

WS-005 _ Digital Methods: Los Angeles River Watershed

Friday, October 20, 2017

LEARNING OBJECTIVES:

- Gain insight methods of mapping and analysis at the scale of the watershed.
- Learn about contemporary approaches for watershed and flow simulation.
- Understand how associative modeling software can be used to generate landscape form and typologies.
- Develop an understanding of real-time environments and their implementation in landscape visualization.

PRESENTATION OUTLINE

The workshop will introduce an array of digital tools from generative modeling, watershed mapping, and real-time gaming engines. Participants will be introduced to these tools as they develop representations and generative models of issues within the Los Angeles River watershed and engineered river channel.

Participants will be required to have the latest versions of ArcGIS, Rhinoceros 3D, Grasshopper, and Unity 3D installed on their laptops (Windows).

Outline and Schedule

9:00 – 9:30

1. Introduction, Contemporary Digital Methods (Bradley Cantrell and Adam Mekies)
 - Current Methods and Tools
 - Mapping and Associate Modeling Tools
 - Generative Form and New Aesthetics
 - Examples and Case Studies

9:30 – 12:00

Exercise 01, Mapping (Rhino, ArcGIS, and Grasshopper)

- How to find a DEM and load it into ArcMap
- How to delineate a watershed using a DEM
- How to find flow lines / basins from that same DEM and make independent layers
- How to set up a workflow to Rhino

Exercise 02, Generative Tools for Channel Formation (Rhino and Grasshopper)

- The first part will introduce software simulation techniques of how physical interactions of materials and processes can produce recognisable landform morphologies. It will begin siteless, focusing on

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abstract methodologies of generative modeling and simulation.

- The exercise will take the 3D rhino model from exercise 01, apply the simulation methods with contextual site data, and export a 3D model for exercise 03.
- The final part will be a quick introduction to Processing PixelFlow, RhinoCFD, and other tools for computational fluid simulation, and possible application of these tools in landscape design.

12:00 – 12:45 Lunch on your own

12:45 – 2:00

- 4. Continuation of Exercise 02
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- 2:00-4:30
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- 5. Exercise 03, Real-time Engine
- a. Introduce real-time gaming engine (Unity 3d)
- b. Import models generated in exercise 02
- c. Use basic tools in Unity 3d to add vegetation, textures, and viewpoints
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- 4:30-5:00
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- 6. Review of Day and Wrap-up (Bradley Cantrell and Adam Mekies)
- Benefits of Collaboration
- Future Directions

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WORKSHOP PRESENTER BIOS

Bradley Cantrell, ASLA, FAAR

Professor and Chair of Landscape Architecture, University of Virginia School of Architecture

Bradley Cantrell is a landscape architect and scholar whose work focuses on the role of computation and media in environmental and ecological design. Professor Cantrell received his BSLA from the University of Kentucky and his MLA from the Harvard Graduate School of Design. His work points to a series of methodologies that develop modes of modeling, simulation, and embedded computation that express and engage the complexity of overlapping physical, cultural, and economic systems.

Adam Mekies, PLA, IGDA

Design Workshop

Adam Mekies is a licensed landscape architect with Design Workshop in Aspen, Colorado. As a former design and construction technologies consultant he has spent years pushing 3D technology beyond image and furthering the spatial and interactive potential of landscape architecture's design modeling systems. He received his Bachelors of Landscape Architecture from Iowa State University; and has adapted his interests in advanced 3D modeling and computational technology to be implemented on design projects across the country. He is the recipient of multiple ASLA design and research awards for his work in community design and implementation of interactive and parametric technologies.

Hannah Gaengler

Hannah recently graduated from the Harvard GSD with a Master in Landscape Architecture, and is now using her representation skills towards digital production and branding. She has always been interested in experimenting with different digital tools (e.g. real time rendering) to find innovative ways to engage with designs and narratives. Hannah is currently a Visual Director and Co-Founder of the LA based design collaborative UNToLD, which is working on album art & branding material for musicians, audio visualizations, music production, art direction & trailer production as well as exhibit & event design.

Xun Liu

Xun Liu is currently working as Irving Innovation Fellow in Harvard Graduate School of Design and as a landscape designer at StossLU. She received a Master in Landscape Architecture with Jacob Weidenmann Prize from Harvard Graduate School of Design in 2017, and a Bachelor of Architecture with distinction in technology from Tongji University in 2015. Being skilled at computational tools such as Rhino, Grasshopper, Processing, ArcGIS, her former design and research were focused on digital fabrication and robotics, computational fluid dynamic simulation and modeling. She is interested in interaction between physical fabrication and digital simulation, and application within landscape architecture and urban spaces.

John Wray

As a recent graduate of the MLA II program at Harvard University's Graduate School of Design, John focuses his work on the variable layers and scales embedded in cultural and ecological needs of urban landscapes. After completing two urban design / landscape architecture studios focused on large scale mobility issues in Jakarta, Indonesia and Buenos Aires, Argentina, John finished his graduate studies with his design thesis titled: "Corrective - Collective" which examines the utility of urban brownfields in the context of recovering Rust-Belt cities. Since joining the HOK's planning group in Washington, D.C., John has contributed to a number of master plans as well as designs for public spaces in both the United States and abroad.

