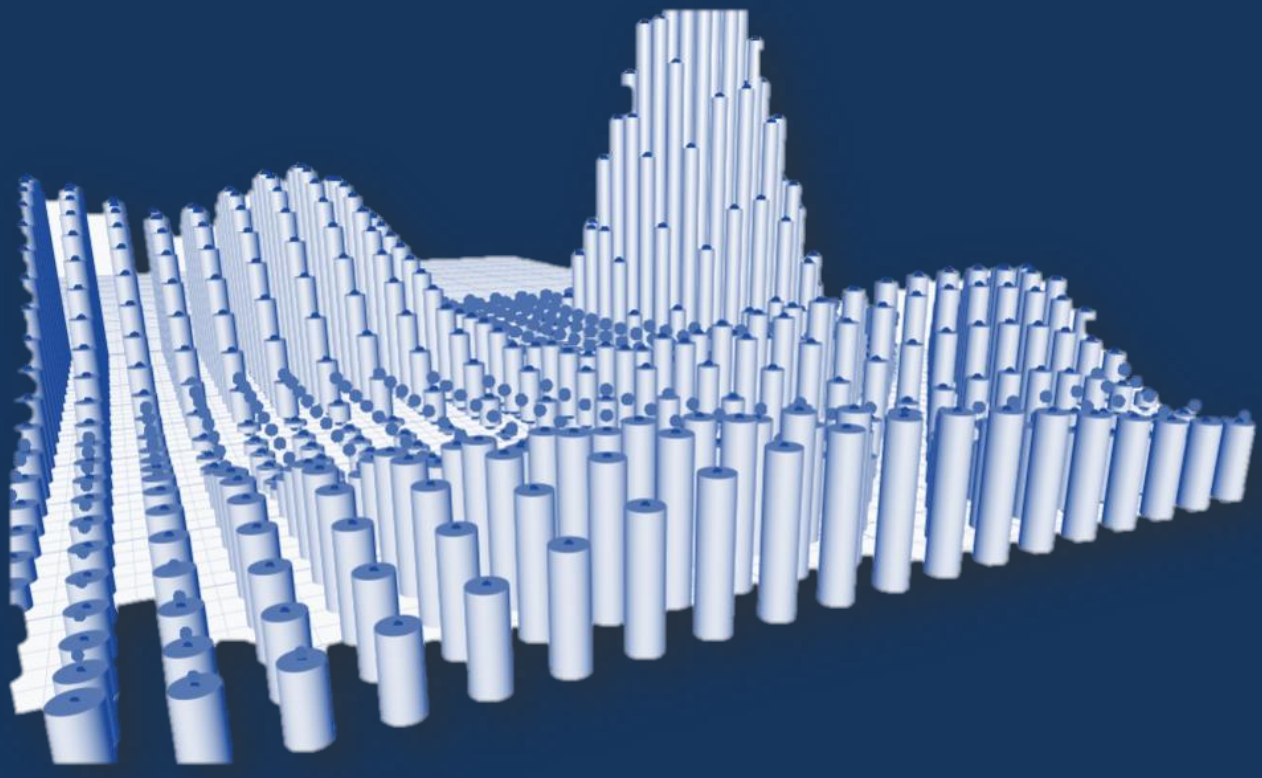
Stanford University



CEE 220C: Parametric Design and Optimization
Assignment 2

Phuong Quan Trinh

Assignment Summary

To approach the modeling task outlined in the Assignment Briefing page, I followed Steps 1-6 in sequence.

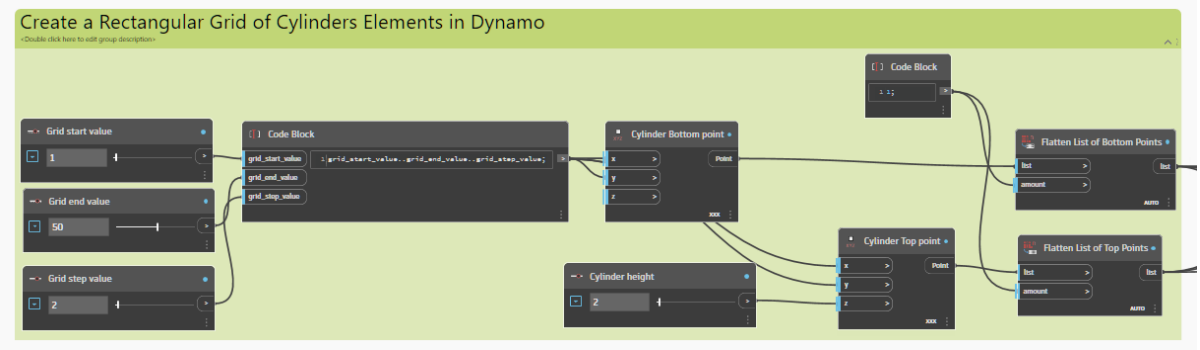
I made use of Dynamo in Revit to visualize and validate the results before creating objects in Revit. I organized my visual programming in Dynamo by creating Node groups for each step.

Whenever I had programming-related questions, I referred to the Module 2 video and file tutorials, as well as the internet searches for some of the Dynamo introduction.

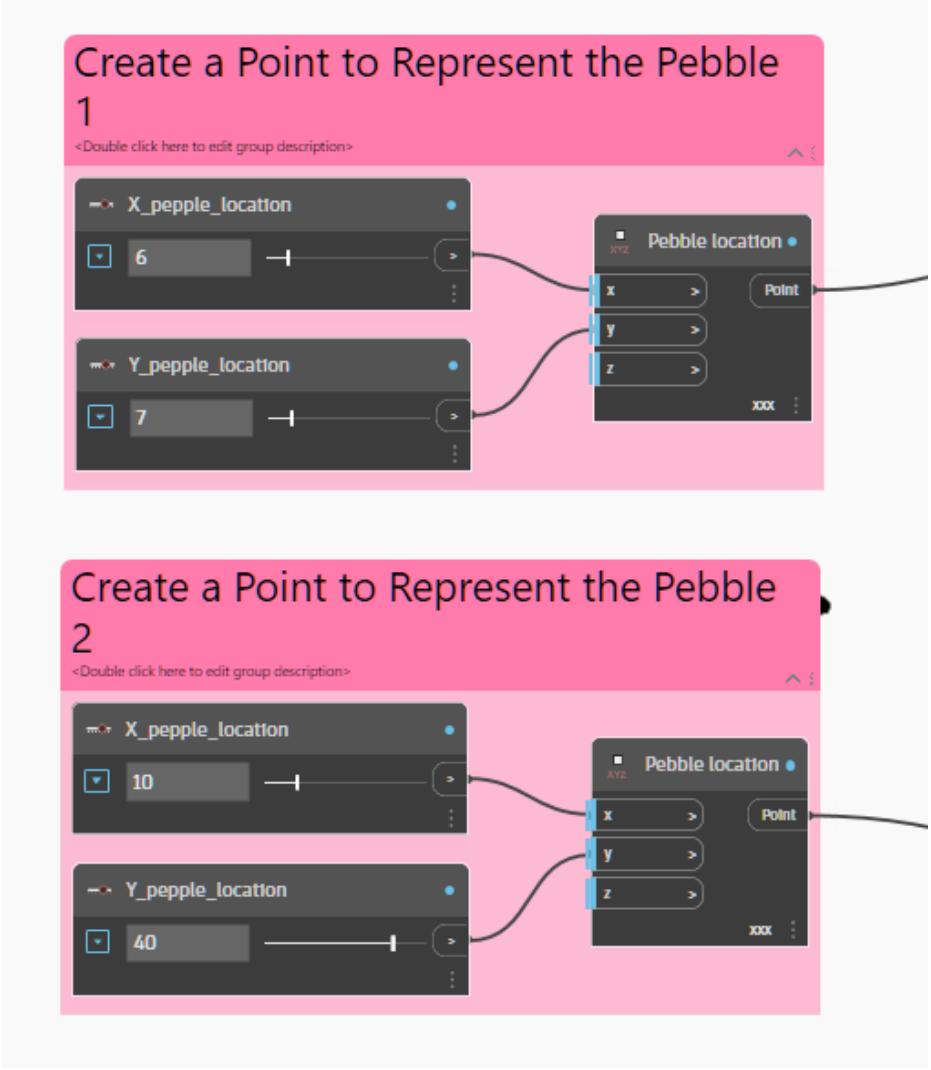
As an experienced Revit user but I did not have any experiences in Dynamo and Parametric design before, It is a bit challenging but interesting to understand the principle of visual programming and project workflow.

I determined the hardcoded parameters such as wave base height, spacing between points, equation for diminishing ripple height, and I have to refer to the examples to learn more about this.

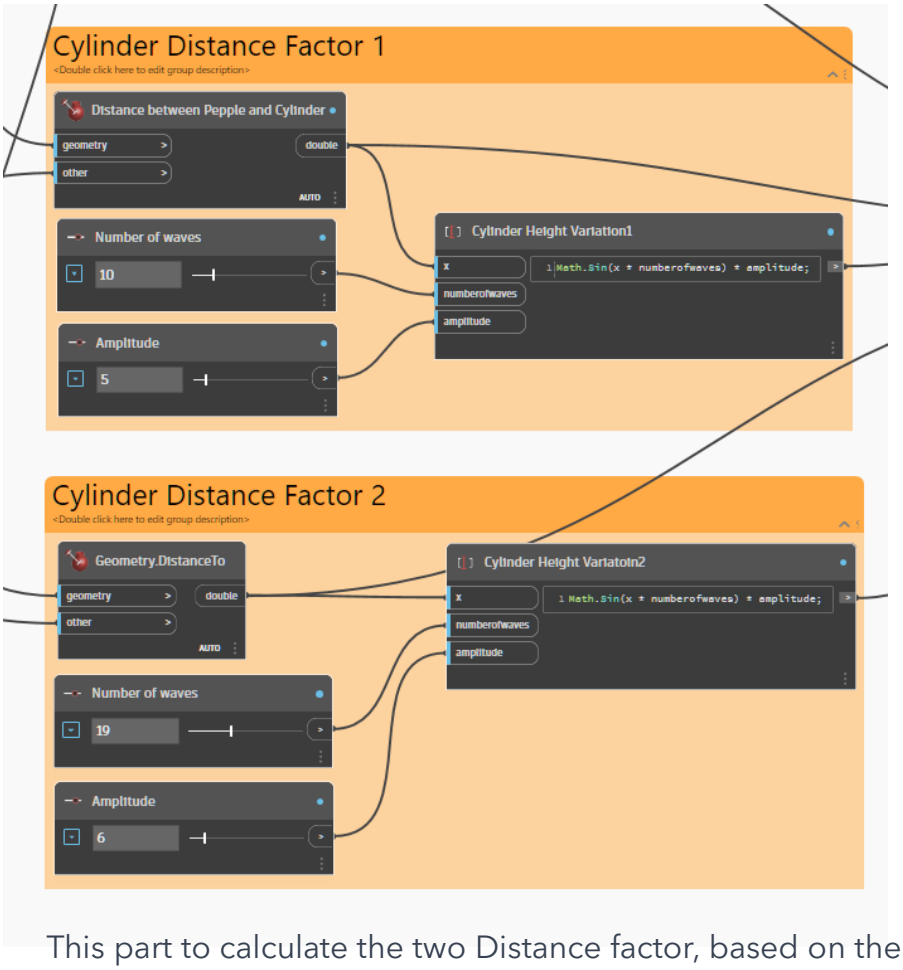
The first assignment is a bit challenging for me, especially the integration of it into the Revit model.



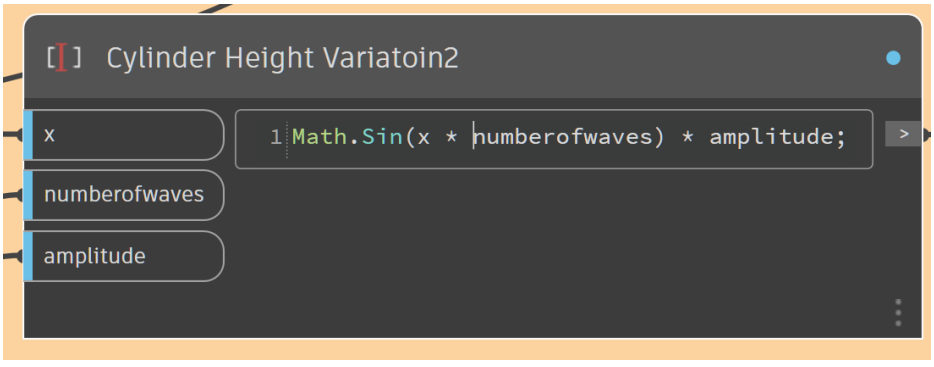
This one start with Start value, End value and Step value to generate the gird



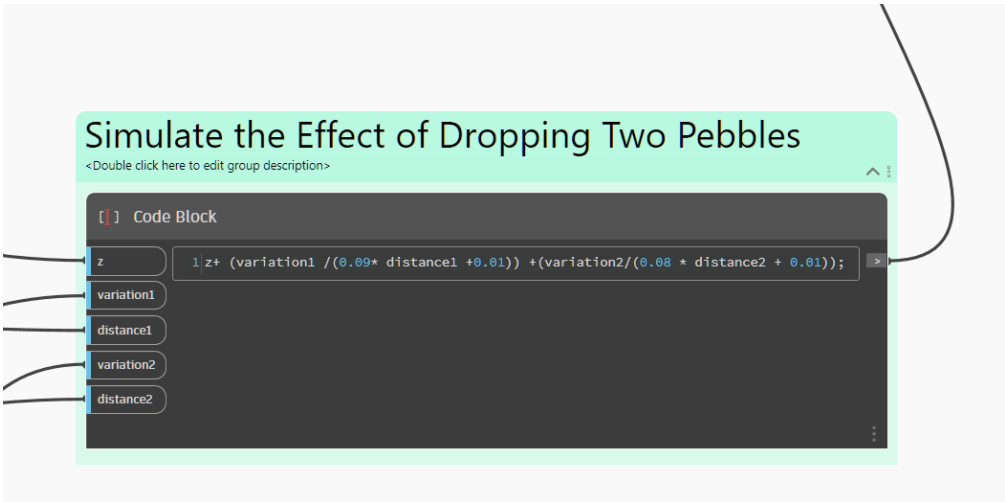
Here, I create two point, pebble 1 and pebble 2



This part to calculate the two Distance factor, based on the relative position of the pebble.



The cylinder height variation is calculated using Sin * Number of wave * Amplitude
Number of wave and Amplitude can be controlled by sliding bar



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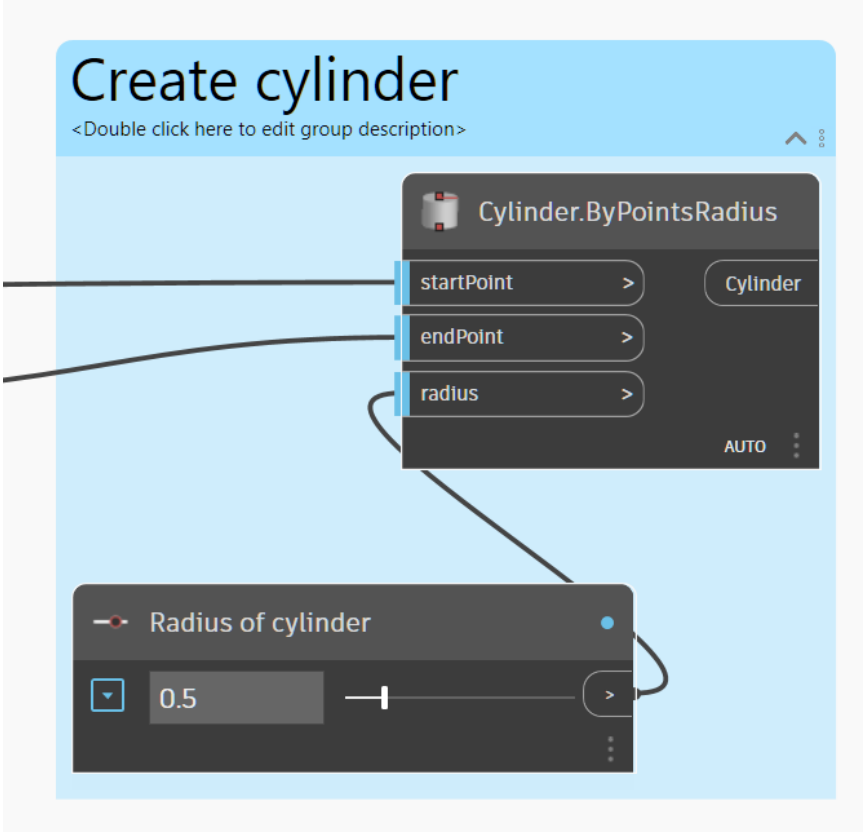
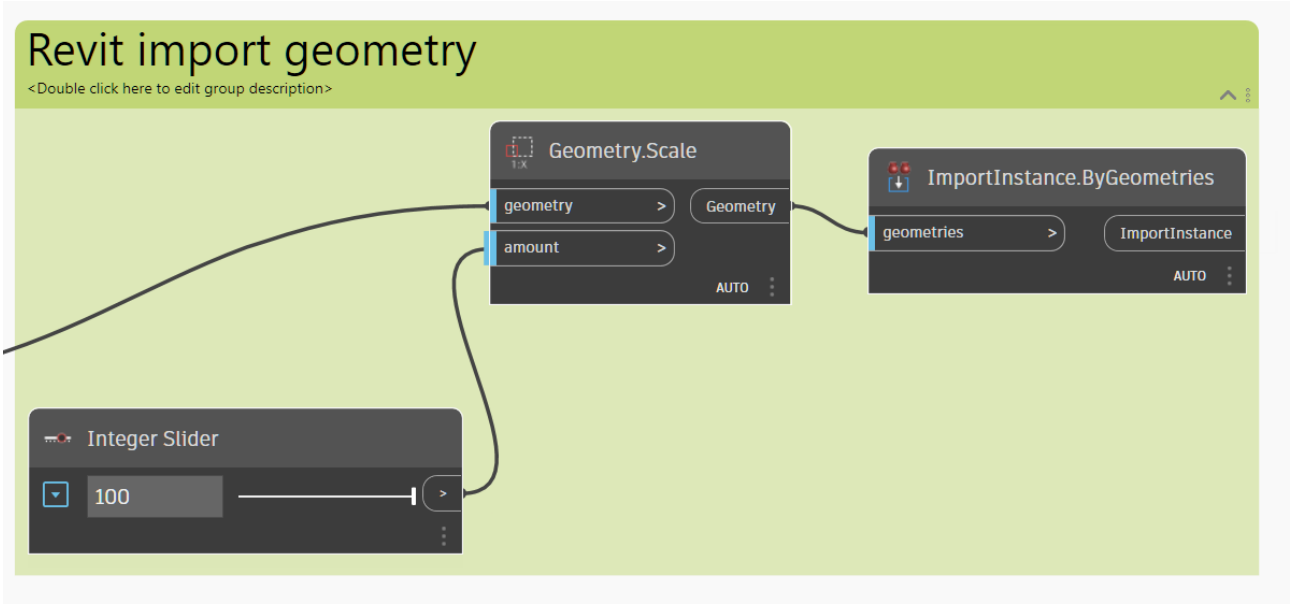
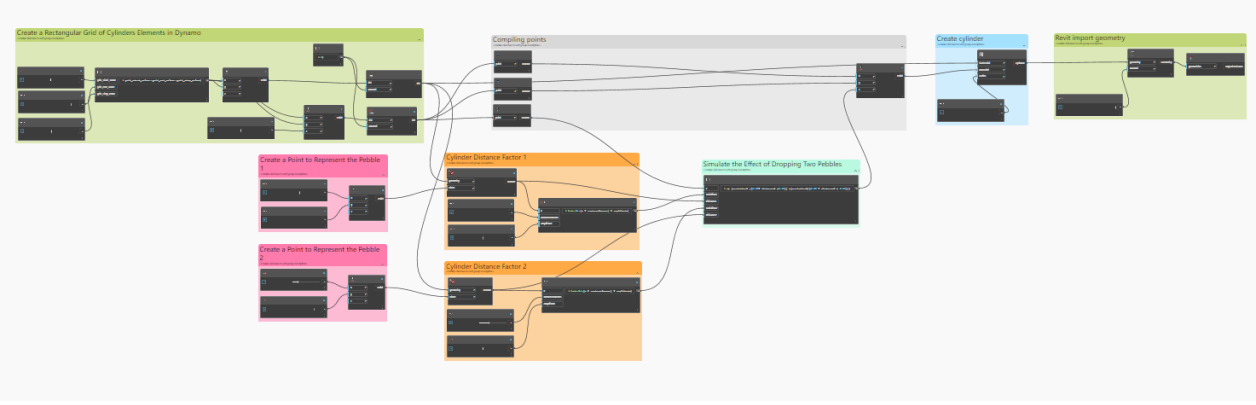
Number of wave and Amplitude can be controlled by sliding bar



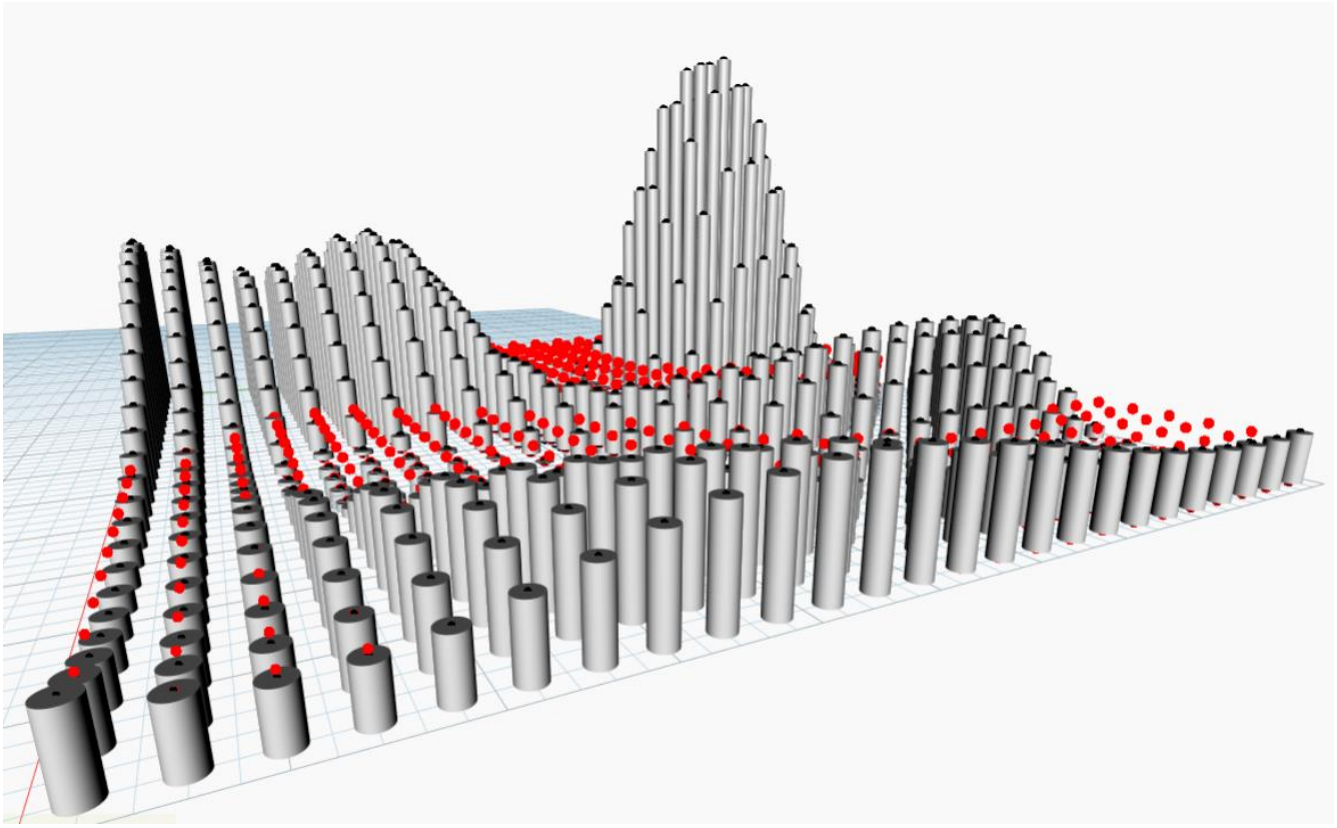
Here I add the cylinder radius as a sliding bar.
Start point and endpoint are calculated based on the other input which I have mentioned in the previous part

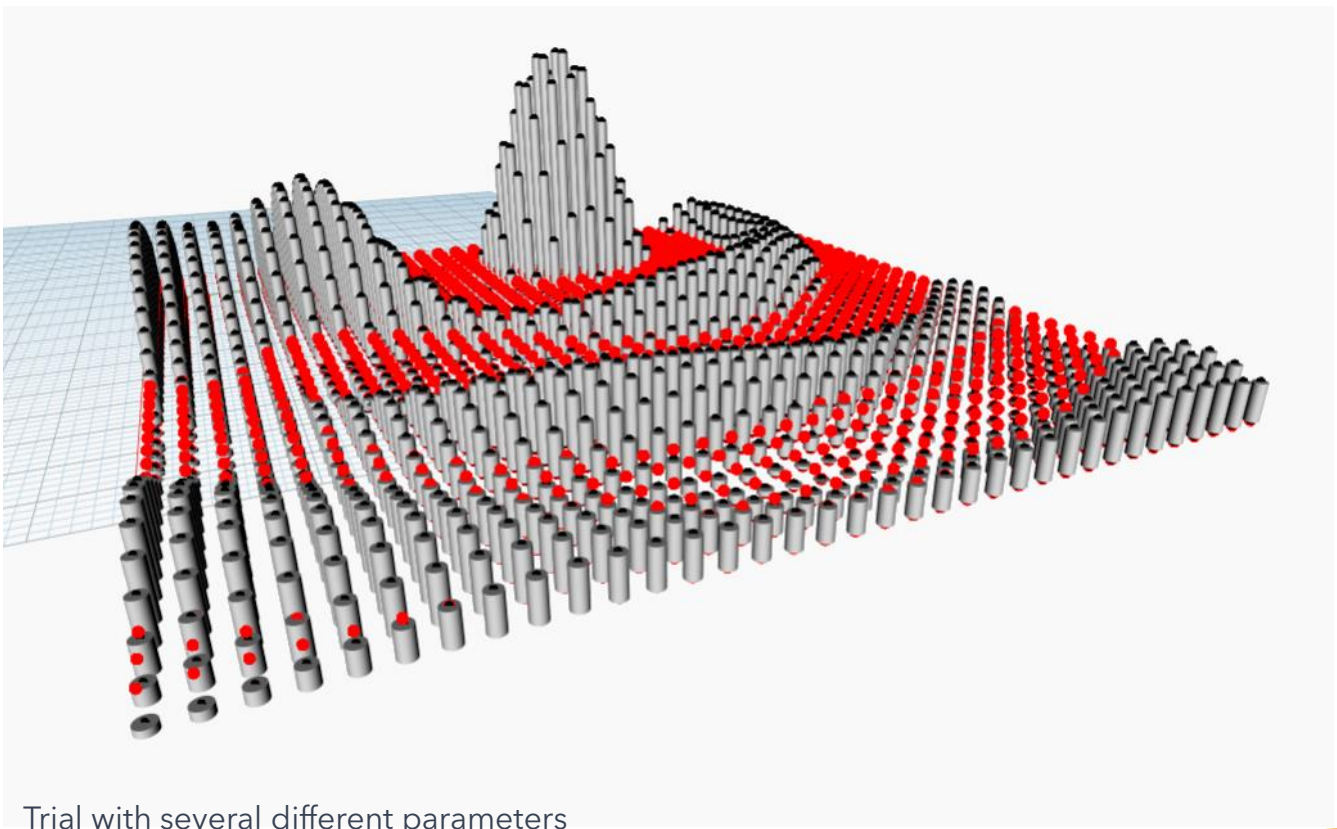


Revit import geometry
I add a scale impact factor, here is 100x before exporting into Revit

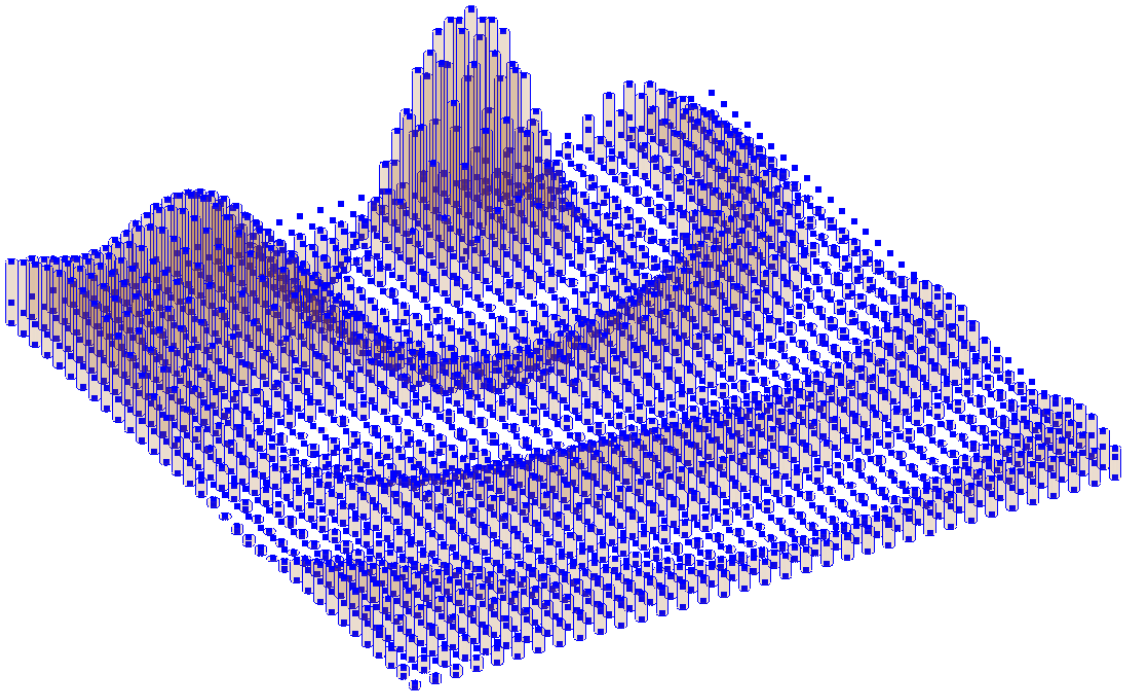


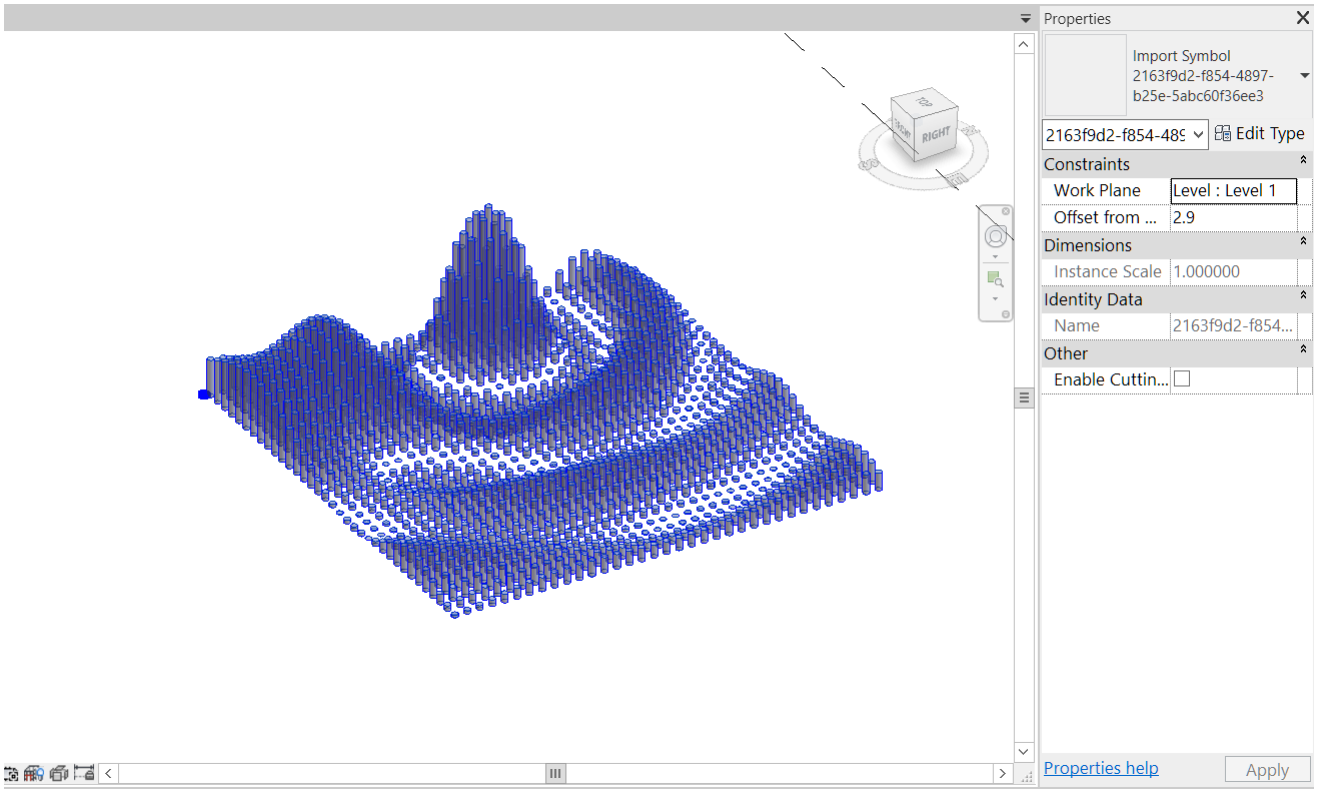
Overview of the whole code formation





Trial with several different parameters

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Edit Type
Constraints
Work Plane
Level : Level 1
Offset from ...
2.9
Dimensions
Instance Scale
1.000000
Identity Data
Name
2163f9d2-f854...
Other
Enable Cuttin...
Properties help
Apply