Introduction of HoloStage™ in Tokai U. and its application to education and research/project

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contents

- Introduction of HoloStage™ in Tokai U.
- For what do we use HoloStage™ ?
  - Education
    - "Virtual Reality"
  - Research
    - Takanawa Campus Project
    - Virtual Sickness in IVE (to research session)
    - Digital signage (to research session)

HoloStage™ in Tokai U.

- SIZE: 5.4m x 3m x 3m
- Projector
  - Christie Mirage WU7 x 10
  - 6600 lumens, WUXGA, Active shutter
- Tracking sensor : Vicon
- 3D sound : X-Spat boX
- 7.1ch surround
- Main cluster, sub cluster and 4K3D

Main cluster

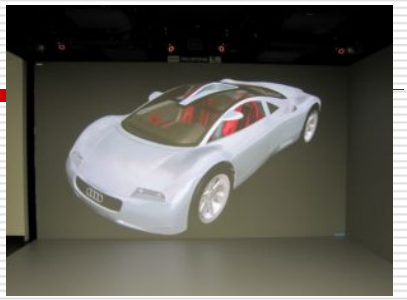
- HP xw8600 x 6
- OS : Windows XP Pro. x64 Edition
- CPU : Intel Xeon X5460(3.16GHz 4core) x 2
- Main memory : 32GB
- HDD : 146GB SAS 15000rpm
- Video : NVIDIA QuadroFX5800 x 2 + G-Sync2

4K3D

- HP Z800 x 1
- OS : Windows XP Pro x64 Edition
- CPU : Intel Xeon W5590(3.33GHz 4coe) x 2
- Main memory : 24GB
- HDD : 1TB SATA 7200rpm
- Video : NVIDIA QuadroPlex D2 2200

Others

- Software
  - 3dsmax + VR4MAX
  - AVS/Express MPU
  - OmegaSpace
  - FusionVR
  - CAVELib
  - Stereoscopic Player
- Student PC(24 sets)
  - NVIDIA Quadro FX3800+NVIDIA 3D Vision



Abstract of "Virtual Reality"

- Abstract of lecture
  - Getting the meaning of virtual reality as human interface to process spatiotemporal information, Learning its system through practice, Considering a change of the role of computer in next generation
- For 6 semester student
- 180 minutes / week, 15 weeks
  - Lecture : 7 weeks, Practice : 6 weeks and 2 examinations
  - HoloStage™ is used for one of the practices
- The number of students
  - 30 students x 3 classes

Practice using HoloStage™ ①

- Projection of AVS and OmegaSpace contents
- Collaboration with "Computer Graphics"
- CG creation by 3dsmax and projection by VR4MAX

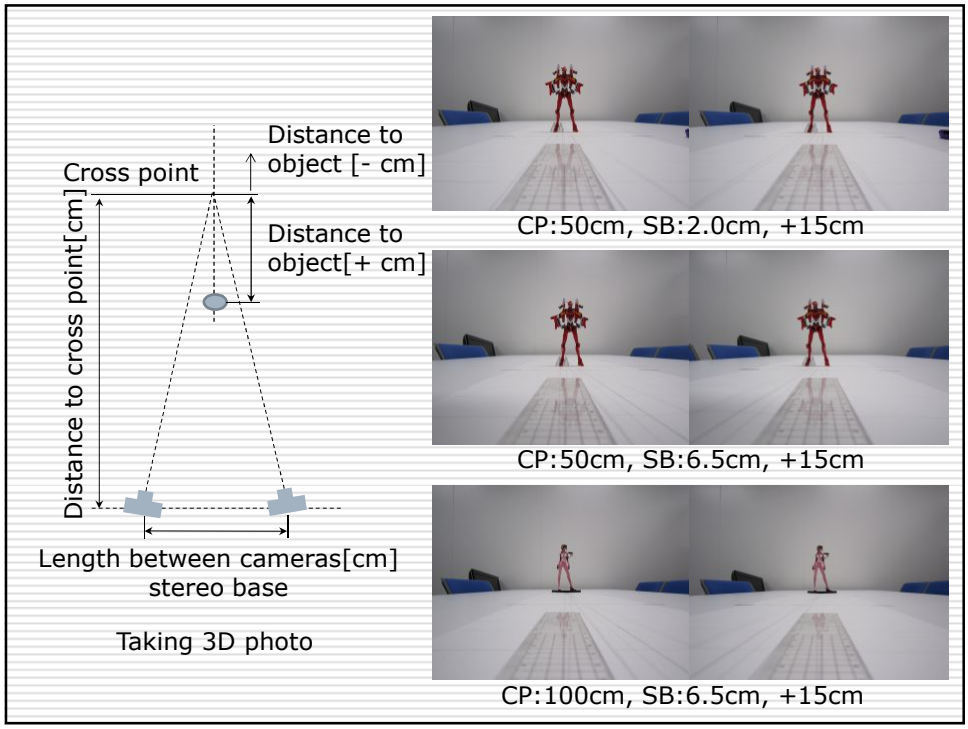
Collaboration with Computer Graphics

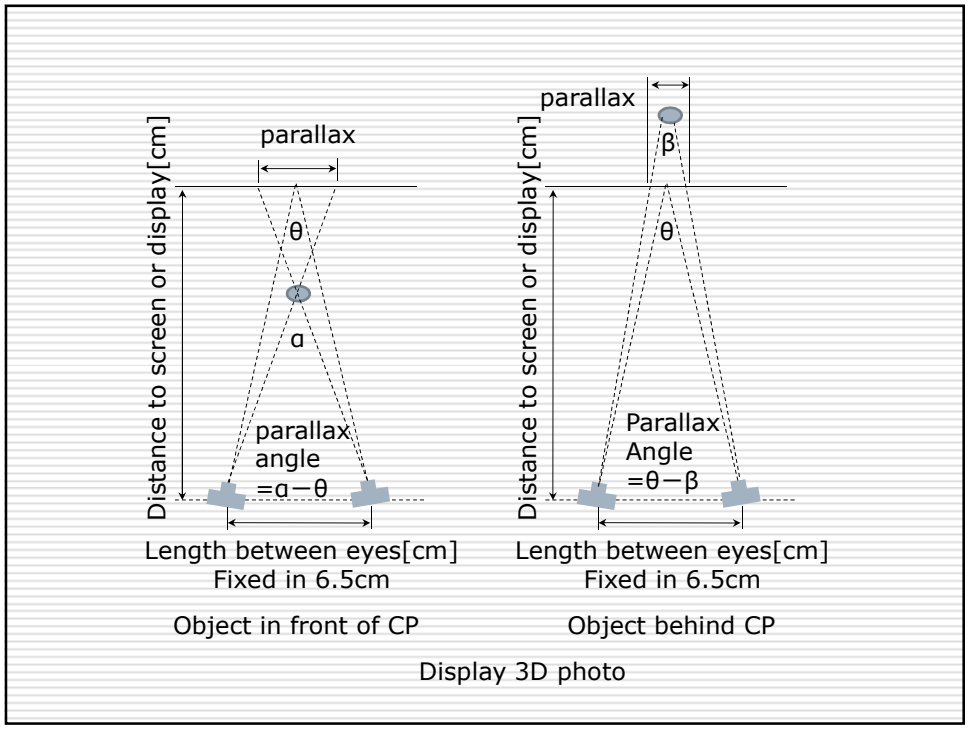
Collaboration with Practice of AVS

CG creation by 3dsmax

Practice using HoloStage™ ②

- Investigation of relationship between taking and display in 3D
  - 3D photos taken by 32 different conditions
    - Distance to cross point
    - Length between cameras(Stereo Base)
    - Distance from CP to object
  - Display by changing screen size or distance to screen
    - Impression of 3D seeing
    - Calculation of parallax angle


Cross point
Distance to cross point[cm]
Distance to object [- cm]
Distance to object[+ cm]
Length between cameras[cm]
stereo base
Taking 3D photo
CP:50cm, SB:2.0cm, +15cm
CP:50cm, SB:6.5cm, +15cm
CP:100cm, SB:6.5cm, +15cm

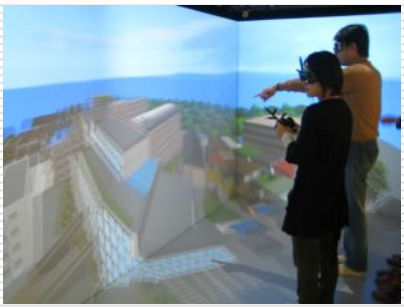

parallax
θ
α
Distance to screen or display[cm]
parallax angle =α−θ
Length between eyes[cm]
Fixed in 6.5cm
Object in front of CP
parallax
β
θ
Distance to screen or display[cm]
Parallax Angle =θ−β
Length between eyes[cm]
Fixed in 6.5cm
Object behind CP
Display 3D photo

実習2　立体映像の撮影時条件・提示条件・立体感・視差角の比較検討実習　結果記録用紙

撮影時条件			提示時条件			結果	
クロスポイント	カメラ間距離	物体位置	画面種類	距離	視差量	立体感	視差角
50	2	20					
		15					
		10					
		5					
		0					
		−5					
		−10					
		−15					
		−20					

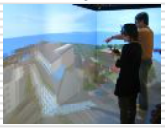
Takanawa Campus Project(1/3)

Takanawa Campus Project(2/3)



Virtual experience of Takanwa Campus before its completion

Takanawa Campus Project(3/3)



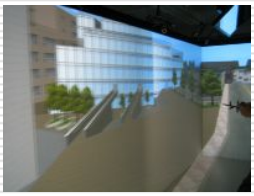
Completion in 2010 March

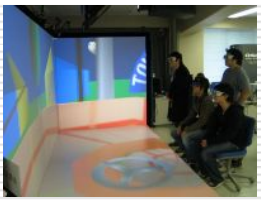
Introduction of the contents

- Takanawa campus
  - exterior interior change interior
- Shonan campus

Others (high school education)

Others(University festival)

contents
In 2009