

VORONOI PACKING USING GRASSHOPPER

BY THE AUSSIE BIM GURU

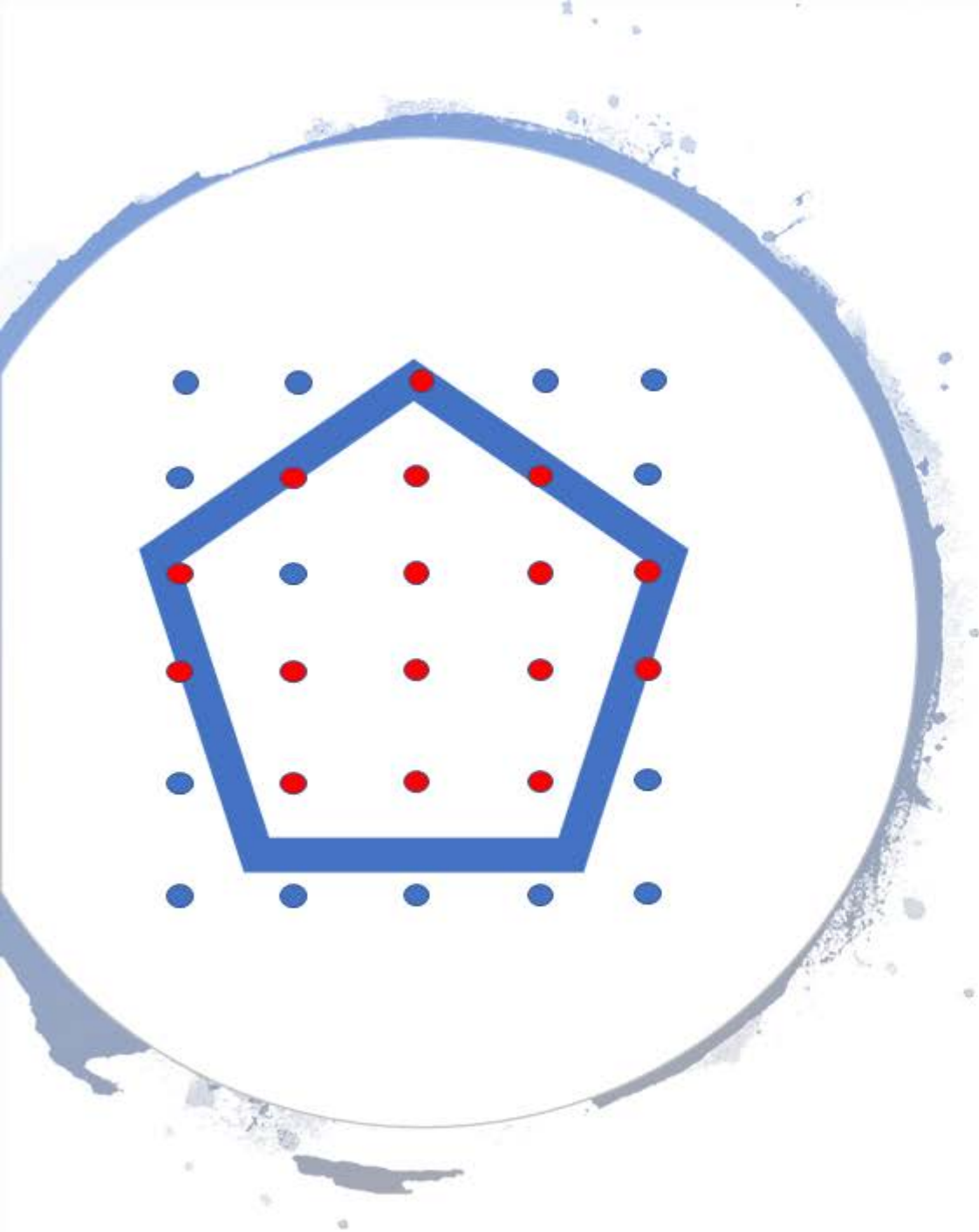
Thanks for the
request



Dev Halai • 4:11 PM

I'm trying to make a script that places Enscape assets randomly on a surface I choose. There's a few online that use python but I'm trying it myself to learn and break problems as I go along, effective learning tbh.





A basic solution

- Create a regular 2D point grid
- Intersect across surface
- Use intersecting points

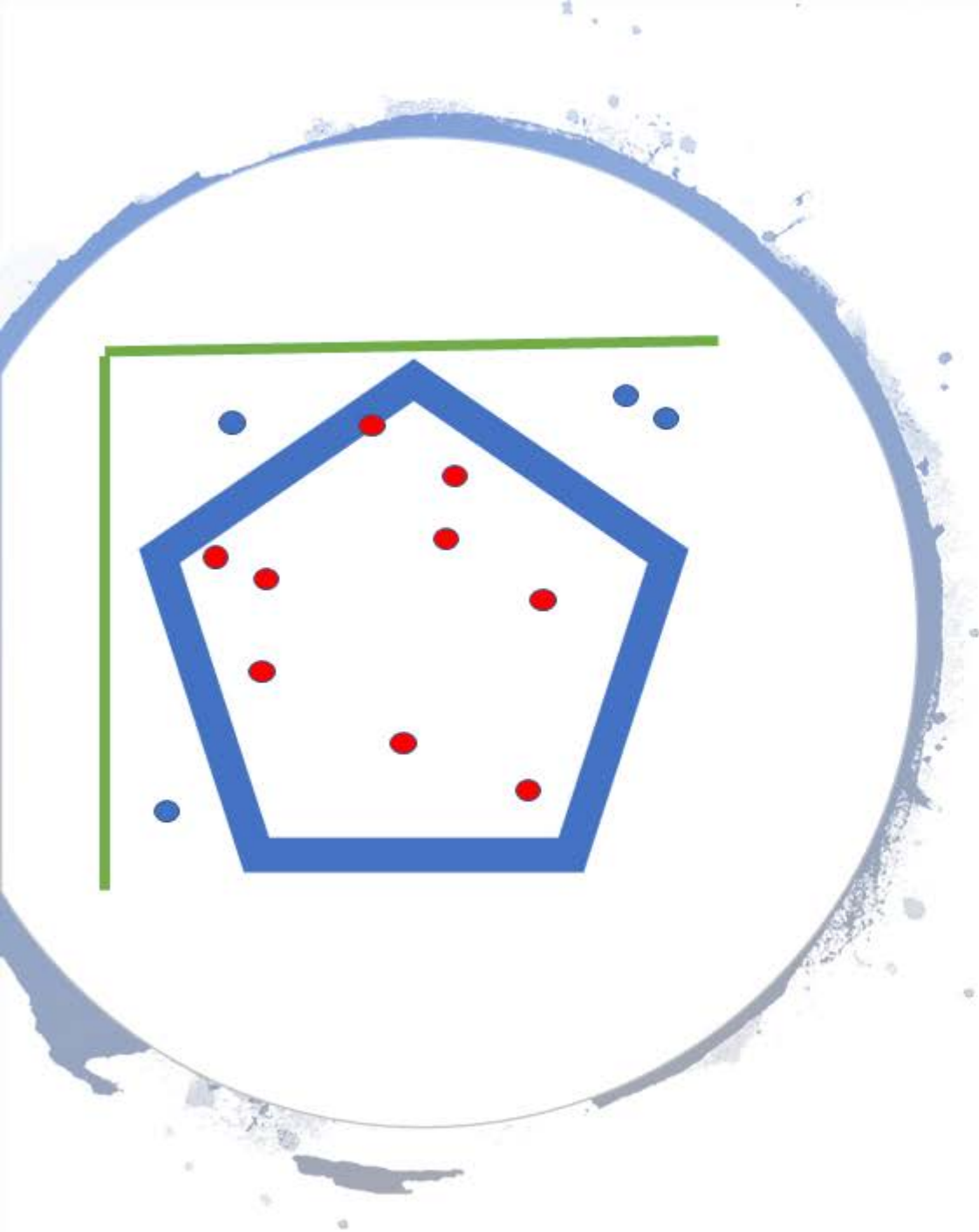
The problem is the resultant grid isn't organic in nature, and wouldn't suit planting.



The problem

- Surfaces in Dynamo are typically trimmed
- This means the isolines are bounding vs. edges

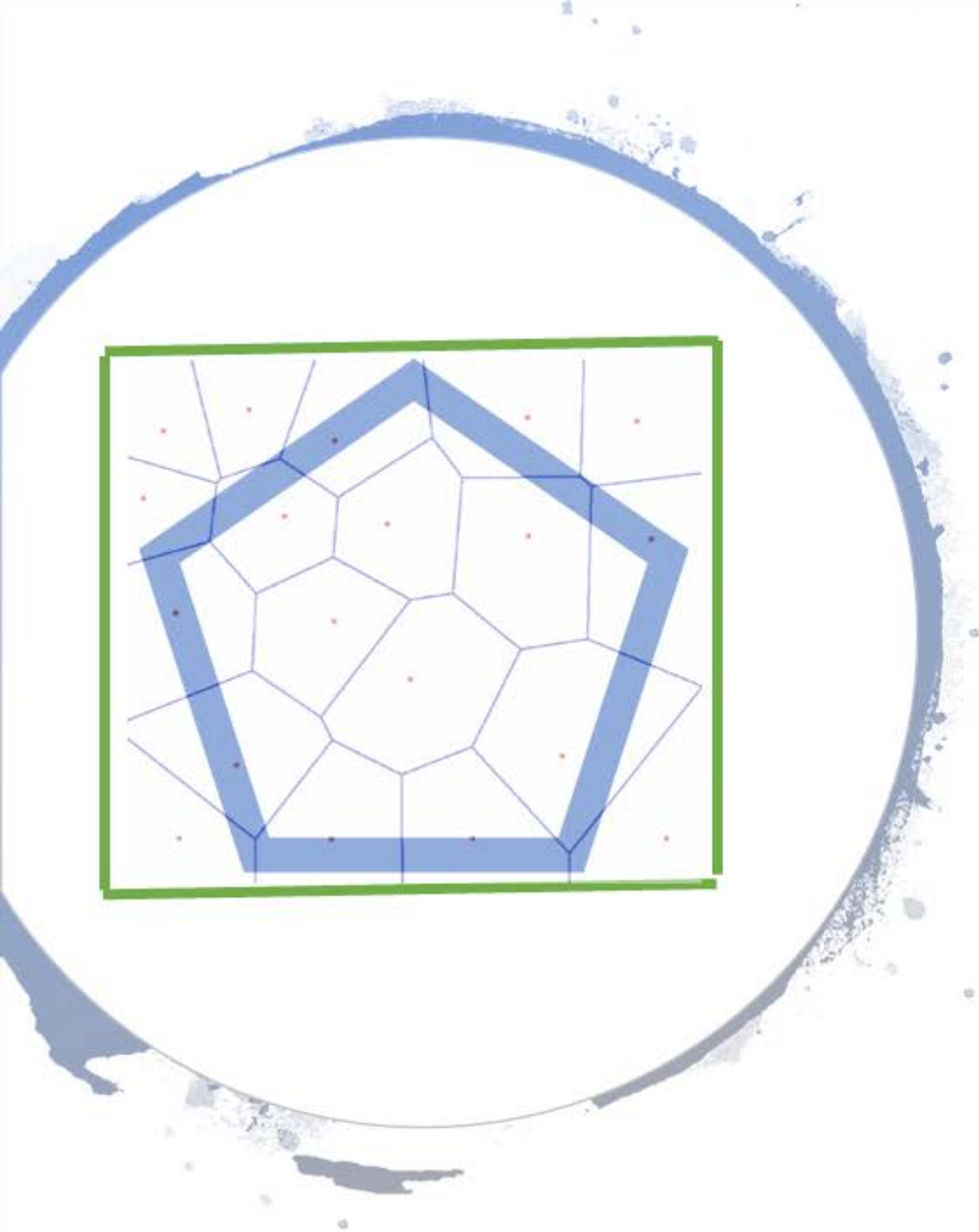
We can build untrimmed forms in Grasshopper using Meshes and divide them using Weaverbird.



Another solution

- Populate 2D
- Collect intersecting points

The problem is that points may be very close to one another.



Our solution

- Pack the trimmed domain
- Generate Voronoi cells
- Intersect centroids

This ensures separation, but the points aren't very regular.

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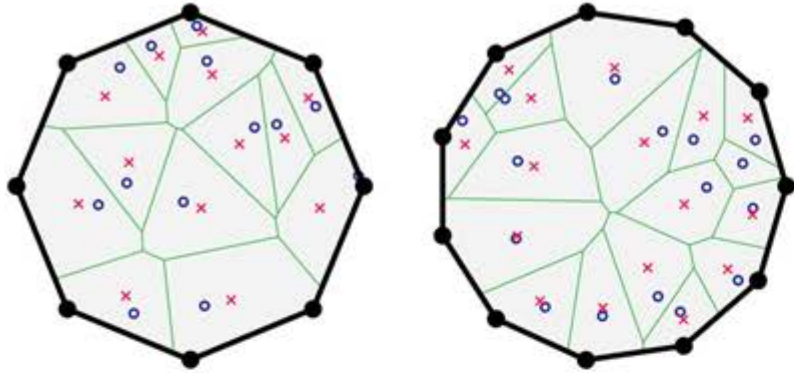
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Lloyd's Algorithm

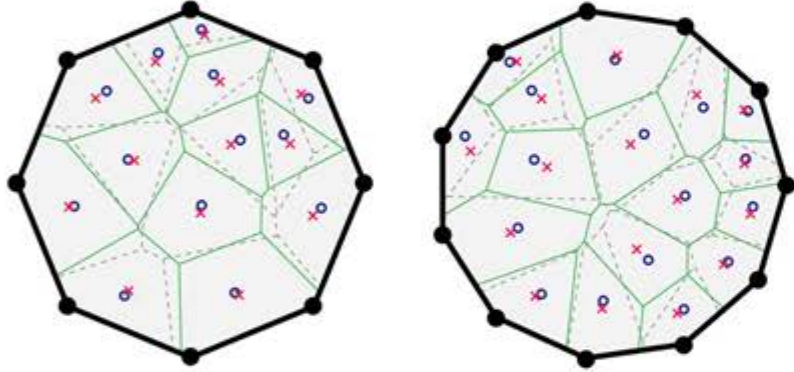
- Use the Voronoi centroids
- Generate a new Voronoi grid
- Each iteration becomes more regular and stable

We will do this using Anenome, which allows us to loop this process.

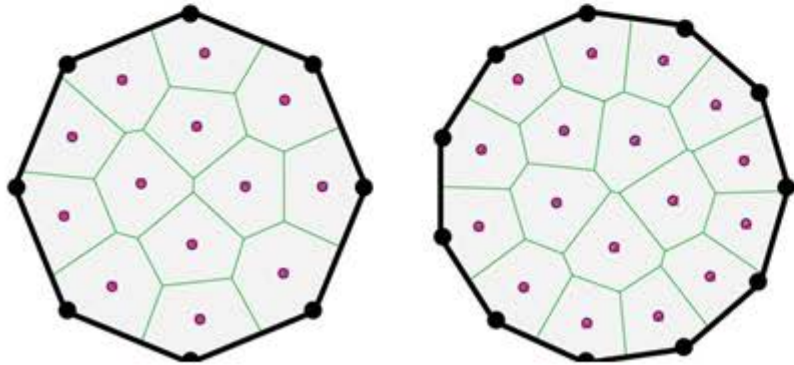
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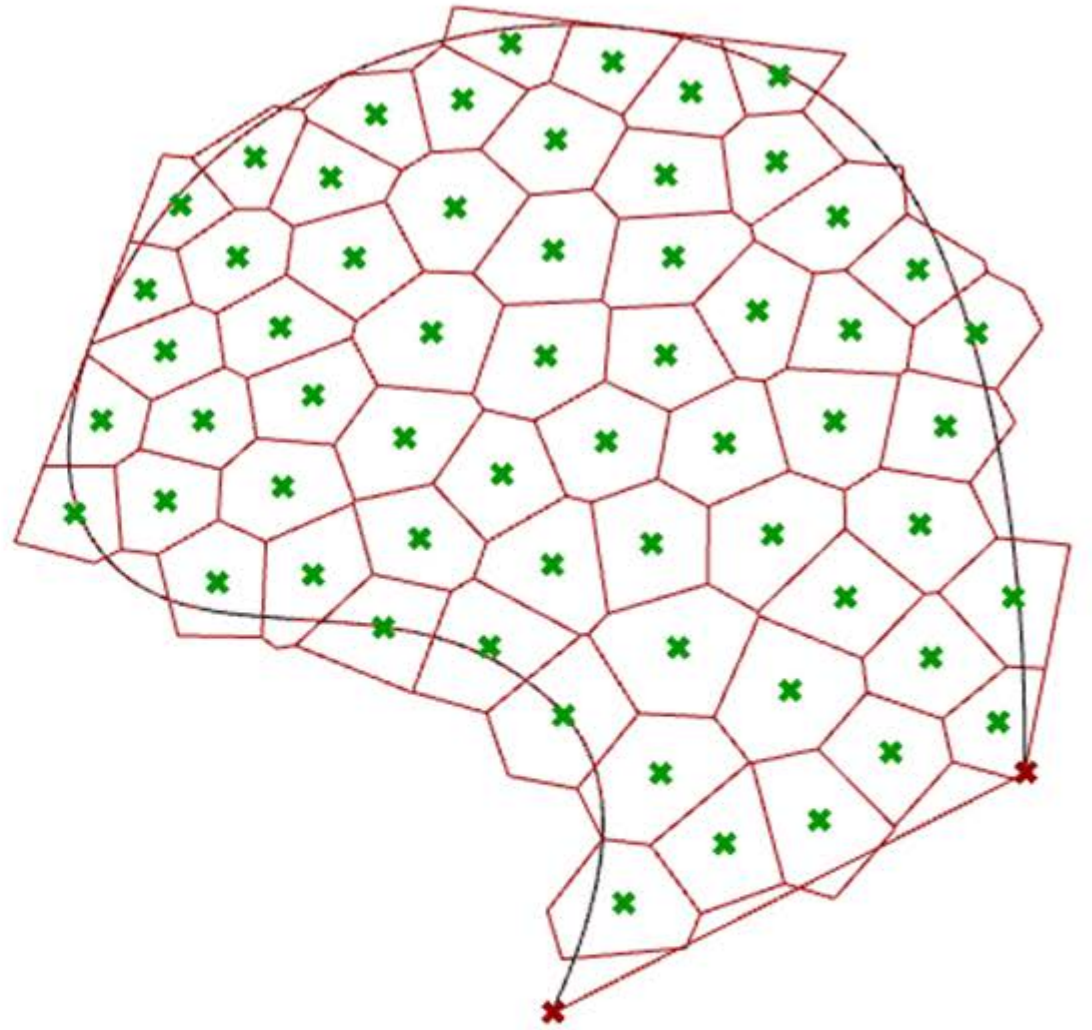
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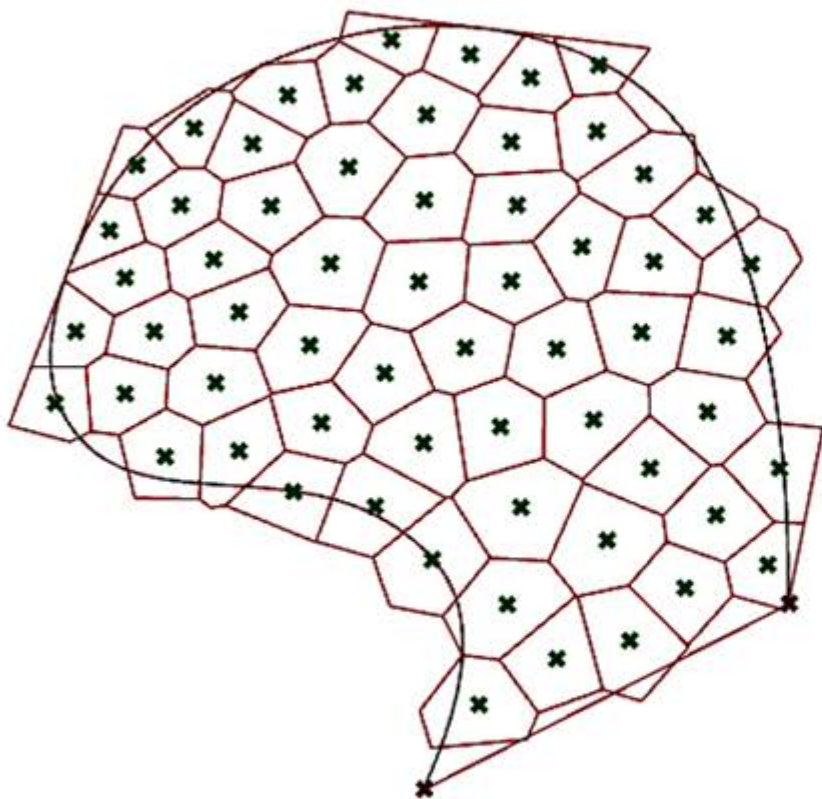
Let's get
started!





Files are on
github

<https://github.com/aussieBIMguru>



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