

New Development for the 3rd VR International Symposium



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FORUM8 AZ LLC
www.forum8az.com



1. Introduction
2. New World16 Project
3. New Plug-in Tool

Presentations by new World16 members

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1. Introduction

Digital Phoenix Project at ASU (2006 ~)



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1. Introduction

3D City Modeling



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1. Introduction

Application using 3D City Model



OSG W3D STL

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1. Introduction

Google Model




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1. Introduction

I-MOVE vs. UC-win/Road



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1. Introduction

Future Navigation Tool Design



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1. Introduction


UC-win/Road + Drive Simulator



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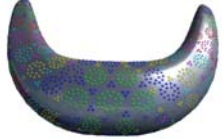
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1. Introduction


Shape Grammar & Procedural Modeling using Tensor Field
NSF -Creative IT Project

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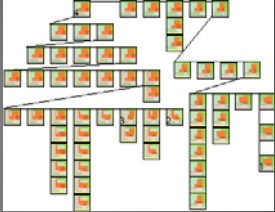

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1. Introduction

DESIGN SHARING SYSTEM

- KISS MODELING
- DESIGN MAP
- WIKI DESIGN

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1. Introduction

Parametric Modeling and Fabrication in School of Arch.



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NEW WORLD16 PROJECT

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Conference 5/20/2009, TOKYO

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2. New World16 Project

World8 Project started in November, 2007

We had


- 1) 1st International VR Symposium in Tokyo, JAPAN on 11/20/2007
- 2) 1st Summer Workshop at ASU, on 8/13-16, 2008
- 3) 2nd International VR Symposium in Tokyo, JAPAN on 11/19/2008

with the following members

- Kostas Terzidis and Taro Narahara (Harvard University, USA)
- Michael Jemtrud (McGill University, Canada)
- Carlos Calderon (University of Newcastle, UK)
- Wael Abdelhameed (University of Bahrain, Bahrain)
- Ronald Hawker (Zayed University, UAE)
- Claudio Labarca (Pontifical Catholic University of Chile, Chile)
- Tomohiro Fukuda (Osaka University, Japan)
- Yoshihiro Kobayashi (Arizona State University)

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2. New World16 Project

Motivations

- Creating VR city models is time and labor intensive
- The VR market to visualize traffic in real time is small
- The need for increased discussion and collaboration among researchers in the field of VR.

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2. New World16 Project

VISION: Explore a new research and development framework on VR application in architecture and urban planning among 8 universities in the world and Forum8 by using the same platform, "VR-Studio"

MISSION: Share the knowledge and developments of VR applications through three events, and demonstrate example models

- 1: 5/20/2009 : New Members Introduction at VR-Studio Conference
- 2: 7/28-31: Summer Workshop in JAPAN
- 3: 11/20/2009: 3rd International VR Symposium

VALUE: Accumulate worldwide knowledge of VR application by sharing several models and innovative computational tools

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World8 Projects, 2008



Plug-in for Animated Human Models

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Stochastic City Generation

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Practical Development

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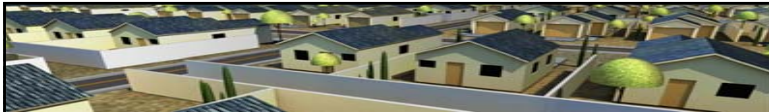
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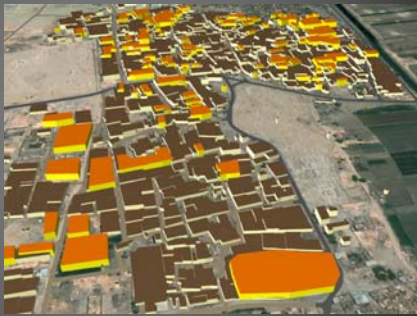

Visualization of LRT

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GIS and VR Application

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Flood Impact

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VR City Generation using Form-based Code

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2. New World16 Project

NEW Members

Prof. Ruth Ron at University of Florida, USA

Prof. Aleppo Yu-Tung Liu at National Chiao Tung University, Taiwan
Aw Yen-Liang Wu from Asia University

Prof. Thomas Tucker at Winston-Salem State University, USA

Prof. Nik Luka from McGill University, CANADA
Prof. Torben Berns

Prof. Marcos Novak from University of California, Santa Barbara *

Prof. Richard Dawson at Newcastle University, UK *

* Under Negotiation

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2. New World16 Project : Web site Development



<http://world16.forum8az.com>

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2. New World16 Project : Web Forum <http://community.forum8az.com>



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NEW PLUG-IN TOOL

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3. New Plug-in Tool



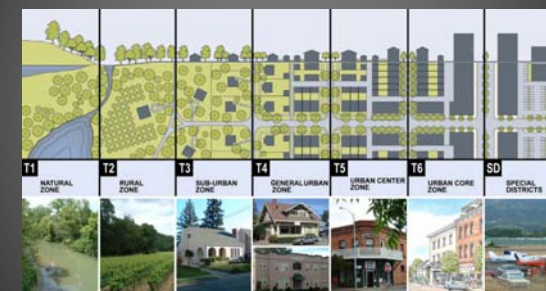
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3. New Plug-in Tool



Different Codes for Different Landscapes

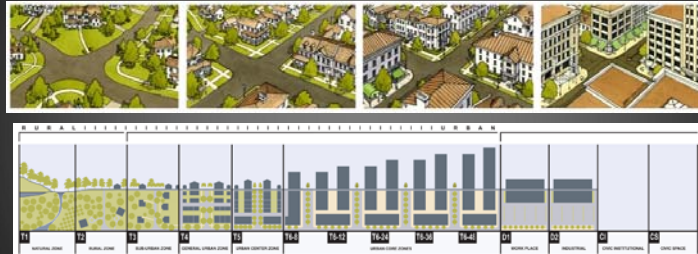
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3. New Plug-in Tool



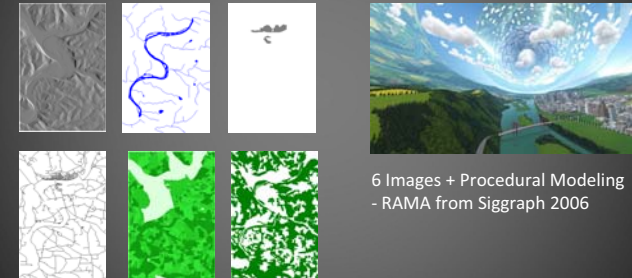
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3. New Plug-in Tool : Similar Tools



6 Images + Procedural Modeling
- RAMA from Siggraph 2006

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3. New Plug-in Tool : Similar Tools



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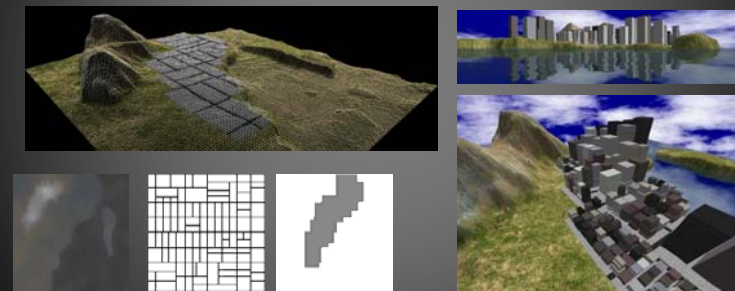
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3. New Plug-in Tool : Similar Tools

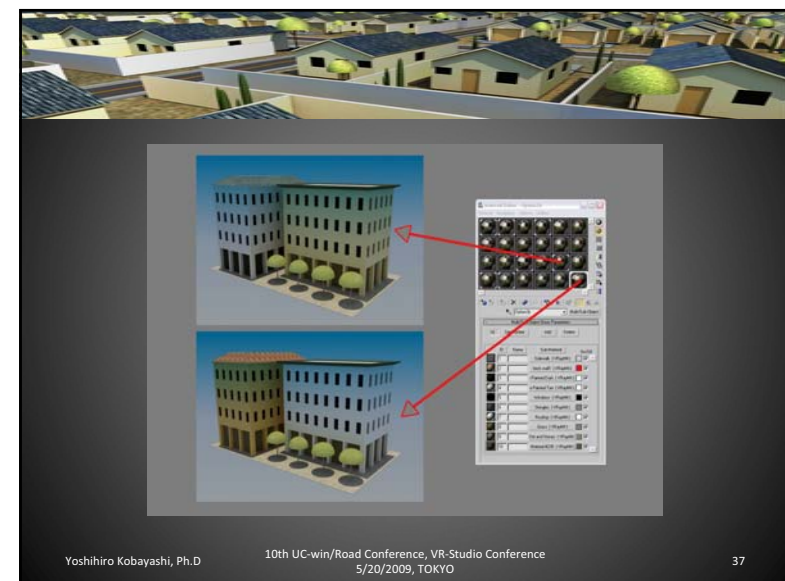
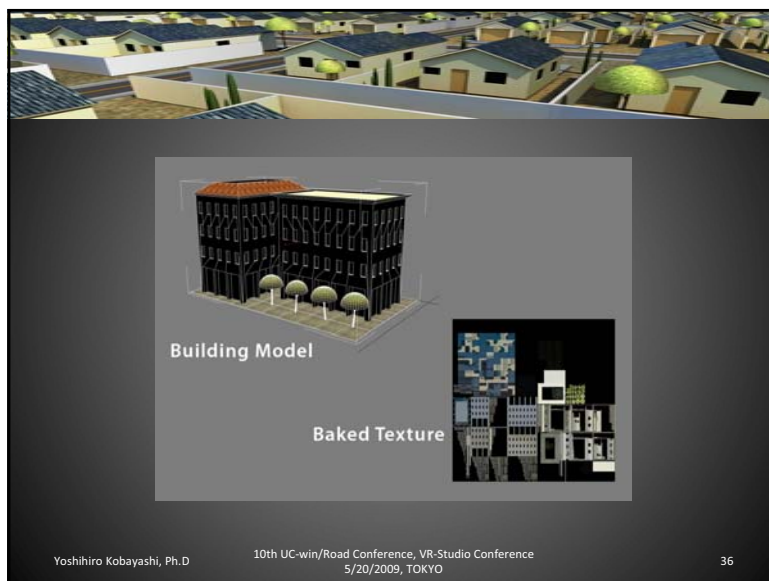
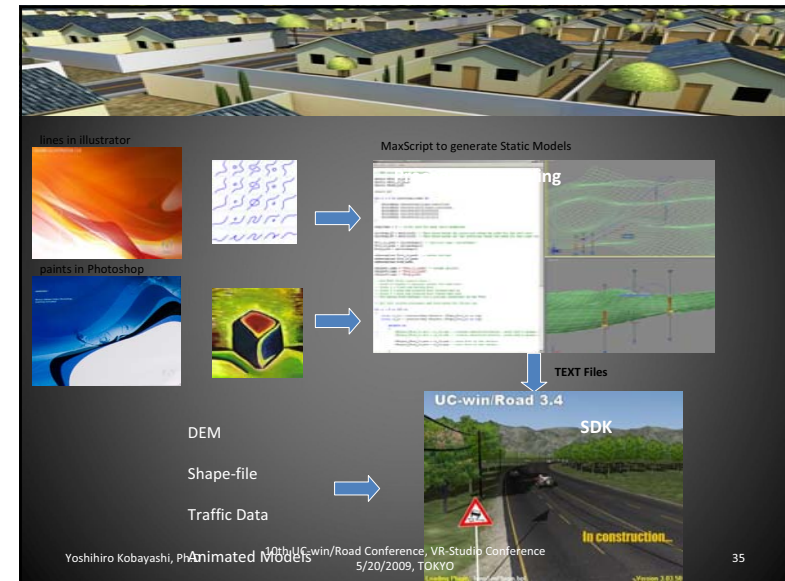
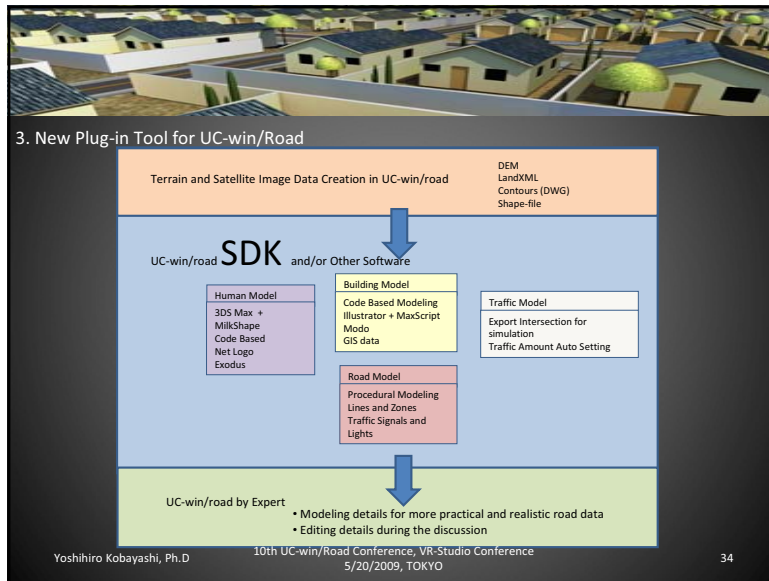
3D game development (XNA) 2007 Spring



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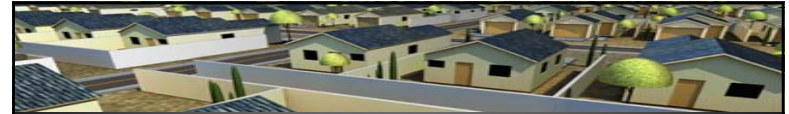




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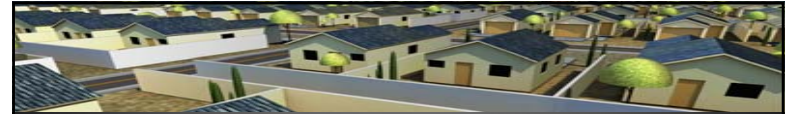
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PRESENTATIONS BY NEW MEMBERS



Ruth Ron, Assistant Professor
University of Florida | School of Architecture
Downtown Orlando, Florida
REDIGNING I-4 'BRIDGE DISTRICT'

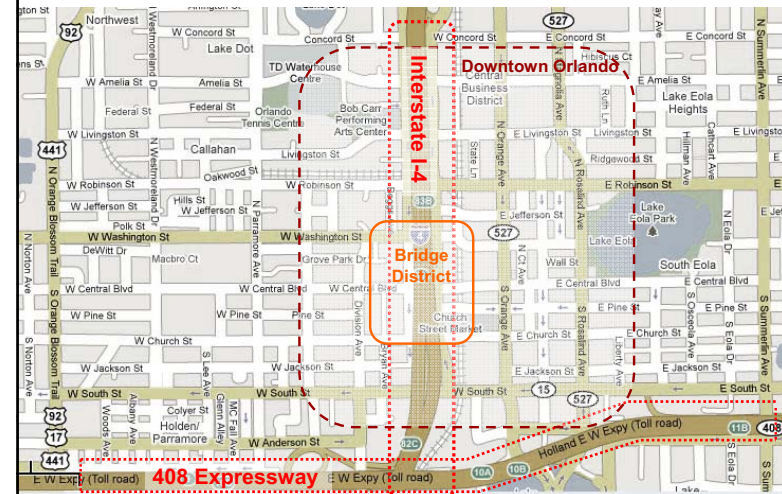
Project **outline** and location

3 components to the Downtown Orlando 'Bridge District' project

1. The **City of Orlando** design committee initiatives
2. **University of Florida | School of Architecture**
Graduate 1 design studio – Fall 2009
"Redesigning the Bridge District" in downtown Orlando, Florida
3. **UC/Win Road Research project**
will be conducted in parallel to the graduate studio class



Project outline and **location**



Project outline and **location** - Google Earth Model



City of Orlando - Project goals

City of Orlando - Interstate 4 Design Review Committee

Interstate 4 Bridge District Opportunity Assessment & Placemaking Initiative

Identify key Bridge District transportation and mixed-use opportunities that will contribute added value benefits toward achieving Orlando's strategic vision goals of community cohesion, enhanced social values, key destination assets **visibility/connectivity**, seamless **pedestrian mobility**, new business and residential **growth** and memorable sense of place.



City of Orlando - Opportunity Assessment

Capitalize on the potential of the Bridge District to connect the Parramore Heritage District, the Events Center, Commuter Rail, the Performing Arts District, the Creative Village, downtown businesses, residents and visitors

1. rebuilding of I-4 bridge (between South and Robinson streets)
2. Reconnecting Pine street under the bridge
3. Shifting Garland Avenue under I-4 bridge (between Church and Washington)
4. Maximizing pedestrian connectivity in the district
5. Optimizing parking under the bridge



I-4 from Garland Avenue

UC/Win Road Research Project goals

1. Collect and create a 3D model of downtown Orlando (contact City of Orlando, university of Florida GIS center and using 'Google Earth Pro')
2. Analyze transportation in the area:
 - Fast speed highway traffic (408 + I-4)
 - Medium speed street traffic (Garland, South, Washington)
 - Slow speed – mixed pedestrian + parking area (Garland, Pine, Church)
3. Collect and model traffic simulation of alternative solutions to the I-4 reconstruction. Design proposals for surrounding streets
4. Extract new traffic data from simulation
5. Use new traffic data for 'Performance based' architectural design, considering traffics statistics, acoustic data, air pollution, environmental affects etc

May 20, 2009
Forum8, Tokyo

Exploring Applications of Virtual Reality in Architecture

the development at NCTU

Yen-Liang Wu, Yun-Tung Liu
Graduate Institute of Architecture
National Chiao Tung University, Taiwan

4 Applications in Architecture

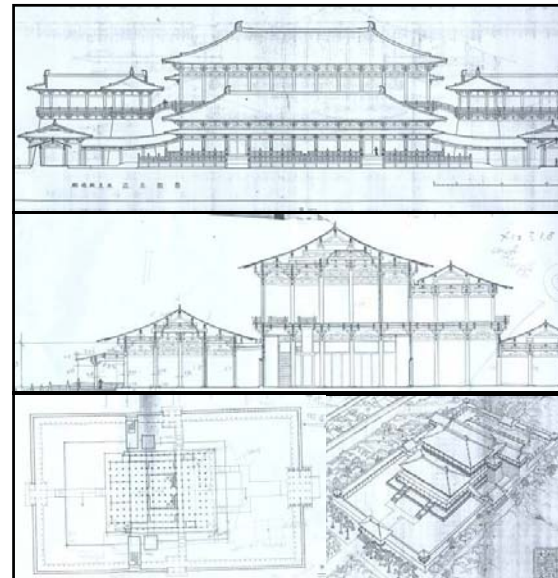
1. Virtual Chang-An, 2002
2. Digital Sculpture Museum, 2003
3. Historical City Spaces, 2005
4. NCTU Museum, 2007

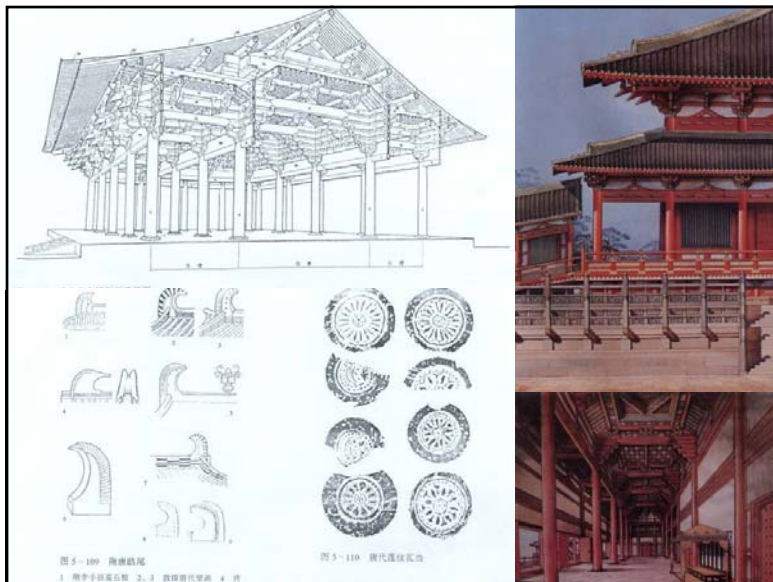
1. Virtual Chang-An, 2002

history + architecture + culture
exhibited in Taipei National Palace Museum
(more than 100,000 people visited)

Architecture and City

archeological studies, historical literature, relics, remains, cave paintings, stone inscriptions, new research findings



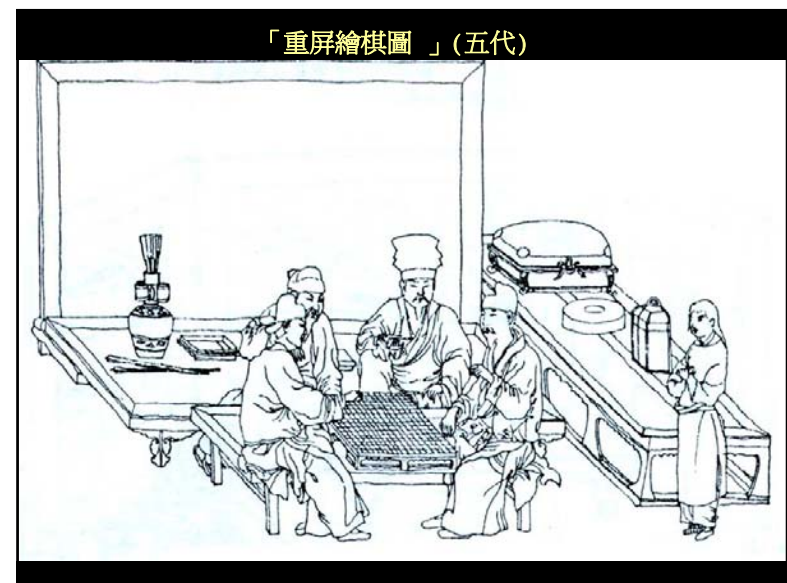
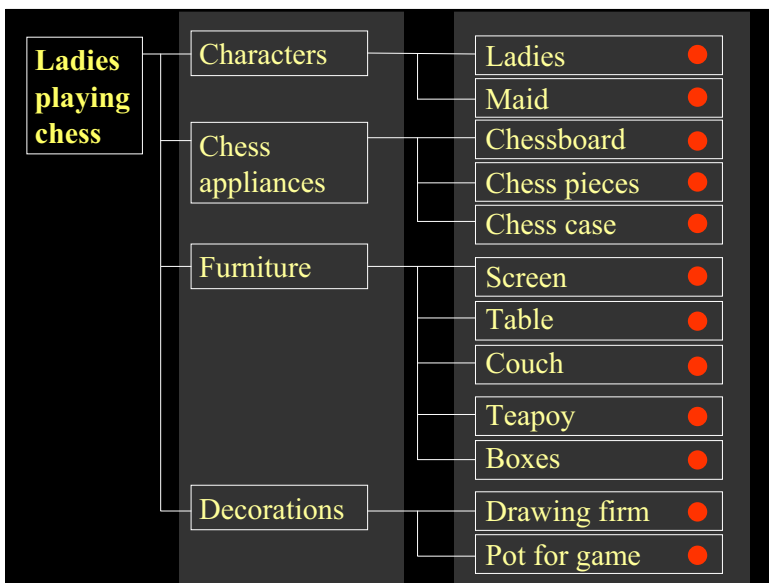




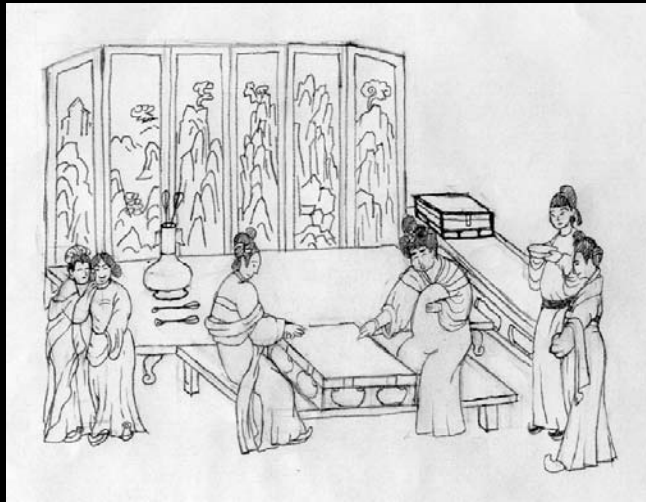
City Life

archeological studies, historical literature, relics, remains, cave paintings, stone inscriptions, new research findings





「仕女弈棋」復原圖



The three spaces and their corresponding six cultural scenarios

Place	Spaces	Activities
City of Chang-An	The main gate of the city	foreign diplomats entering Min-Te Gate
	The residential community	drinking in Li-Fun
	The main palace and its plaza	foreign diplomats approaching Lin-Te Palace
		playing polo game in Li-Te plaza
		ladies playing Chinese chess
		dances and banquets inside the palace

Integration of digital technologies

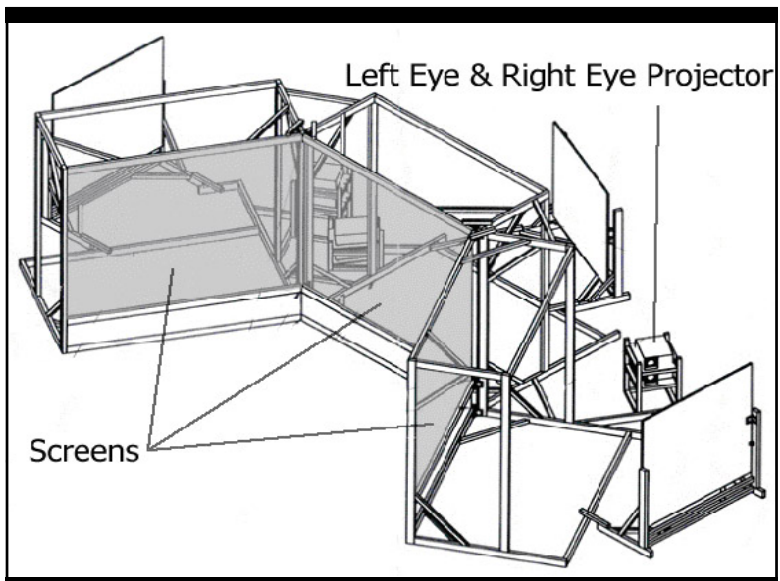
1. 3D Scanning

[video](#)

Integration of digital technologies

2. Motion Capture

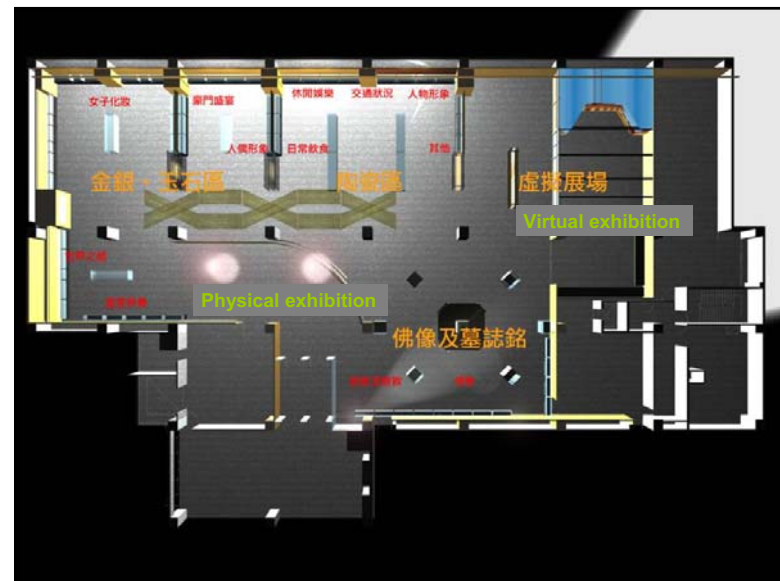
[Video](#)



Integration of digital technologies

3. VR CAVE

[Video](#)





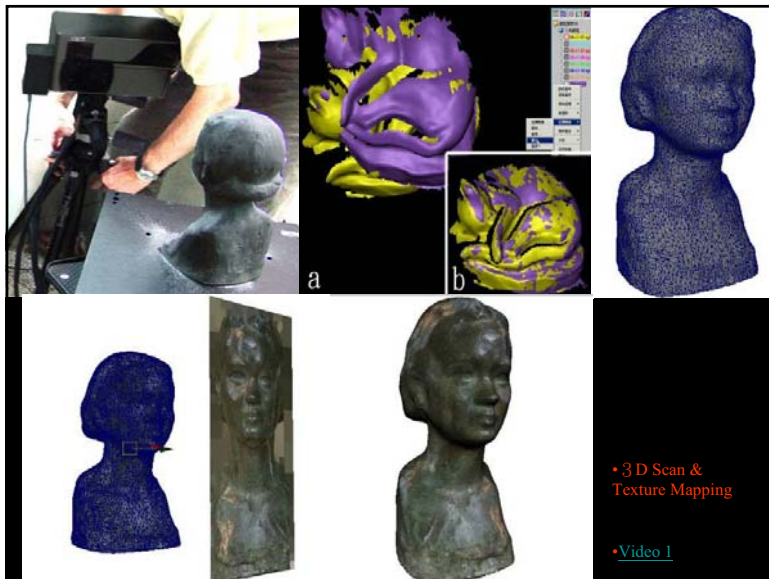
2. Digital Sculpture Museum, 2003

Artistic Sculptor: Pu Tian-Sheng (蒲添生)

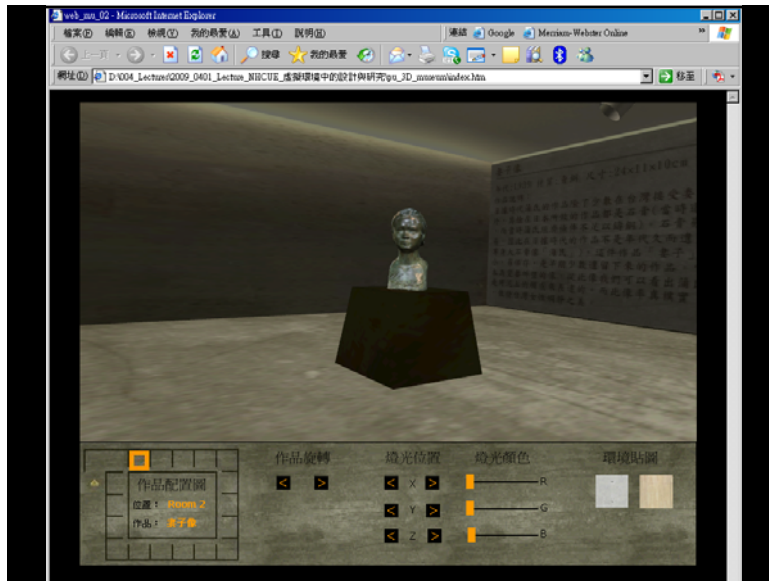
Modeling Technologies Testing

- 3D Laser Scanning
- Image-based modeling (D-Sculptor)
- Structured Light-based modeling (3D Camera)

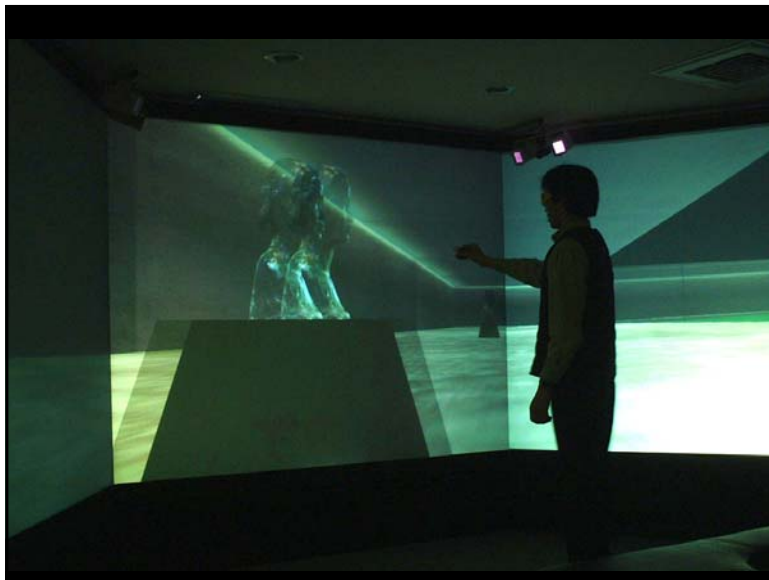
[Video](#)



Web-based 3D Museum



3D Museum in the VR CAVE



3. Historical City Spaces, 2005

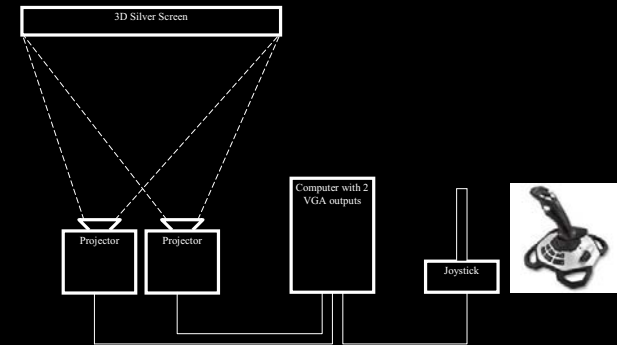
- HsinChu, ChiaYi, DanShui
- exhibited in Taipei Fine Arts Museum
(more than 90,000 people visited)

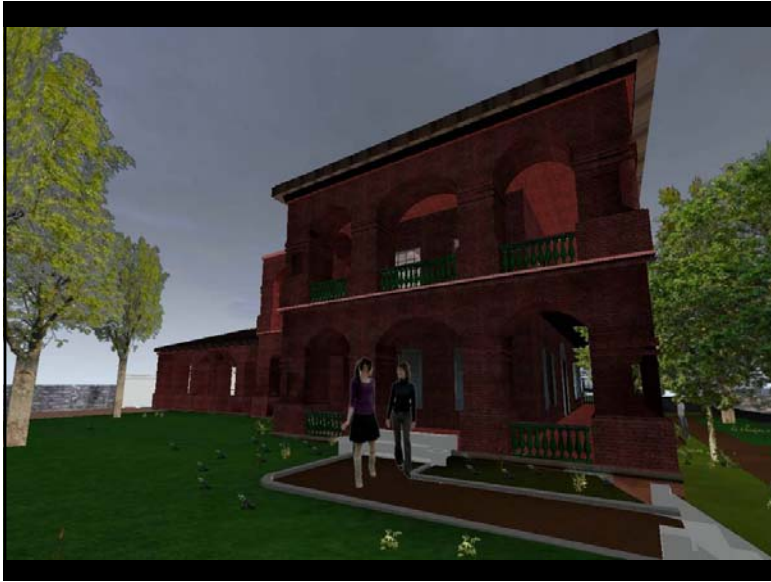




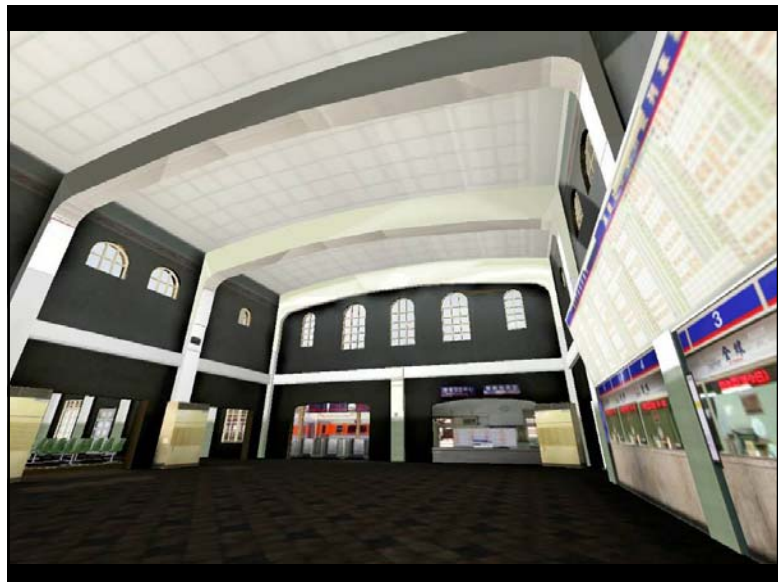
Equipments and Specifications

互動式3D立體虛擬實境系統架構圖









4. NCTU Museum, 2007

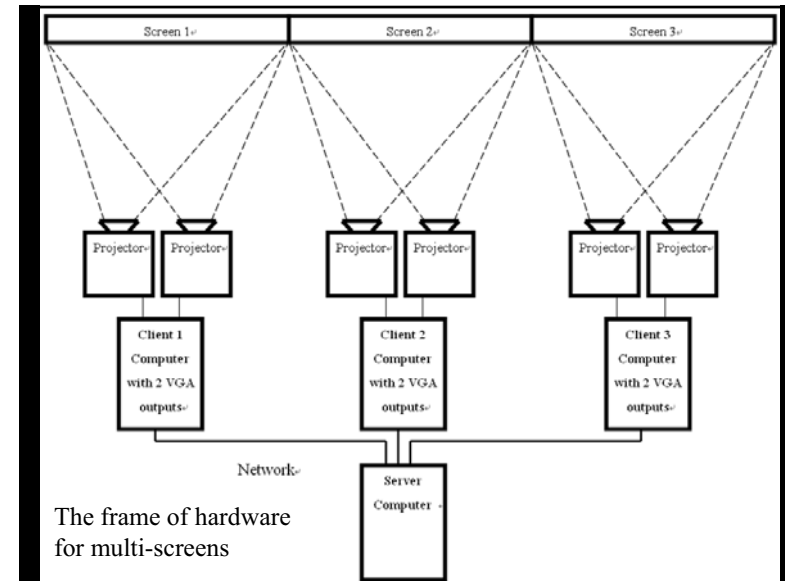
- designed by Tadao Ando(安藤忠雄)
- also exhibited in Taipei Fine Arts Museum





VR CAVE Multi-Screens Test

Software: Quest 3D



Thank you

Yen-Liang Wu
aw@arch.nctu.edu.tw

Emirati heritage in architecture in Geographic Context: The Rams-Dhayya-Barama triangle as Case Study

Dr. Ronald Hawker, Associate Professor, Department of Art and Design, Zayed University, Dubai



