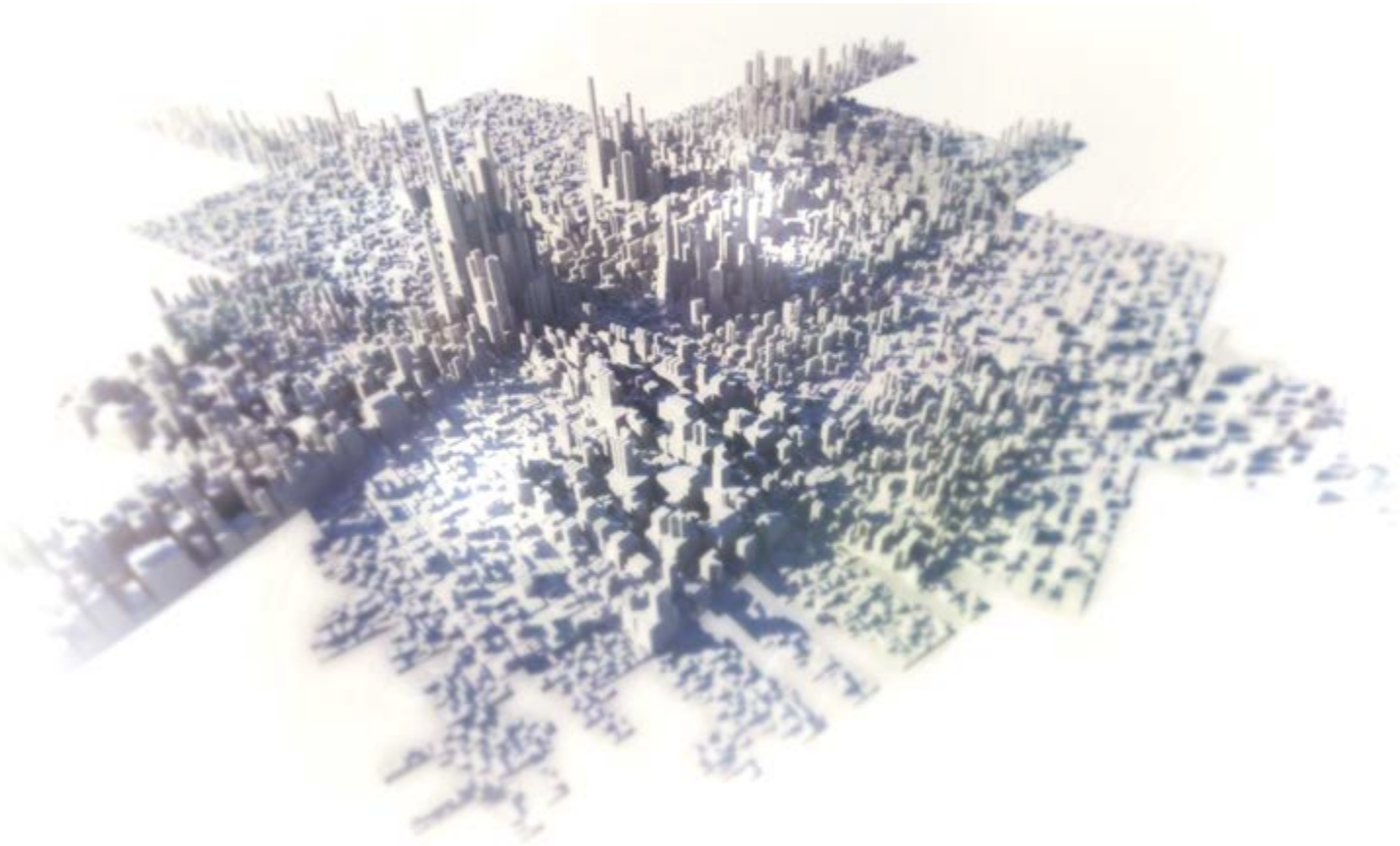
Harvard University
Graduate School of Design

INTRODUCTION TO 3D VISUALIZATION WORKSHOP

For urban, architecture and landscape architecture

Optimization, Animation, Rendering, and Post-production process



Digital Media Workshop Fall 2016

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WHAT IS THIS WORKSHOP?

The Introduction to 3D Visualization(3ds max and Vray) is specifically designed to provide GSD Students with senses of digital representation in their design by ...

(1) understanding common and holistic work flow for rendering and animation in 3ds max(Vray),

(2) learning optimized tips and Know-hows for rendering and animation in 3ds max(Vray),

(3) expanding the knowledge on the basis of topic-orient examples.

To achieve it in the given time, the workshop can be divided into ...

(1) 3ds max's interface(Controlling view, Full-down menu, and Panel),

(2) importing model from SktechUp and Rhino(group and layer),

(3) general creation (line, polygon, lighting, camera and material),

(4) environment(Vray),

(5) animation (basic and advance animation)

(6) post-production(Photoshop for still image and AfterEffect for animation)

So that you will grasp ideas when it comes to visualize and represent your design as forms of images or videos.

For those who have no background about this topic, here is my suggestions

(1) attend the workshop without any pressure

(2) watch what the workshop is(just like watching movie or film because there are several magic and playful examples)

(3) memo what you are interest in for presentations of design in the future.

(4) with your problems, come to CODE WITHOUT FRONTIERS(CWF) which happen two times in a week.(we will announce the time and room by the gsd-fellow-student e-mail during the semester.)

WebLink

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

in the [data] folder of our github, 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

September, 19 (Monday), 2016, Part A and B 7:45pm - 10:15pm

September, 20 (Tuesday), 2016, Part C and D 7:45pm - 10:15pm

Room 111, Gund Hall, Harvard GSD

STRUCTURE

50% for demo with example files, and 50% for overview of processes, this ratio might be changed during the workshop.

WHERE CAN I DOWNLOAD THE FILES

Example files

BasicAnimation.pdf

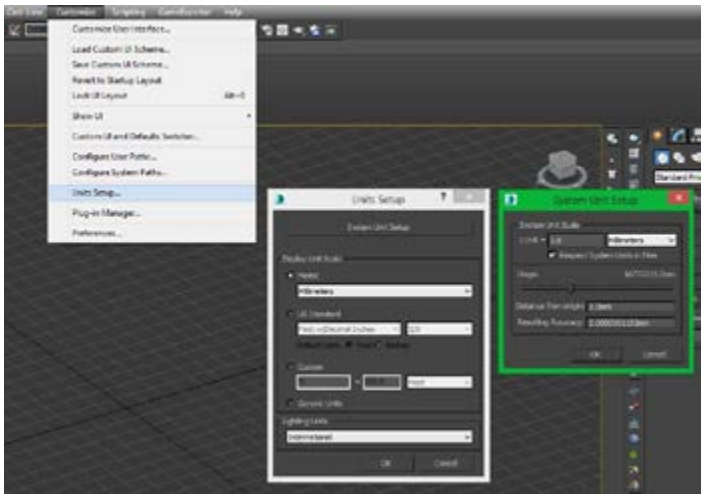
BasicParticleSystem.pdf

PART A

GENERAL WORKING PROCESS IN ARCHITECTURAL VISUALIZATION

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

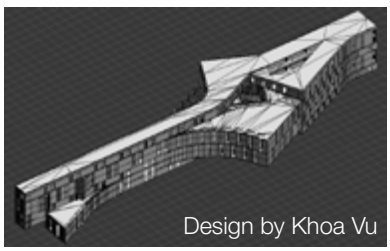
Unit setup link

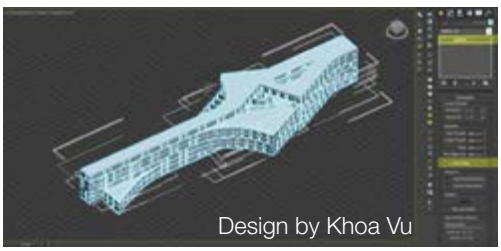


Importing modeling from SktechUp or Rhino, link

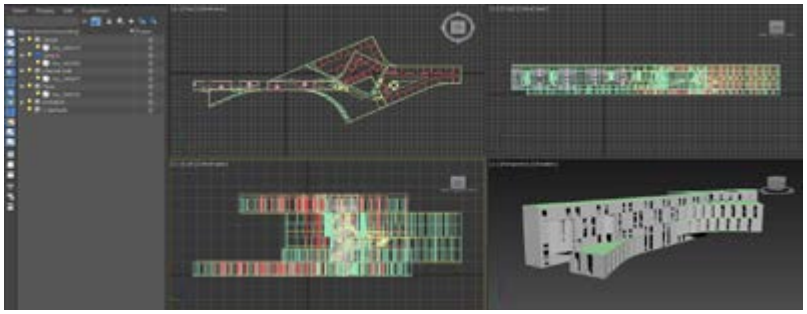
2 Layer / short cut / optimization modeling from SketchUp Rhino / attach by material

Optimize and multRes (Numerical Geometry Utility or Architecture compiler)

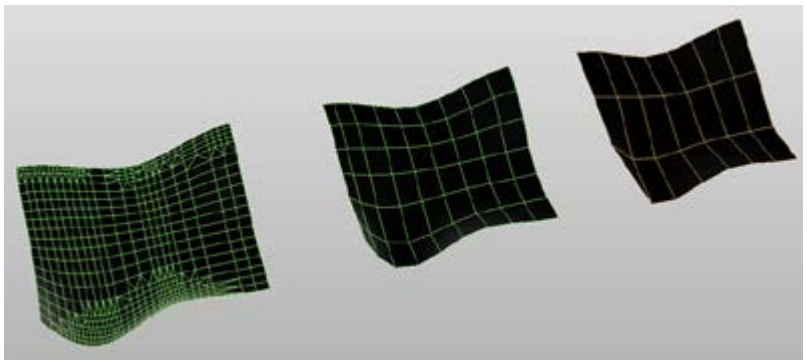




Layer, attach, detach, group, selection by material

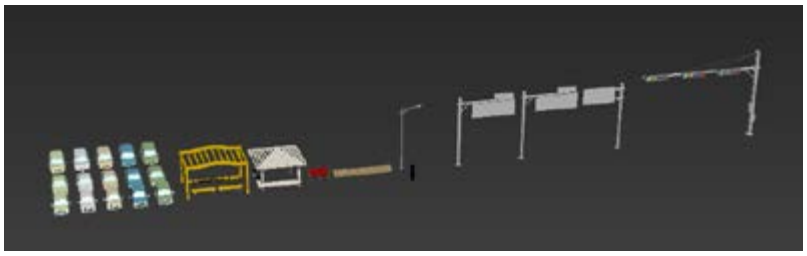


Import NURBS surface in 3ds max



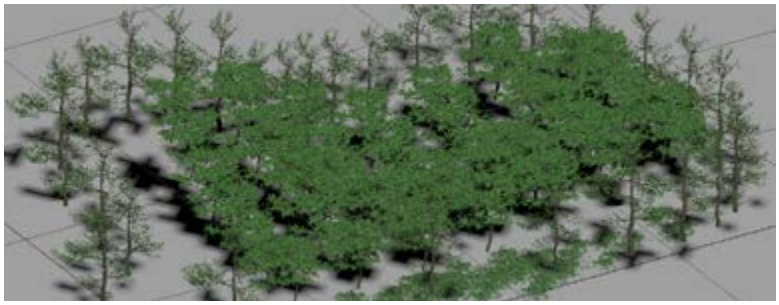
3 Scene

Import and Merge (objects such as car, chair, light, tree, and so on) link

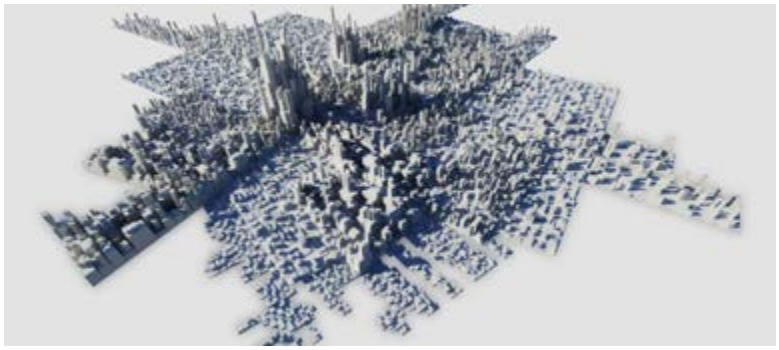


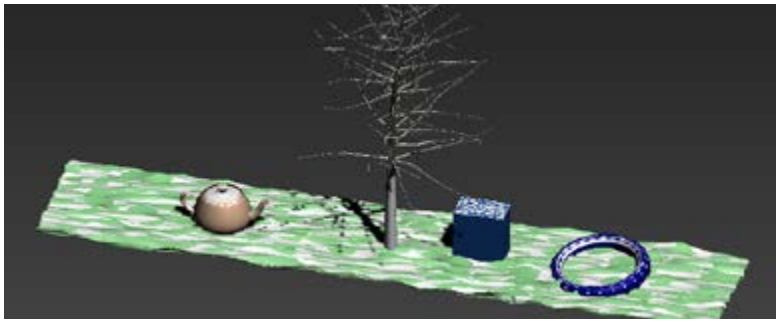
Displacement map / ivy plugin (ex C:\Program Files\Autodesk\3ds Max 2016\stdplugs), link

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



Greeble plugin / snow generato, link, link



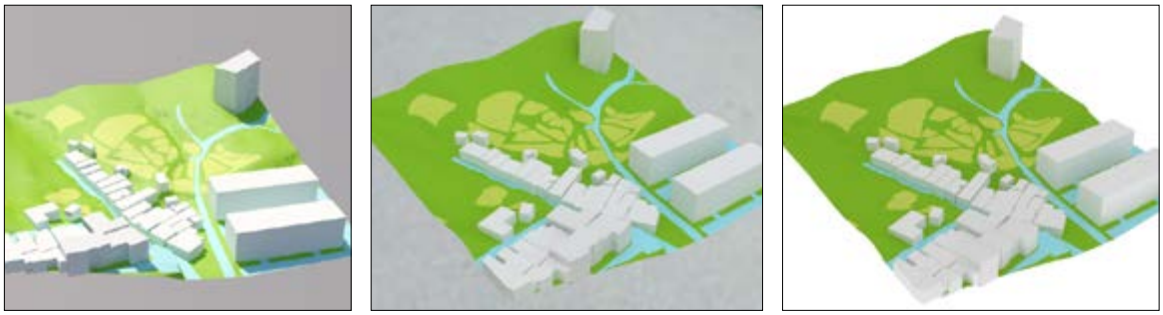


PART B

Material, Lighting and Rendering

Understanding texture and Material and template (VRay) link

Understanding rendering template(VRay Sun, Dome, and HDRI rendering template) link



element rendering and channel rendering for post-production

POST-PRODUCTION

Retouch in Photoshop link

5-2 effecting and color correction with rendering resources

MEMO

PART C

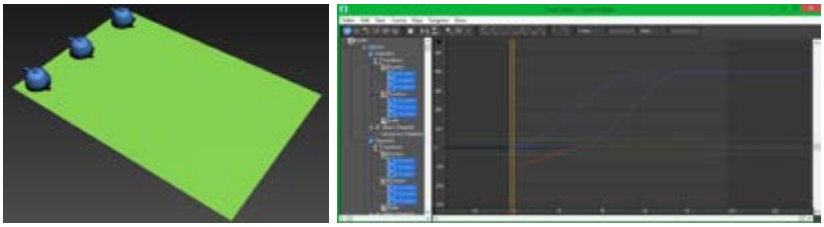
GENERAL WORKING PROCESS FOR ANIMATION IN ARCHITECTURAL VISUALIZATION

ANIMATION

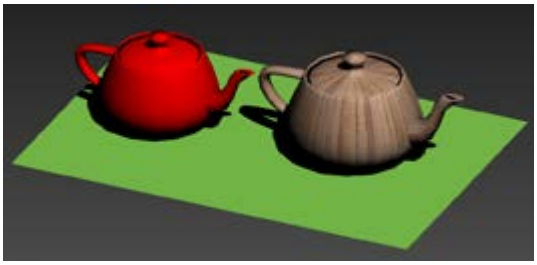
1 understanding Animation in 3ds max

Transform: position, rotation, and scale link

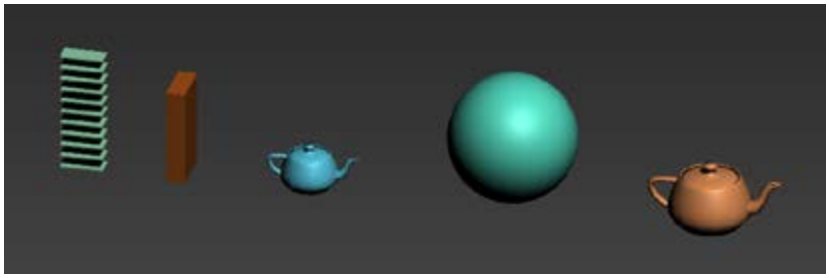
Animation with transform (curve editor / trajectory / track bar / frame rate)



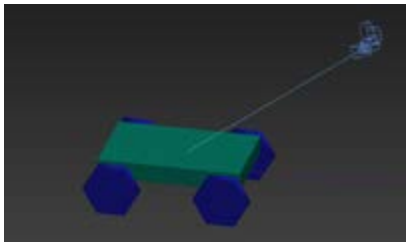
Animation with material (colors, bitmaps) link



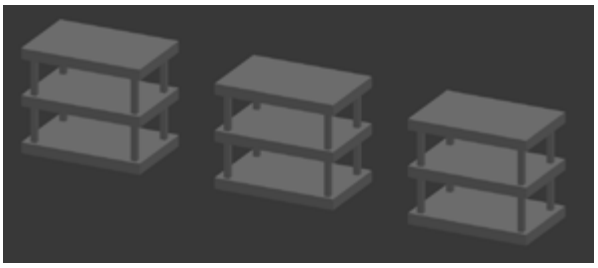
Animation with modify (bend / twist / Boolean operation and so on) link

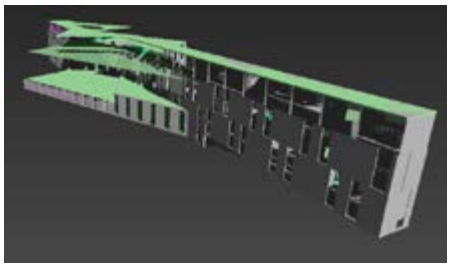


Animation with constraint and link link

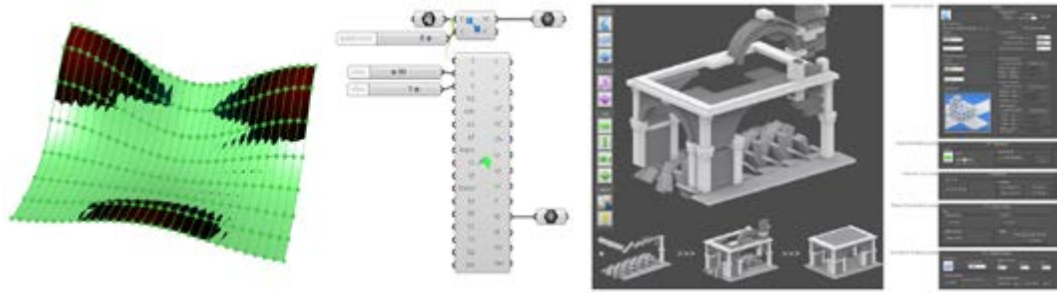


Animation for Building animation link



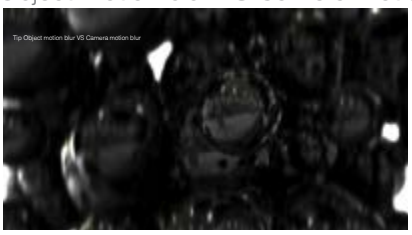


Animation by ANT scripted plugin link



Animation rendering (sequences) link

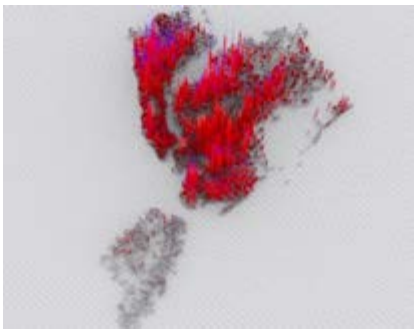
Tip Object motion blur VS Camera motion blur link

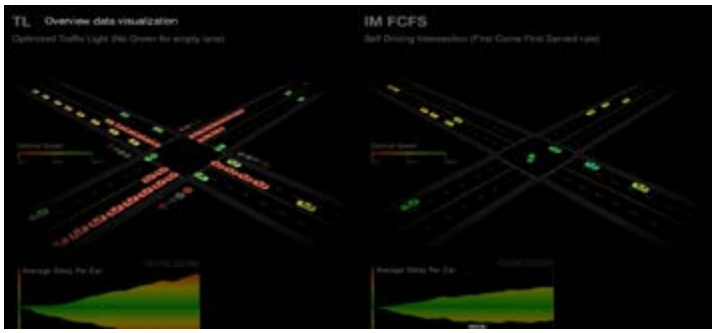


360 Rendering, link

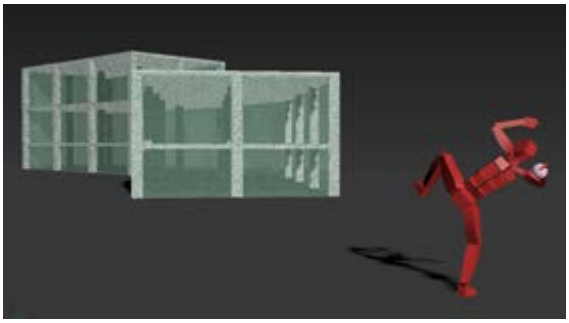
Interior Animation link

Overview: Data-driven visualization / animation

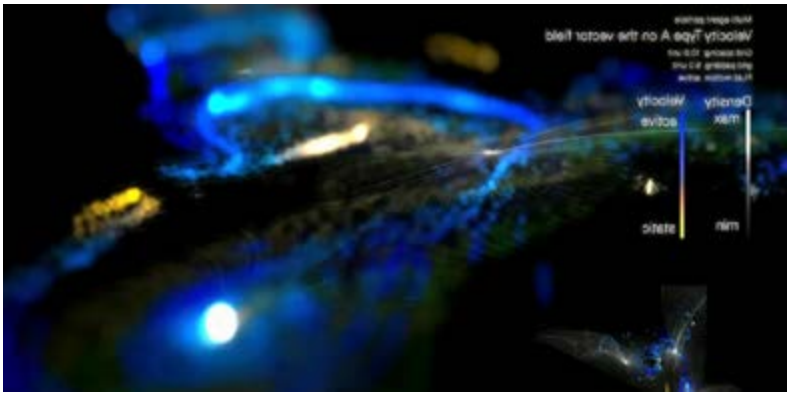


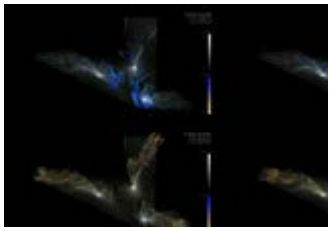


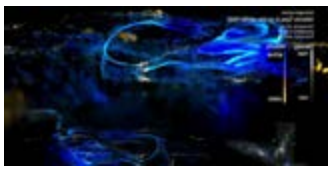
Overview: Animation by Simulation with physical engine and event



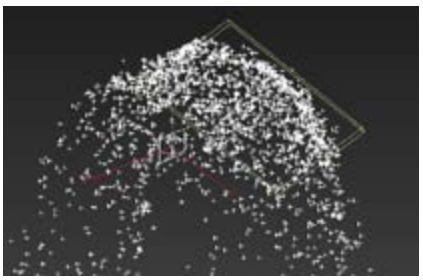
Overview: Particle system , and Paricle Flow

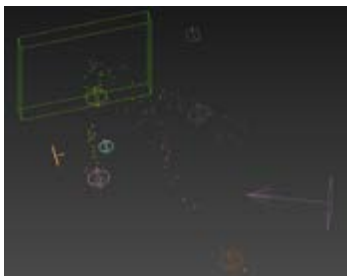


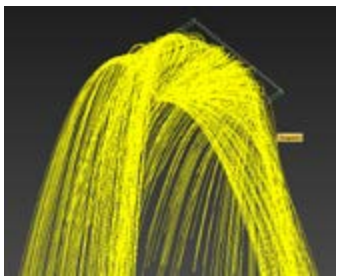




ParticleSystem, link







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PART D

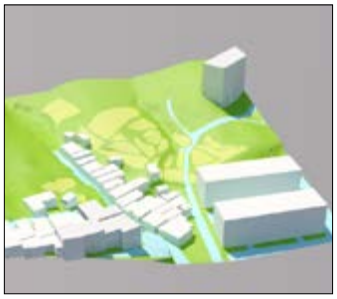
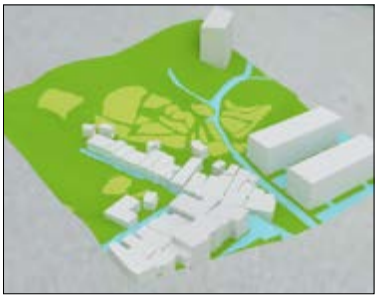
GENERAL WORKING PROCESS OF POST-PRODUCTION IN ARCHITECTURAL VISUALIZATION

RENDERING

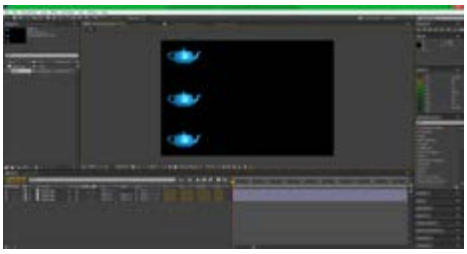
POST-PRODUCTION

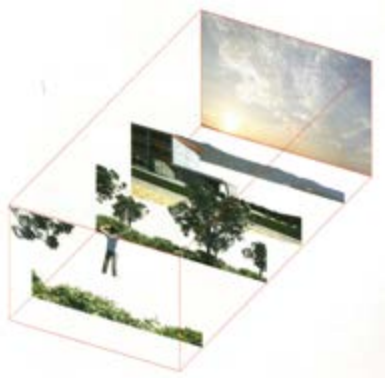
Understanding post-production in Aftereffect for video production

Rendering for animation, link

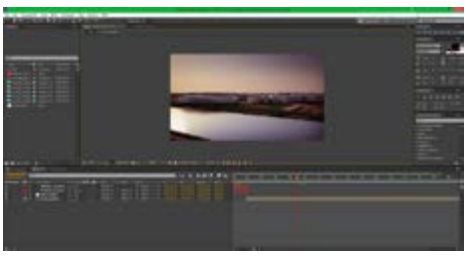



Animation in Aftereffect (basic Motion Graphic), link





Editing and effecting with sequences images, link

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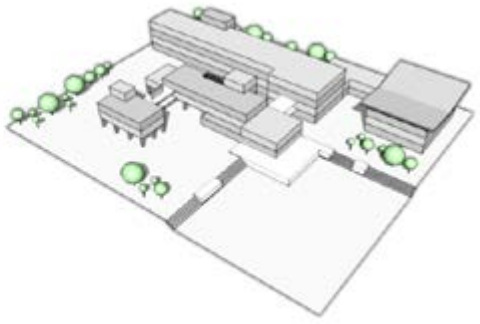
PART E

GENERAL WORKING PROCESS OF POST-PRODUCTION IN ARCHITECTURAL VISUALIZATION

CASE STUDY

D-1 Camera animation link



D-2 Seasonal animation, link

D-3 Time-Lapse animation, link

D-4 Digital Mockup, link

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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

extreme long shot

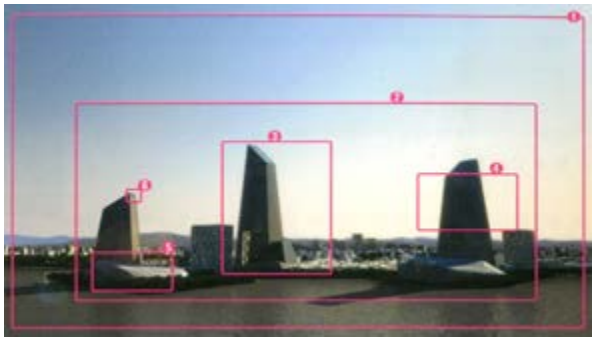
long shot

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

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