

Assignment 8

063-0610-00L The Digital in Architecture I

Spring Semester 2020

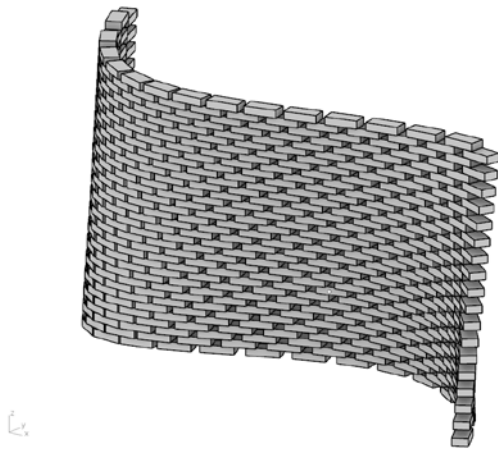
Gramazio Kohler Research, ETH Zürich

Due: Mo, 27.04.2020 23:59

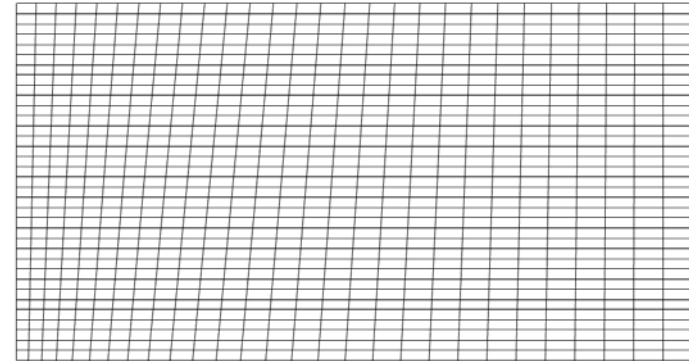
Task 1

For each point in **Surface 1**, create a plane which:

- Has its origin at the point
- **X-Axis** is tangent to "V" surface isocurve at the point
- is parallel to WorldXY (**horizontal**)



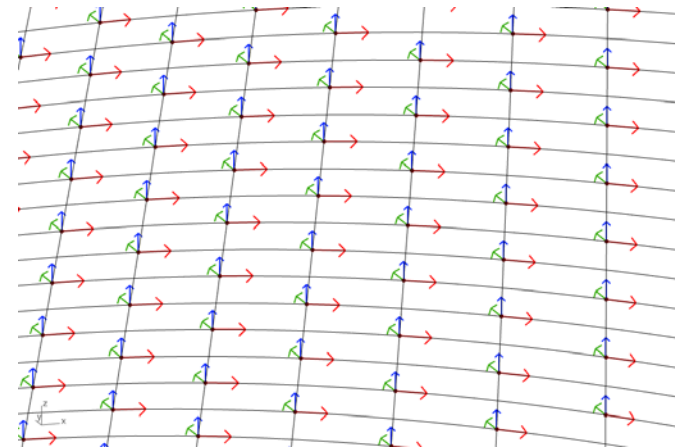
Frontal view of Surface 1 UV directions:



Red vector: **Tangent** to "V" surface isocurve at each point

Green vector: Y-Axis is global Y

Blue vector: Z-Axis is global Z

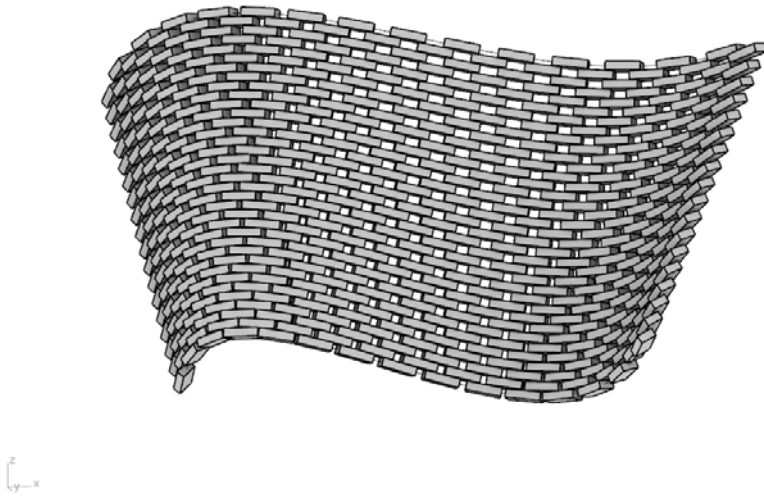


Task 2

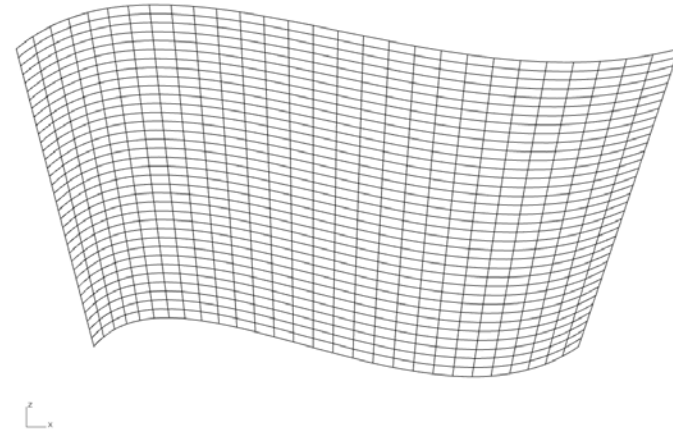
For each point in **Surface 2**, create a plane which:

- has its origin at the point
- **X-Axis** is Tangent to "V" surface isocurve at the point
- **Y-Axis** is Normal to the surface at the point
- Is not parallel to WorldXY (**non-horizontal**)

Notice that some bricks might collide or not touch to the neighbours



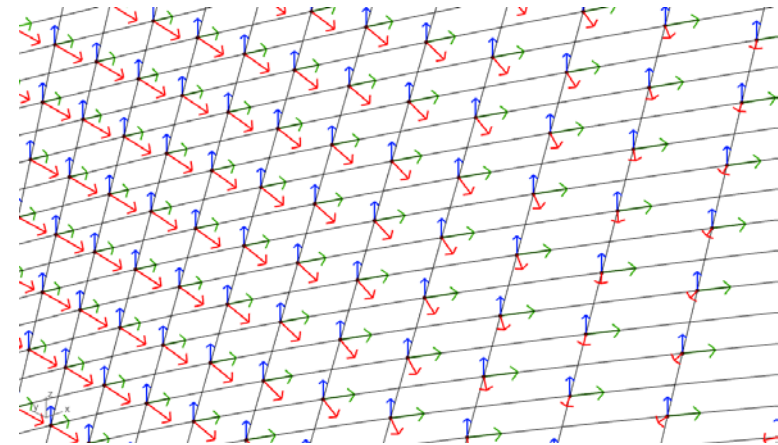
Frontal view of Surface 2 UV directions:



Red vector: **Normal** to Surface 2

Green vector: **Tangent** to "V" direction at each point

Blue vector: Z-Axis is global Z



Task 3 (Bonus)

Using the next project as a reference:



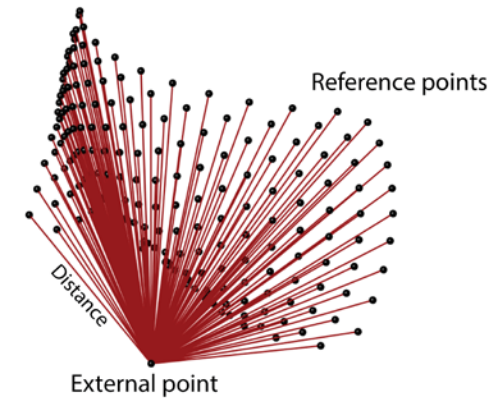
Smart Geometry Workshop. Explicit Bricks, Barcelona, 2010

For each sample point, scale the box (uniform or nonuniform) based on the distance to an object (i.e. a point, curve, plane, etc.)

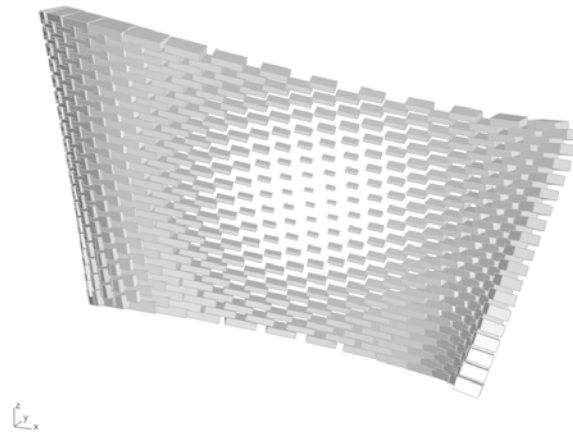
If you want, you can also replace the Box (brick) object with your own object and use (non-uniform) scaling instead. You can create your object in Grasshopper or draw it in Rhino and reference into Grasshopper – **don't forget to internalise it when you submit your *.gh file!**

- Change the size of the bricks depending on the distance to an external point (Attractor point)

The size of the brick changes depending on the distance of the external point to reference points:



Possible final geometry:



To submit:

- A **.pdf** file with 3 pages. Each of the page will contain a different Task. Rename your pdf file to include your surname and name: (Assignment8_Mustermann_Chris.pdf)

To create the screenshots of your design, follow this settings:

- In Grasshopper: **Bake** your geometry.
- In Rhino: use Artic and Parallel view and change the **background to white with no Grid.**
Use **ViewCaptureToFile** command to make the screenshot, set width=3000 and height=1500. Use white Background and Save as ***.png**.

- a Grasshopper file (*.gh) with your modified code – **the code for each task must be grouped and labeled.** Rename your file to include your surname and name. (Assignment8_Mustermann_Chris.GH)

IMPORTANT

Do not submit the Rhino (*.3dm) file.

Do not submit multiple copies

Do not submit .zip files

Strictly stick to the file-naming convention!