_{d+1} (d+1)

(S_d) S_{d+1} (275). , d가 D_g (d) d+1 , d d+1 , d₁₀

S_d S_{d+1} , d 260, 265 270

3

235 가 , S_d 가 S_{d-1} , d+1 (215)

(d)가 (d) d-1

(240). , (S_d) S_{d-1} (240). , d가 D_g

, d D_8 .

(d-1) , S_{d-1} (250).

(d-1) , S_{d-1} . S_d 가 S_{d-1} , d

(280), 가 (S_d 가 S_{d-1})

(d) d-1 (, 240 25

5) d가 S_d S_{d-1}

3

3 LL, LH, HL, HH가 2 DWT (300)

(300) , LL - HH -

LH - (310) HL - (315)

HL - LH -

LH - (310) HL - (315) 16 (DW

T - , HL - (315) 가 . (k_L

k_H) 1.1 0.9 가 , (T_L) 1.1 × x_{min} DWT (T_H) 0.9 × x_{min} (

, x_{min} x_{max} - DWT DWT) . HL - (315) (

T_L) 55(50 × 1.1) , (T_H) 77(85 × 0.9) . HL - (315) (

() (55) DWT (x_i) .

, LH - (310) , 가 가 , LH - (310)

T_L = 88 × 1.1 = 99 , T_H = 99 × 0.9 = 89가 . , LH - (310)

88 99 () , LH - (310)

-89가 , LH - (310)

, (90+95+95+89)/4 , LH - (310)

/2 , 74 , LH - HL - , (55+92)

HL - , 가 , 16 LH -

4 , (400) (d)

4 , (410) (410) DWT (4

10) / DWT (410) . DWT (410) 2 DWT DWT (

LH - HL -) , (420) DWT (

(430) (430) .

(440) (440)

(stop signal) (assert). (450)

(400) (450)가 .

5 (purpose) (530) (personal computer) , (530)

(510) (530) (ROM), (RAM) ,

(540) (532) (534) , (510)

(534) (530) (530)가 /

(optimized). (530)가 /

(532) (532) (throughput)

(53) (532) DWT

(540) (53) (quality) ,

(530) (530)가 . (

) R (512) , /

(511) (510) (511)

(510) (518) (511)

(510) (512), (511) / (515) (514)

(518) / (513) . / (515) (516),

(518) / (517) / / ,

가 (540) (532) (530) 가 (530) DWT
 DWT (534) (512)
 (516) () (510) (rendered image, 550) (510) 가
 (510)
 (550) (520)

(57)

1. (imaging device)
 (discrete wavelet transform, DWT)
 (overall) (sharpness parameter)

2. 1 DWT (frequency correlation) LL, LH, HL, HH
 LH - HL -

3. 2 LH - HL -
 3 LH - LH - (inclusively) LH - DWT

5. 3 HL - HL - HL - DWT
 HL -

6. DWT가 , - DWT(bi-orthogonal spline)

7. 가

8. (lensing system) 1 가 1

9. (lower) 2 가 2 2 2 가 2 2

10. (higher) 3 가 3 3 가 3 3 가 3 3

11. (discrete wavelet tr ansform, DWT) DWT DWT DWT

12.

13. DWT , DWT

14.

15. DWT , DWT

16. 가 (article) ,
(discrete wavelet transform, DWT)

가
1

17. DWT -

17

18. DWT

13

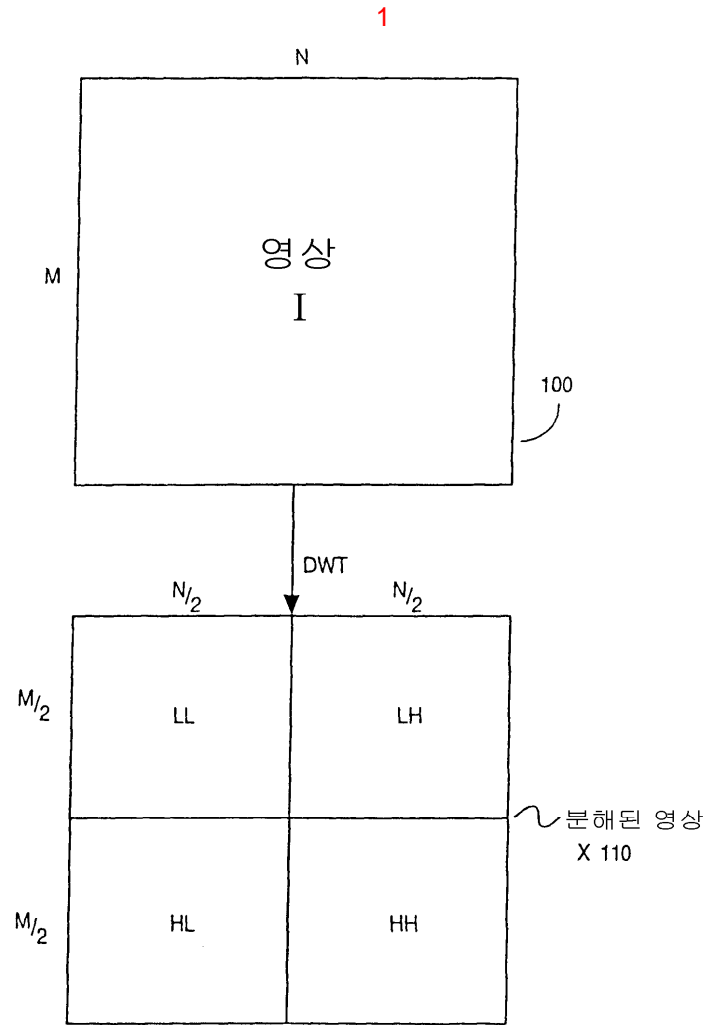
19. DWT DWT

16

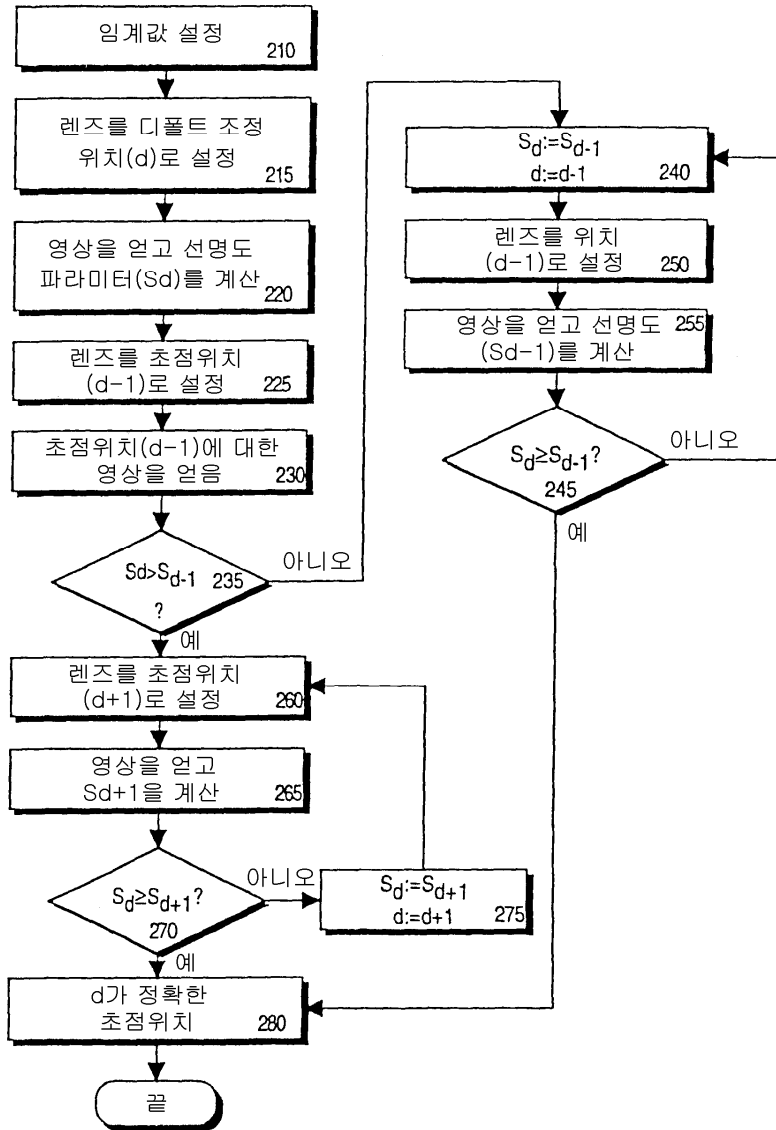
20. DWT -

20

21. DWT -



2



3

