

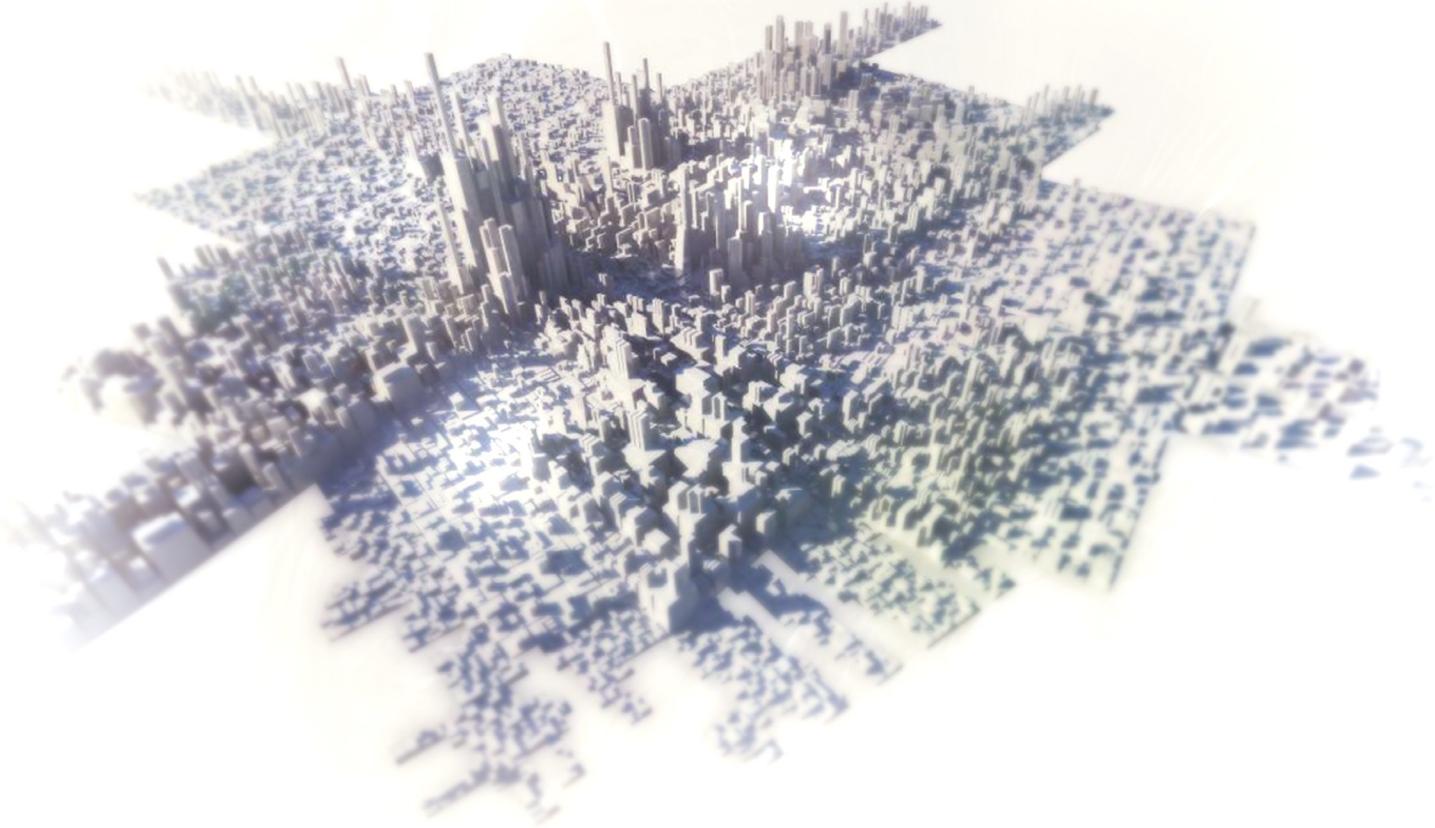


Harvard University  
Graduate School of Design

# INTRODUCTION TO 3D VISUALIZATION WORKSHOP

For urban, architecture and landscape architecture

Optimization, Animation, Rendering, and Post-production process



Digital Media Workshop Spring 2015

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## WHO YOU ARE

This workshop is for those who are familiar with 3D software such CAD program as 3ds max, Maya, Rhino to develop an advanced 3D visualization skill, or those who want to understand the process of 3D visualization in Urban, Architecture, and Landscape architect representation as a form of a still image or a video.

## OBJECTIVITY

maintaining quality of visualization

maximizing working performance in a given situation

leaning different type of the visualization processes in Urban, Architecture, and Landscape Architecture domains  
understanding and expanding knowledge to other software in the digital environment

to prepare for advanced visualization

## SOFTWARE

Rhino, 3ds max, VRay, Photoshop, Aftereffect, Media Encoder, plugins, and scripts

copy and unzip the 3DVisualziation.zip file in Nettmp\[2016\_IntroductionTo3DVisualizationWorkshop] folder to your local disk

in the [data] folder install plugins for both 3ds max and addon for GH

copy "gw\_ivy.dlo" in the plugin folder of the zip file to "C:\Program Files\Autodesk\3ds Max 2016\stdplugs"

copy "Greeble2015.dlm" in the plugin folder of the zip file to "C:\Program Files\Autodesk\3ds Max 2016\stdplugs"

copy all of files in the addon for GH folder to Libraries folder (ex C:\Users\NJ9\AppData\Roaming\Grasshopper\Libraries)

## WHEN

January, 30 (Saturday), 2016

Part A and B 10:00am - 12:30pm

Part C and D 1:30pm - 4:00pm

Room 111

## STRUCTURE

60% for demo with example files, and 40% for overview of processes, this ratio might be changed during the workshop.

## WHERE CAN I DOWNLOAD THE FILES

Nettmp\[2016\_IntroductionTo3DVisualizationWorkshop] folder( you need 14GB free space in your local HDD)  
download it before the workshop

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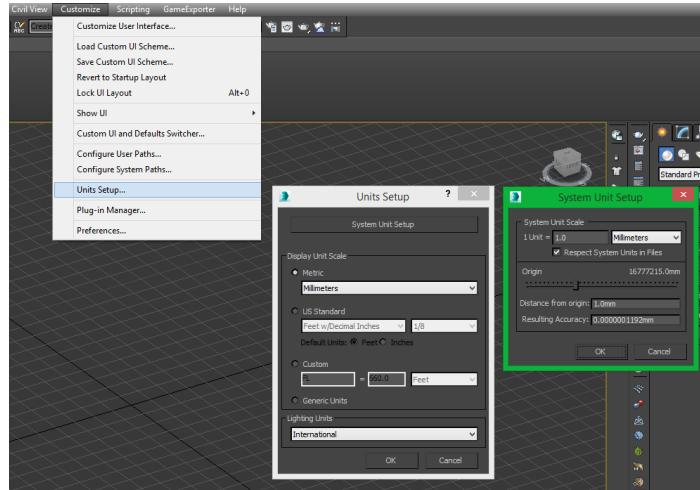
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# PART A KEYWORDS

## GENERAL WORKING PROCESS IN ARCHITECTURAL VISUALIZATION

1 Basic setup and importing models (unit setup / import)

1-1 unit setup

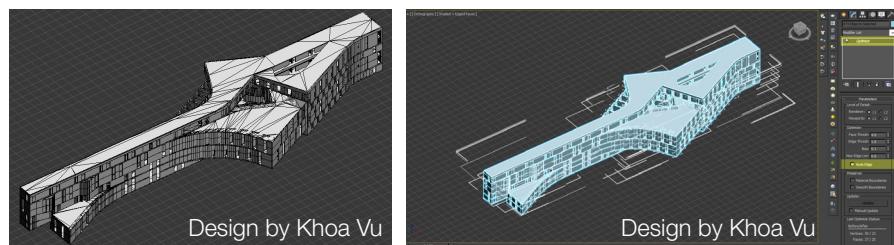


1 -2 importing modeling from SktechUp or Rhino



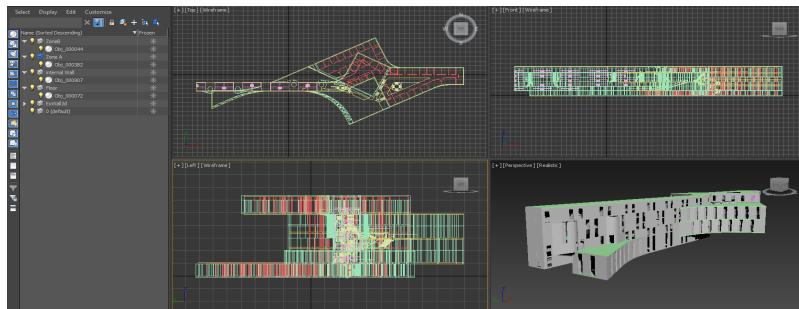
2 Layer / short cut / optimization modeling from SketchUp Rhinoceros / attach by material

2-1 optimize and multRes (Numerical Geometry Utility or Architecture compiler)

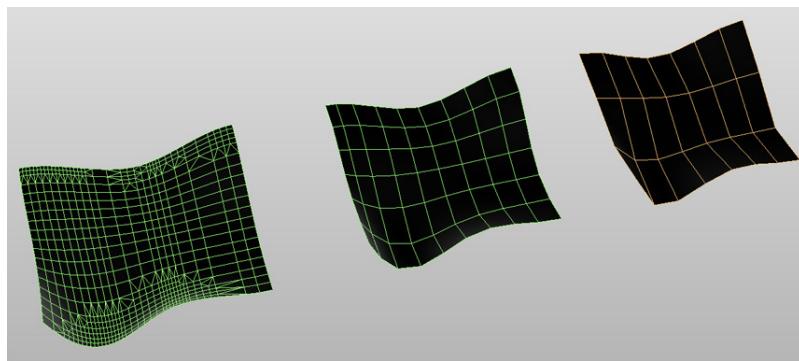


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## 2-2 Layer, attach, detach, group, selection by material

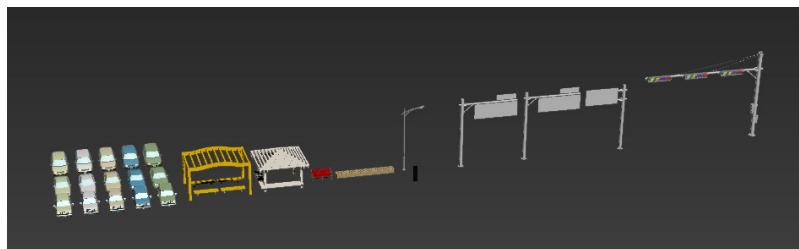


## 2-3 import NURBS surface in 3ds max



## 3 Scene

### 3-1 import and Merge (objects such as car, chair, light, tree, and so on)

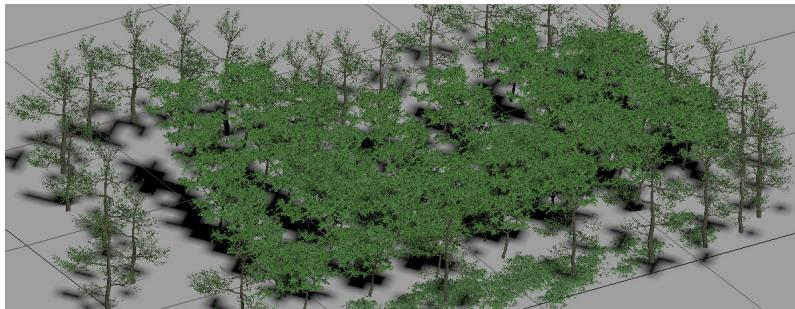


### 3-2 displacement map / ivy plugin (ex C:\Program Files\Autodesk\3ds Max 2016\stdplugs)

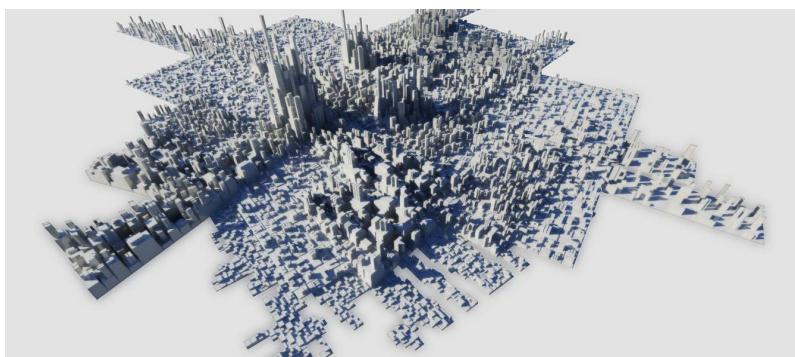


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4-3 Data-driven distribution (Rhino and 3ds max)



4-5 Greeble plugin / snow generator



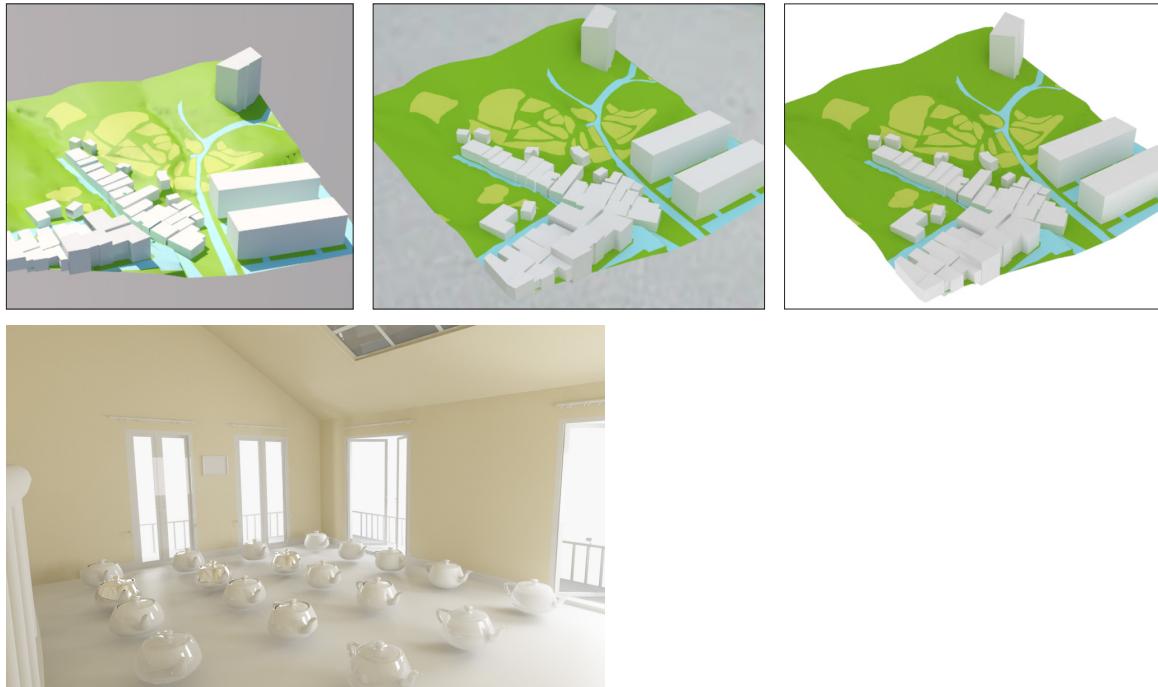
4 Material, Lighting and Rendering

4-1 understanding texture and Material and template (VRay)



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4-2 understanding rendering template( VRay Sun, Dome, and HDRI rendering template)



4-3 element rendering and channel rendering for post-production

## POST-PRODUCTION

5-1 Retouch in Photoshop



5-2 effecting and color correction with rendering resources

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## INTRODUCTION TO 3D VISUALIZATION

# MEMO

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## PART B KEYWORDS

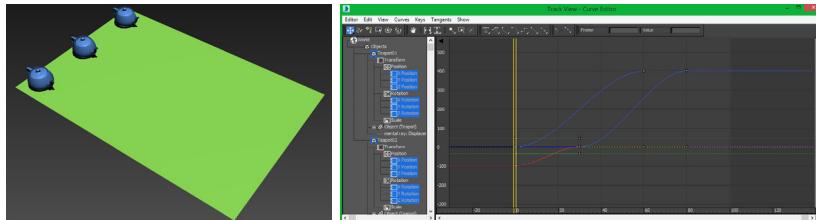
### GENERAL WORKING PROCESS FOR ANIMATION IN ARCHITECTURAL VISUALIZATION

#### ANIMATION

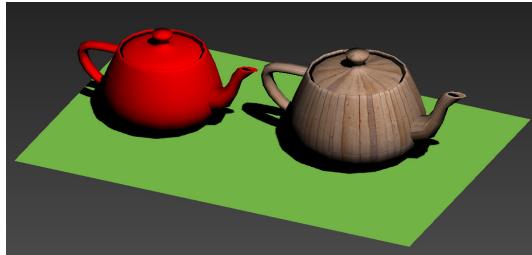
1 understanding Animation in 3ds max

B-1 Transform: position, rotation, and scale

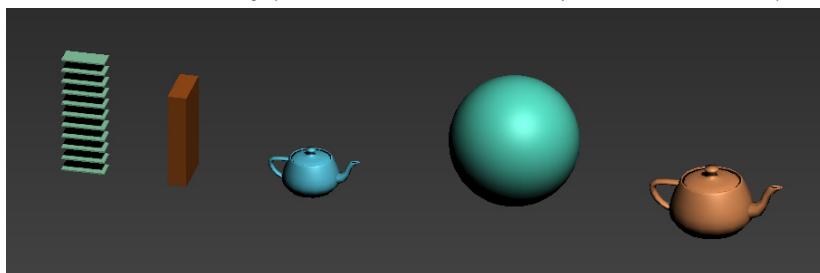
B-2 animation with transform (curve editor / trajectory / track bar / frame rate)



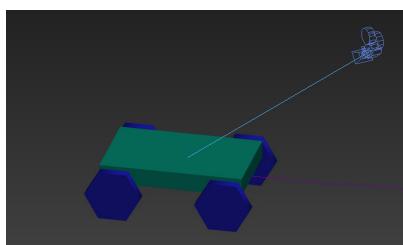
B-3 animation with material ( colors, bitmaps)



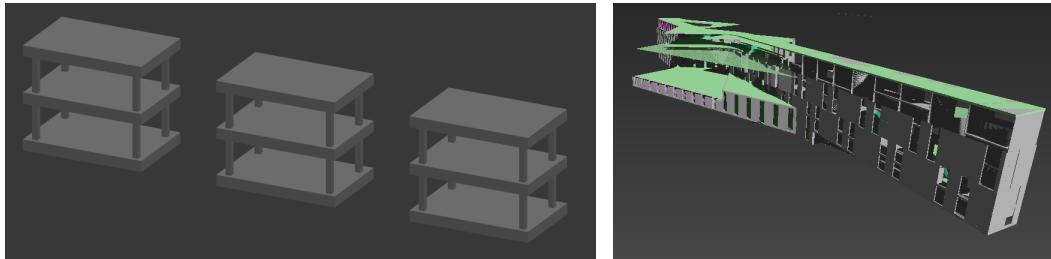
B-4 animation with modify ( bend / twist / Boolean operation and so on)



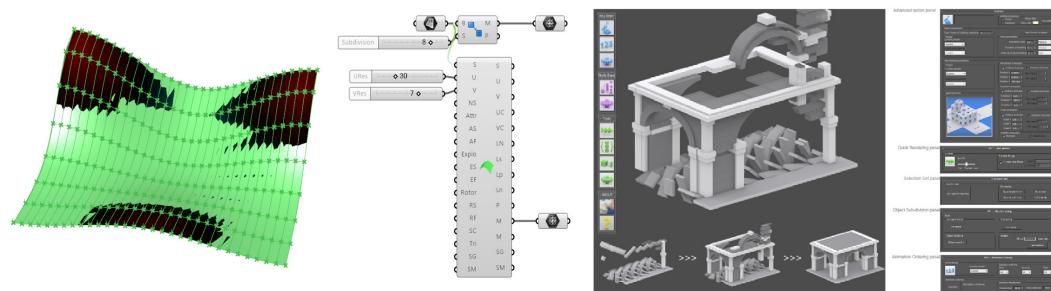
B-5 animation with constraint and link



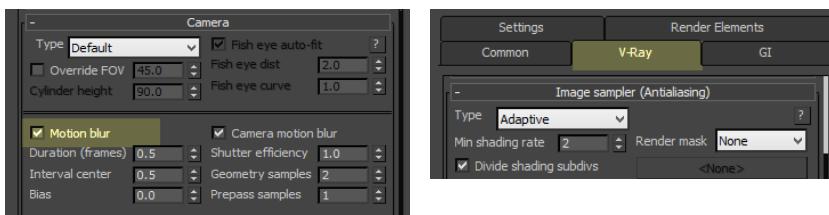
B-6 animation for Building animation



B-7 animation by ANT scripted plugin



B-8 animation rendering (sequences)



Tip Object motion blur VS Camera motion blur



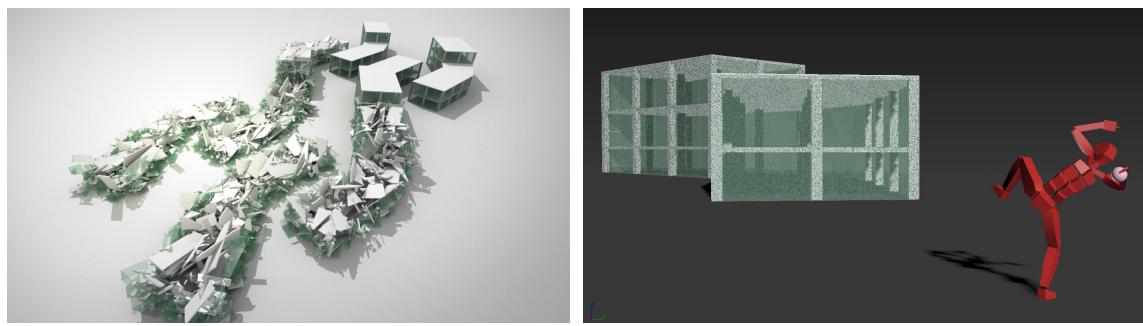
B-9\_Interior Animation



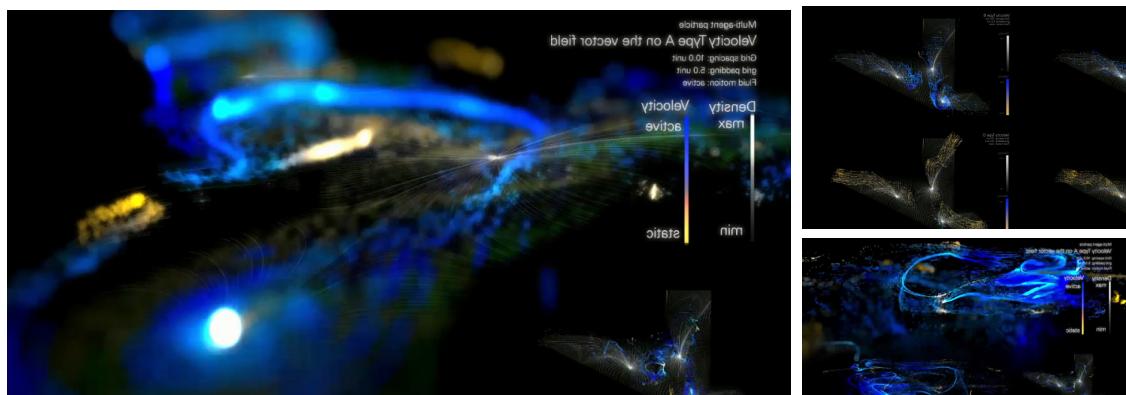
Overview: Data-driven visualization / animation



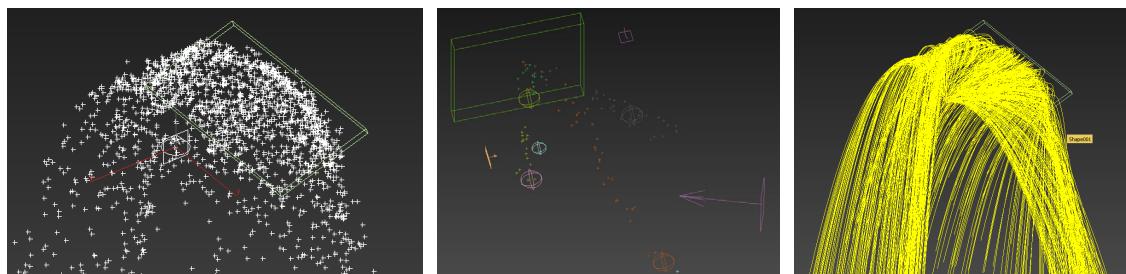
Overview: Animation by Simulation with physical engine and event



Overview: Particle system , and Paricle Flow



B-11\_ParticleSystem



# MEMO

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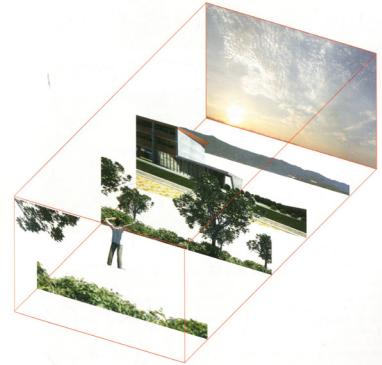
# PART C KEYWORDS

## GENERAL WORKING PROCESS OF POST-PRODUCTION IN ARCHITECTURAL VISUALIZATION

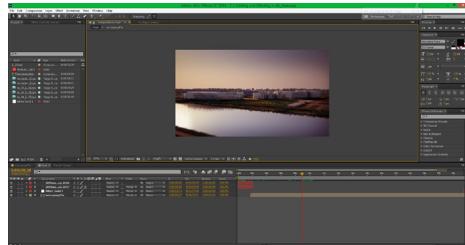
### POST-PRODUCTION

Understanding post-production in Aftereffect for video production

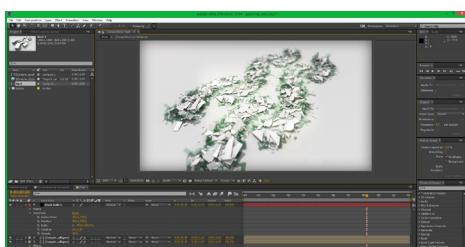
C-1 Animation in Aftereffect ( basic Motion Graphic )



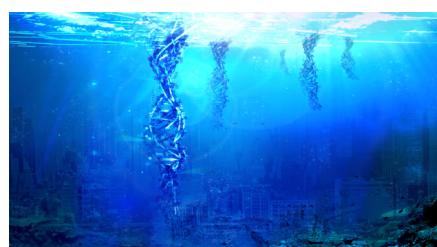
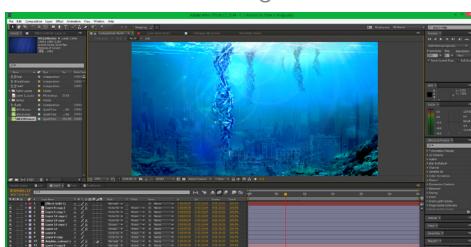
C-2 Editing and effecting with sequences images



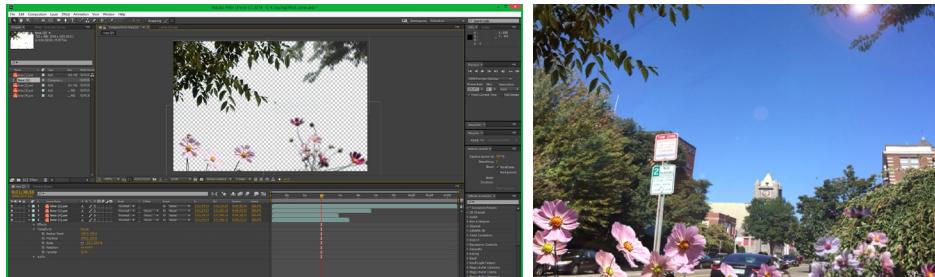
! exercise



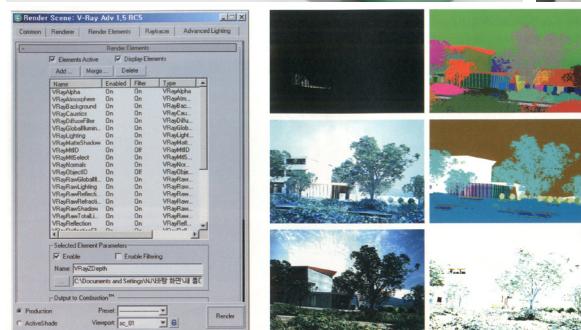
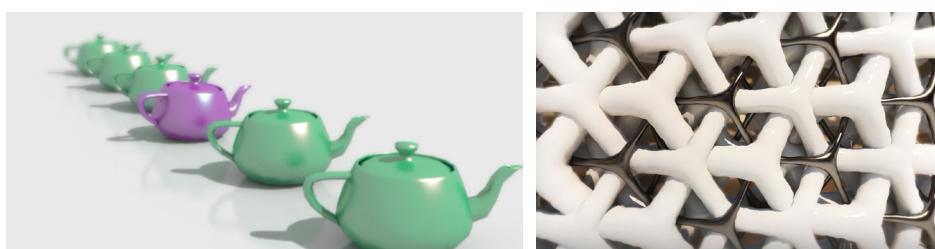
C-3 Animation from a image



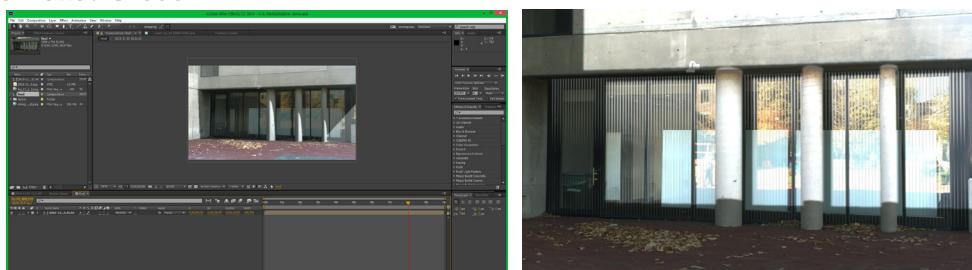
C-4 Animation from a image with color keying effect



C-5 Channel\_Element rendering



C-6 Matte / Shadow

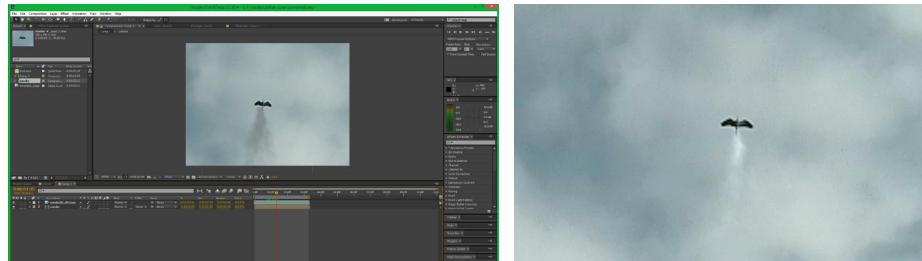


C-6-1\_Anti-Aliasing

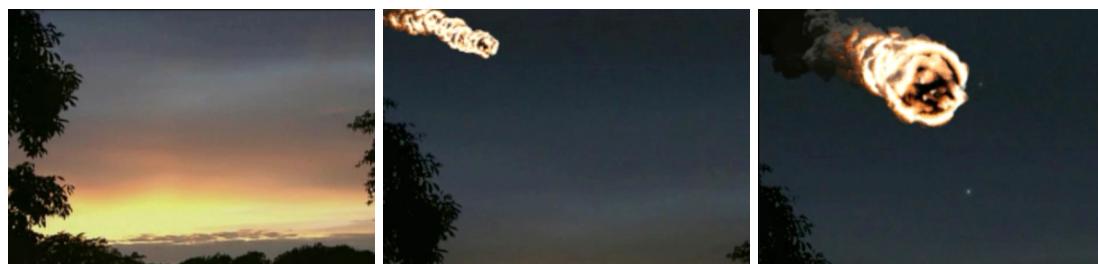


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C-7\_Track\_Motion\_Stabilize\_Motion



C-8\_The smoother The wiggler



C-9\_Overview Plugins



C-10 Sound and BGM

# MEMO

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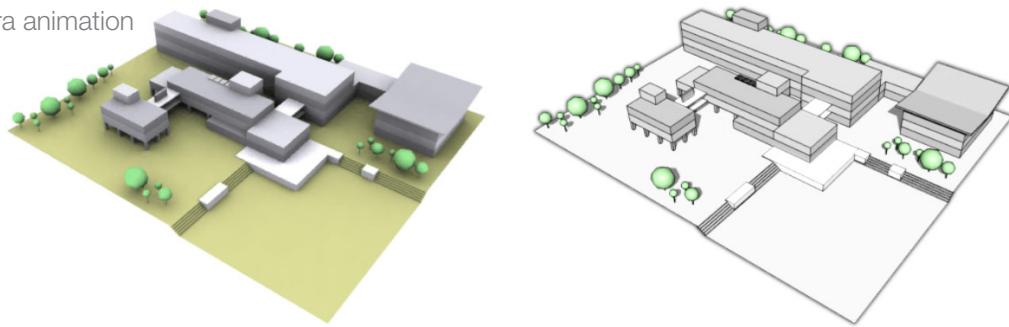
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## PART D KEYWORDS

### GENERAL WORKING PROCESS OF POST-PRODUCTION IN ARCHITECTURAL VISUALIZATION

#### CASE STUDY

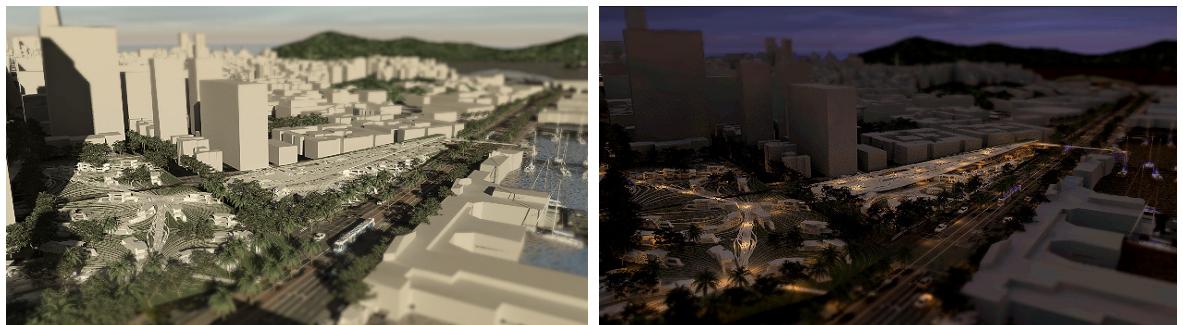
D-1 Camera animation



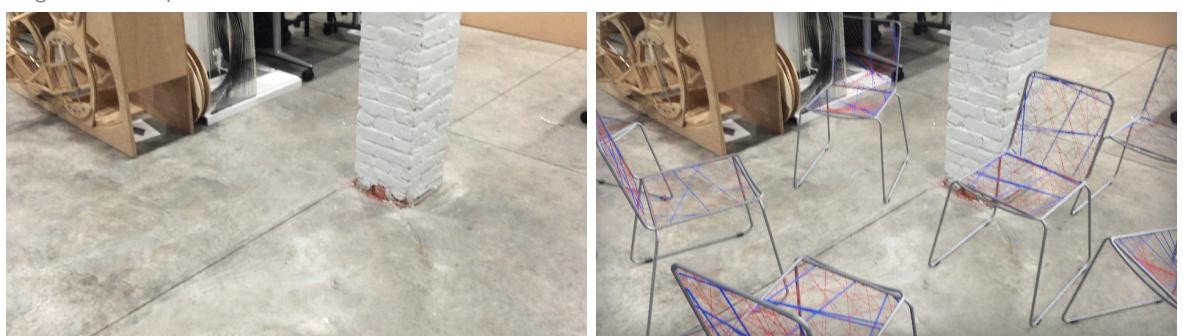
D-2 Seasonal animation



D-3 Time-Lapse animation



D-4 Digital Mockup



# MEMO

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## APPENDIX KEYWORDS

### PRE-PRODUCTION

1 schedule

deadline / video run time / rendering style

### Layout ( Mise-en-scene )

1 frame

vertical

horizontal

square

diagonal frame

open frame

closed frame

3 background and foreground

composition

scale

material

3 camera

angles

high angle

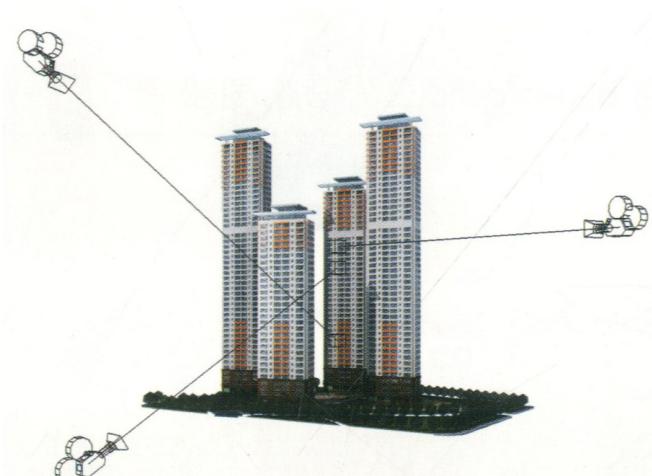
low angle

bird's eye angle

eye angle

oblique angle

Shots



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extreme long shot

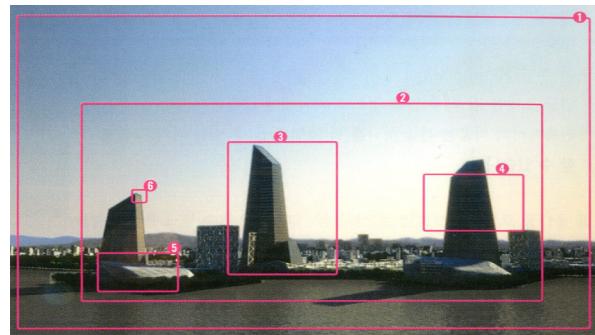
long shot

full shot

medium shot

close up shot

extreme close-up shot



4 sequence or movement

perception

movement from emotion, contrast, frame, tradition

camera

pan

tilt,

dolly shot

zoom short

handheld shots,

crane shots or aerial shots

scenes

transition between scenes

5 music and sound

6 Raising questions

# MEMO

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