Workshop for CAADRIA 2017 Conference_
Proposal

Suleiman Alhadidi_ BVN + UNSW

This workshop is sponsored by BVN architecture
http://www.bvn.com.au/

Workshop Name: Workflows for Computational Environmental Design –Revit & Dynamo

Abstract (Aims and Method)

This workshop provides concepts and techniques on how to visually script in Revit using Dynamo, it focuses on environmental design processes and concepts used to evaluate important concepts of sun orientation, building openings as well as shading devices. This design focused workshop will target basic parametric knowledge which is needed to connect data generated from the analysis tools, created in this workshop, with designed building components. It also provides insights on how to use computational design during sun studies to enrich BIM workflows. It provides participants with an understanding of how to approach BIM as an environmental design platform to assess building envelops. The workshop will open doors to experts in environmental design to enrich their explorations in sun related studies within Revit environment. Topics such as environmental planning regulation, and vertical and horizontal shading devices will be discussed from a parametric design perspective. The workshop will kick off your explorations on data driven design and analysis through creating environmentally smart building components.

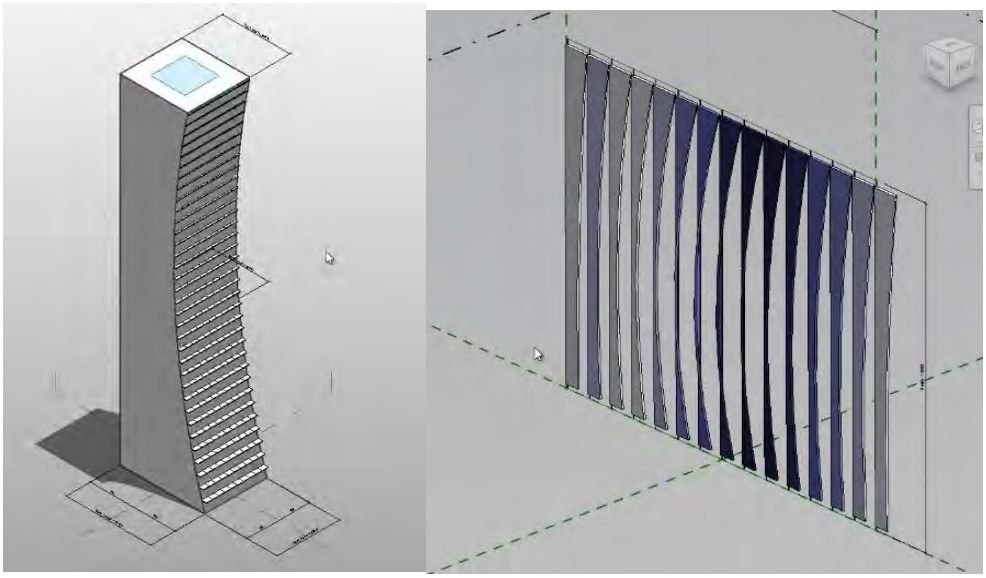


Image 01: Creating parametric responsive sun shadings in Dynamo_ O(n) Studio

Key Learning Objectives/Outcomes

_Understanding how to incorporate environmental data with visual scripting into BIM workflows.

_Get introduced to Dynamo and BIM environmental related tools.

_Learn how to use computational techniques to derive environmental parametric design and analysis.

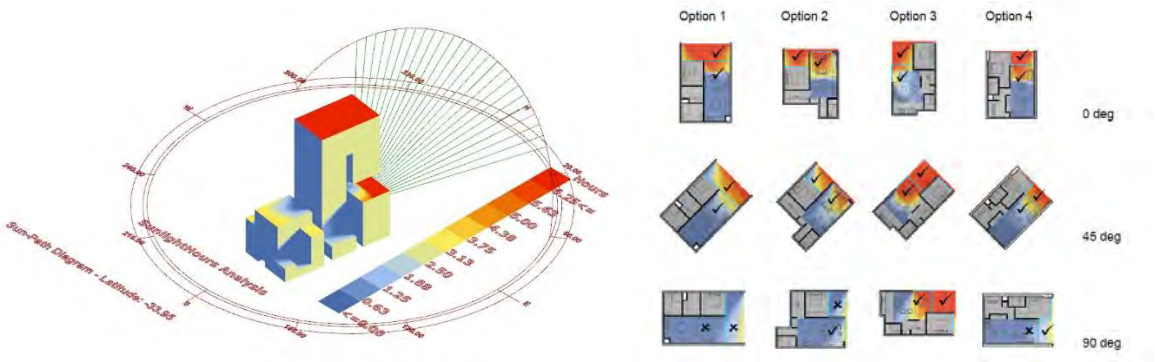


Image 02: SEPP 65 environmental study_BVN Residential script

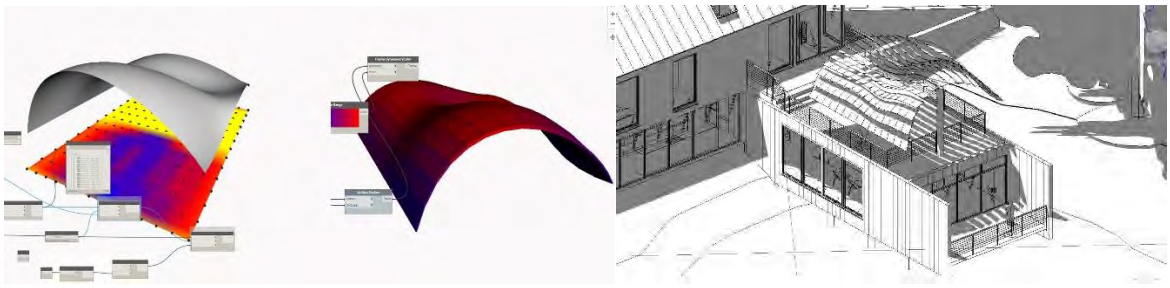


Image 03: Using Suns analysis created in Dynamo to drive the orientation of canopy roof panels

Pre-requisites

Basic Knowledge in Revit and Dynamo is preferred. Videos for introducing Dynamo/Revit may be provided to participants prior to the workshop if needed.

Participants

Design professionals, Architects, BIM managers; students; Urban and Interior designers; Engineers; ESD consultants who are interested in developing their parametric design skills.

Results of the workshop

Participants will be asked to produce series of tools and outline environmental workflows to test building solar performance, Participants will develop few prototypes of canopy designs and building envelopes which responds to solar and overshadowing requirements. Scripts and digital outputs will be printed as posters (to be confirmed with the conference committee)

Sponsors

BVN Architecture, It is possible to approach Autodesk as a second sponsor

Image 04: Sunshading devices designed in Revit/Dynamo- Melbourne Park Adminstration and Media Building

Two days Schedule

Sunday 2nd April

_09:00-10:30 Introduction to workshop and lecture 02 (Environmental Computational Design in BIM)

_10:30-12:00 Introduction to Revit Conceptual environment and Sun Path

Lunch break

_ 13:00-15:00 Workshop A: building Dynamo environmental tools

Coffee break

_15:30-17:00 Workshop B: Designing the porotypes in Revit/Dynamo (Sending proof of concepts prototypes to the 3D printer)

Monday 3rd April

9:00-10:00 lecture 02 (Case studies Environmental driven design projects)

_10:00-12:00 Workshop C: Developing Dynamo codes and building prototypes

Lunch break

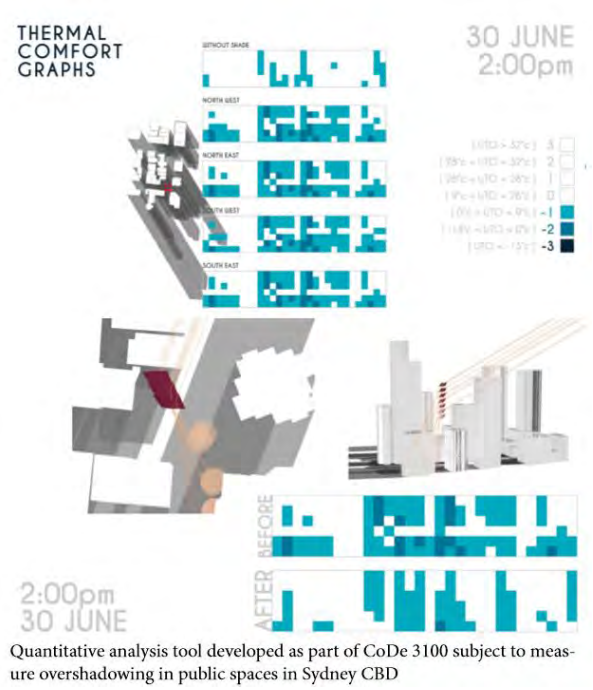
13:00-16:00 Workshop D: Finalizing designs, documentation, preparing and printing 3D models and Posters

16:00-16:30 Debriefing

Programs required Autodesk Revit 2016/2017 + Latest Dynamo release

Machine requirements Plotter + 3D printer (for selected porotypes)

Maximum number of participants 20 (to be discussed with conference committee)



Quantitative analysis tool developed as part of CoDe 3100 subject to measure overshadowing in public spaces in Sydney CBD

Image 05: Quantitative analysis tool developed to measure overshadowing in public spaces in Sydney CBD

Bio

SULEIMAN is an architect, researcher and engineer. He is an adjunct senior lecturer at the University of New South Wales where he is researching in the integration of new technologies in architecture design to advance building performance and the new role of architects in the data era. At BVN architecture, Suleiman is currently working on developing the research agenda in robotics, sensing and smart buildings. He is an expert in the area of Computational Design and Building Information Modelling.

Prior to BVN. Suleiman established and led the computational design team at HASSELL. He also worked with architecture practices in Europe and the Middle East such as Coop Himmelblau and Laceco international. He taught and researched extensively at leading Australian institutes such as the Spatial Information Architecture Laboratory, University of Melbourne and RMIT University. In 2008, he founded Mutation Studio, a studio dedicated to urban design experiments and computation. In 2013 he co-founded O(n) Studio, a research-based studio which explores the use of new technology in architecture design, design workflows and computational design strategies.