



()

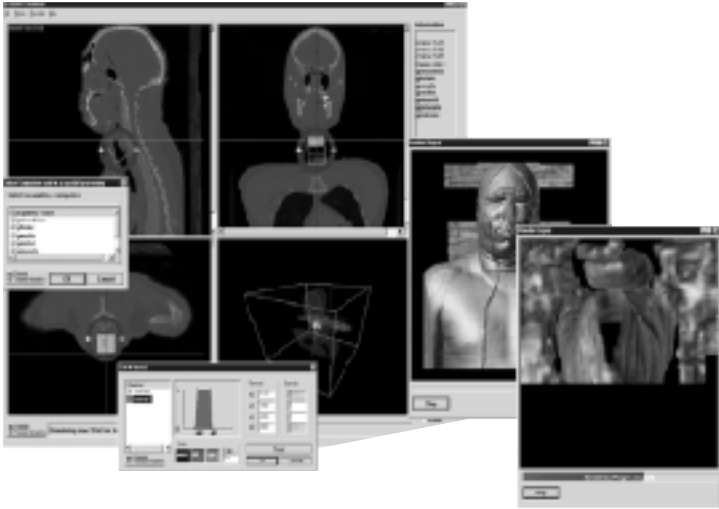
E-mail:doug@digitalaria.co.kr

KISTI

E-mail:seonpark@kisti.re.kr

E-mail:ihm@sogang.ac.kr

E-mail:mhkim@dbserver.kaist.ac.kr



3
, 3
2
I.

3
2
. 3
가
3
가
가

(CPU-intensive)
(memory-intensive)

가

3

Human

/PC

Visible Korean
CRAY T3E,
, HPC-320

가

line segment

2

quadratic curve segment

가

3

cubic curve segment

Line segment

line

segment

line segment

가

가

Quadratic curve segment
segment

가 가

II.

가

Cubic curve segment

가

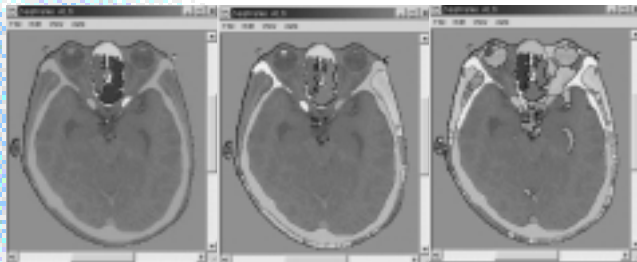
가

curve Segment

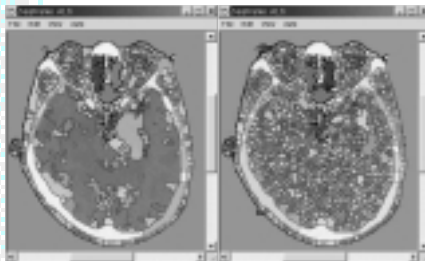
가 가

quadratic curve segment

가



가



Vincent and Soille가

watershed

watershed

1990

Laurent

Najman and Michel Schmitt, Gauch

가

가

< 1>

Watershed

noise가



noise
 low-pass high-
 frequency . Noise가
 gradient . Watershed 가
 gradient magnitude . Watershed , 가
 threshold . Threshold
 gradient magnitude . PC
 가 . threshold ,
 gradient magnitude ,
 . Threshold . [4]
 가 [5,11]

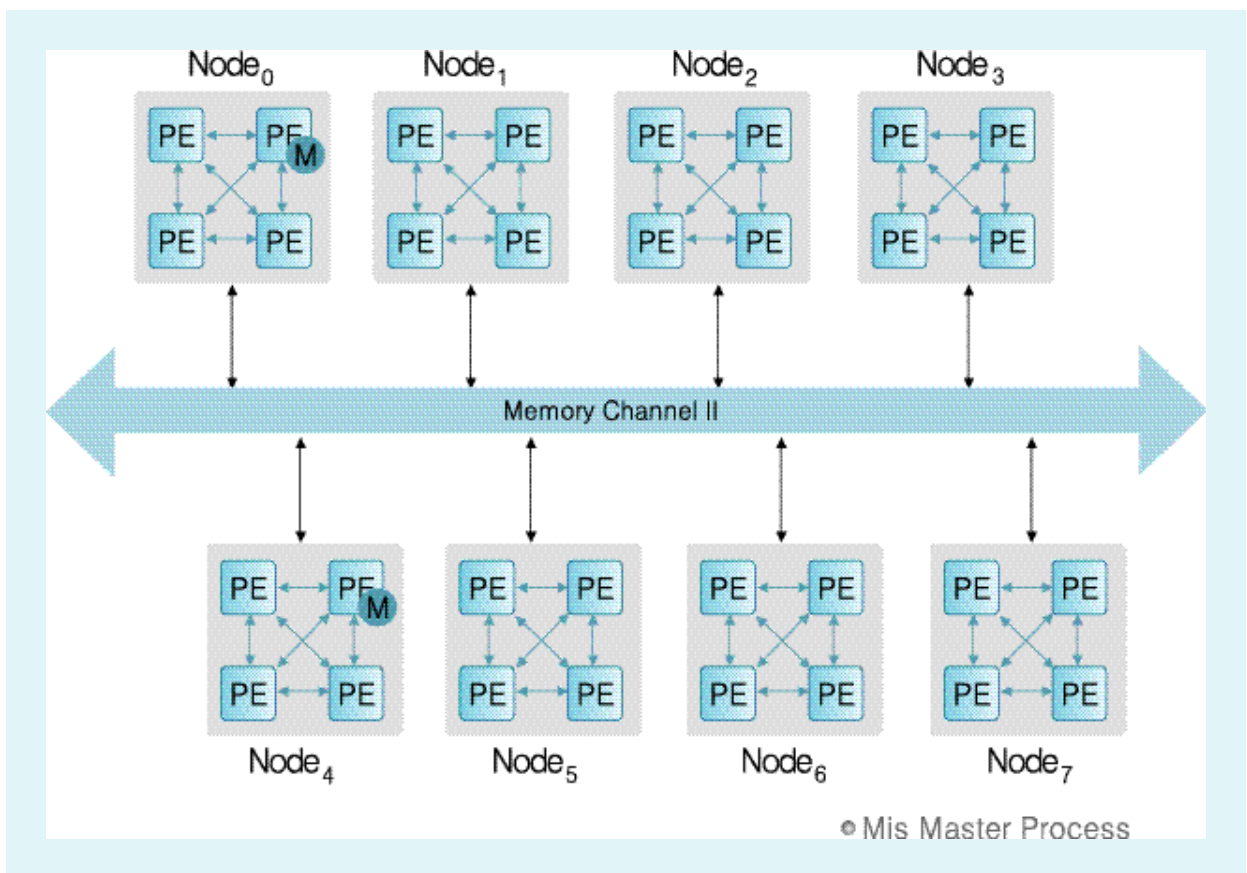
가
 가 . xy 가
 2 . , PC/
 . CT MRI 가 가 /
 가
 1.

III.3
 가 가 2byte 512x
 가 CT, MRI 512x512 512x512x1024
 268 MB, 536 MB PC
 가 128 MB 256 MB
 가
 / 가
 / 가



PE PE 3 bytes가 512x512x3 = 786,432
 PE bytes bytes (512/32)*(512/32) = 256
 가 가 가 index 4
 bytes 2 256x4x2 =
 가 2,048 bytes가 788,480 bytes
 1 MB가

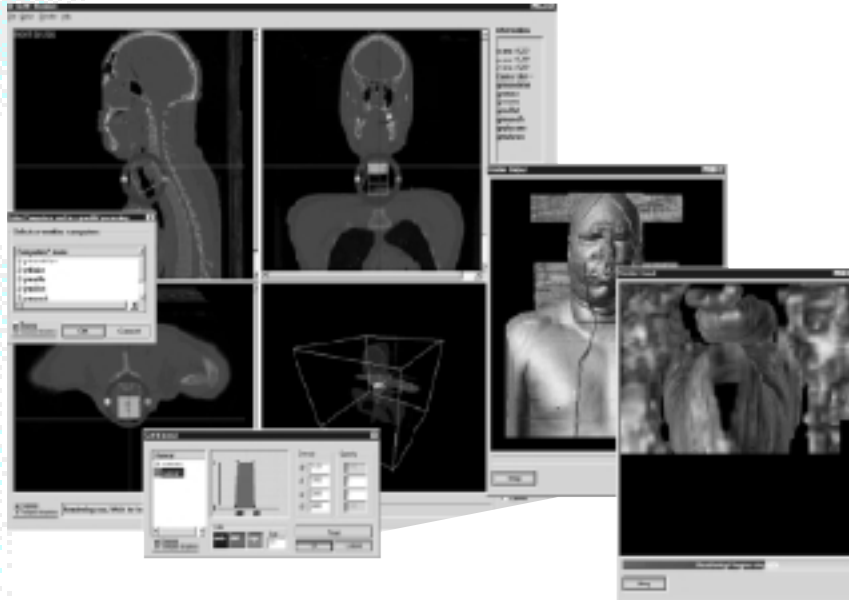
PE PE 16x16x16 96.25
 PE
 32x32
 (broadcasting).
 가 512x512 가
 32x32



과학기술종합정보시스템

4.

HPC 320 AlphaServer
 ES40 8 PE 4 가 , Memory
 Channel II 4Gbytes CPU 32Gbytes 1.3 GFlops MPI 가 , PE 가 PE



가

SHMEM

< 3 >

가

가

PE가 가 , MPI

PE가

가

MPI[7]

OpenMP[9]

OpenMP 5.

, MPI

가

MPI

가

가

가

가

가



가
가
가
가 PC
/

96 PE 1

가
가

가

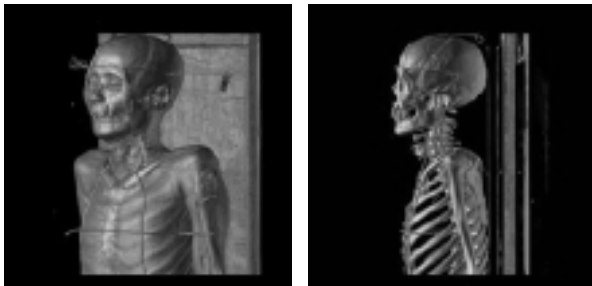
가



Visible Korean Human

6. 가

CT



(octree)

(pyramid), k

(k-d tree)

가

가

< 4> Visible Korean Human 가

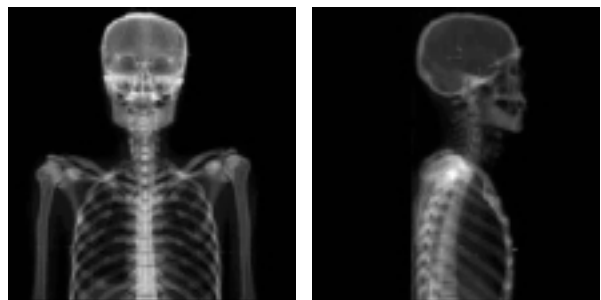
PC

가
(ray)

가

80%

가



< 5> Summed Voxel Projection (x-ray)

IV.

3

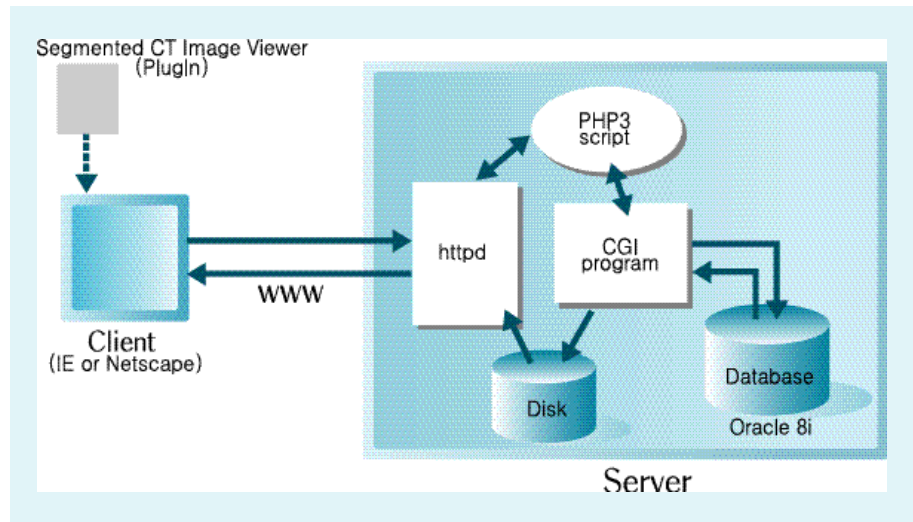
CT, MRI,

(slice)

2

가
가

Summed
Voxel Projection (SVP)



< 6 >

Expo-
nential homogeneous in-
tegration
가



< 7 >



가 . , .

1) :CT (C), 가 . , .

MRI (M), (D) 가 . , .

2) 가 : - Segmented CT : 가 . , .

(R), (S) sagittal, coronal, axial, 45

3) 가 : (C), CT2

(S), (R) , ,

4) :MRI T1 가 . , .

(A), MRI T2 (B), Frozen CT (F), Normal CT 가 . , .

(C), MRI PD (P), CCD Scan (C), 70mm Film 가 . , .

Scan (S), 35mm Film Scan (T), 가 . , .

(0) , ,

가 , 가 . , .

4가 . , .

4 가 . , .

CRCN CT , 가 . , .

Normal CT 3

가1754 - Orthogonal view

, 1754 : Orthogonal view

3 0 180 ,

2 3 , DBMS Oracle , 3

, PHP Script CGI , . , .

2 , 3 가 . , .

가 - Perspective view

2 : Perspective view

- CT : 가 . , .

sagittal, coronal, axial, 45 CT1 , .

- X-Ray
: X-ray

V.

가

가 , 0 180

가

가

1

가

, 2 3

가가

가



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