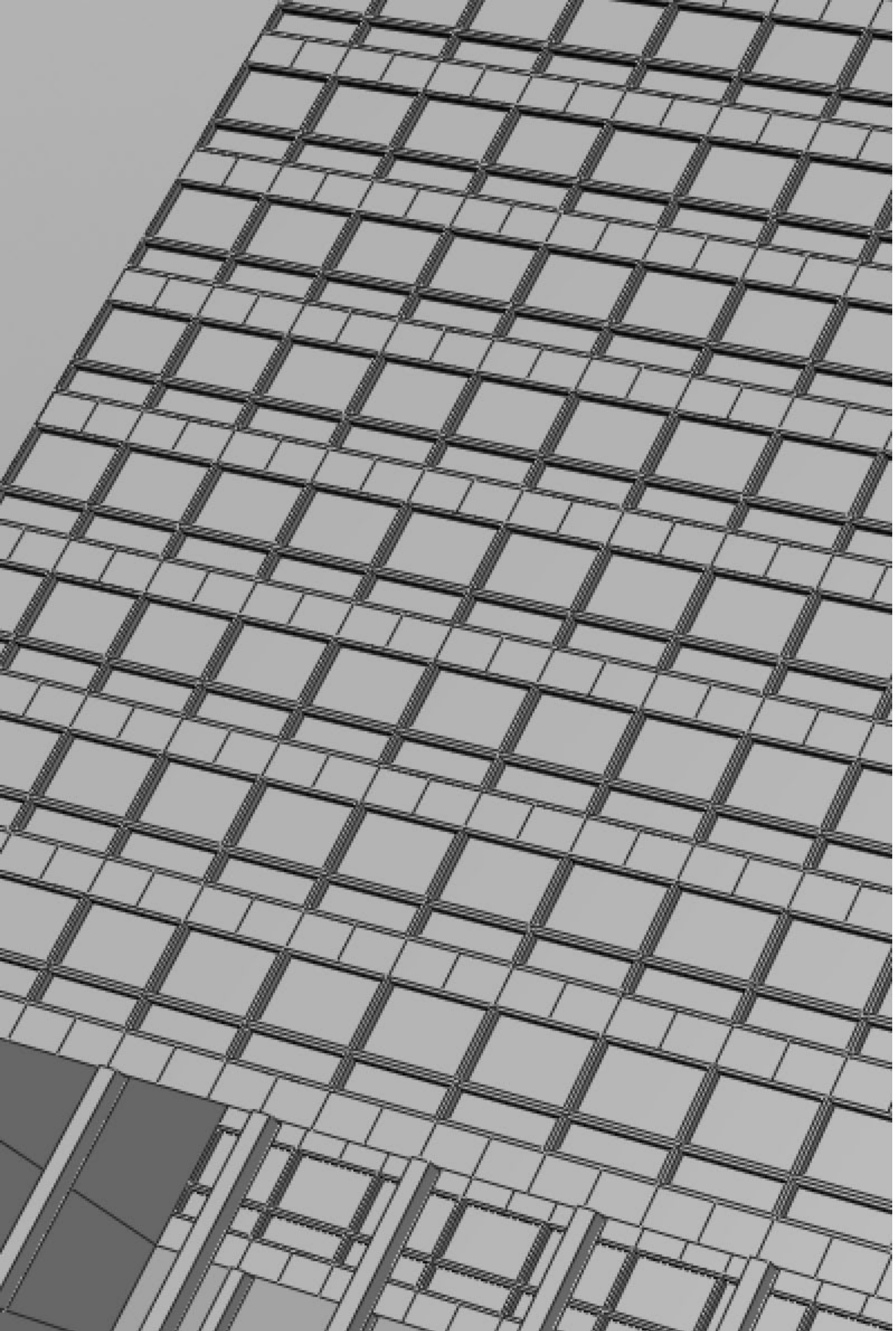
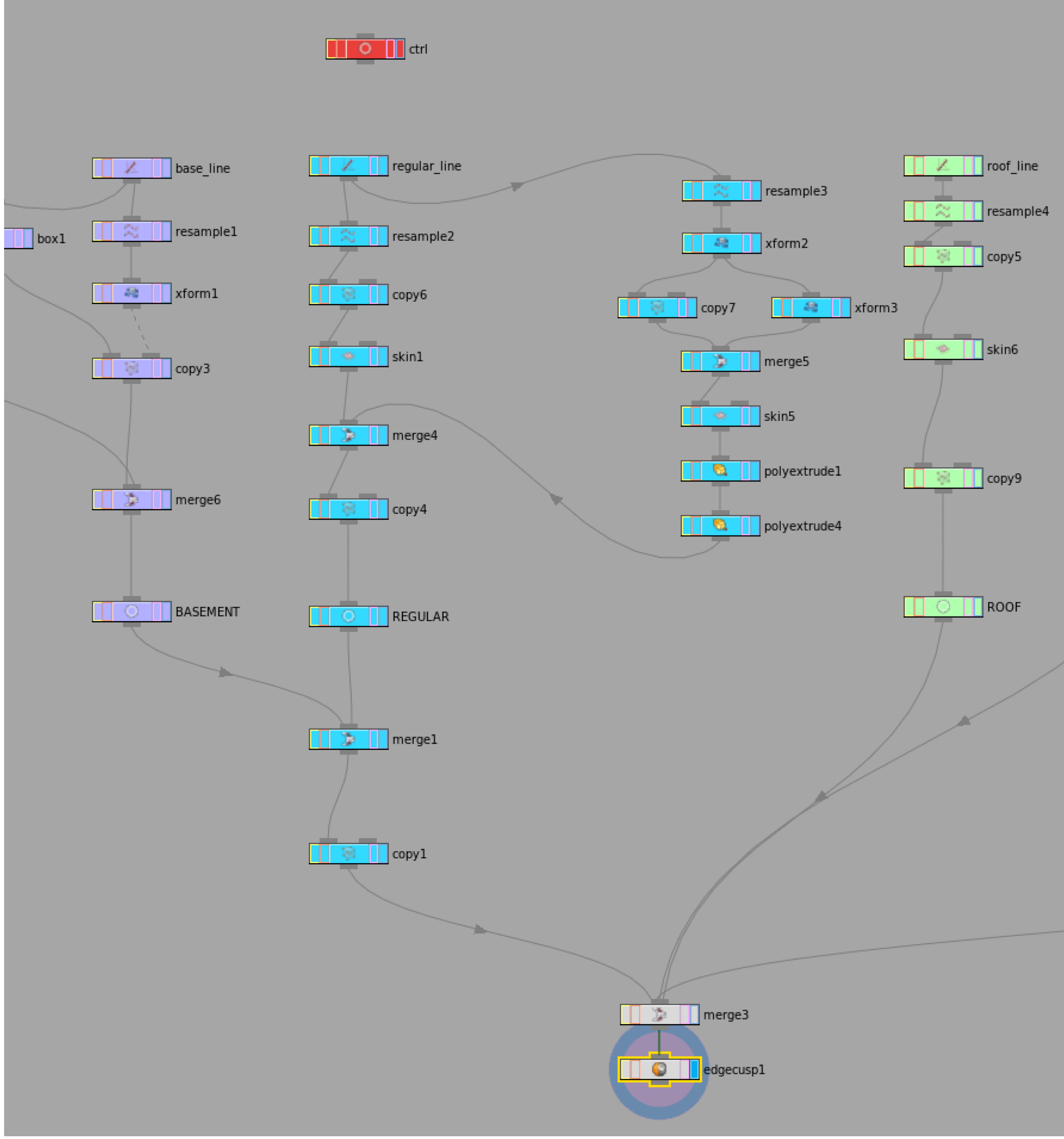


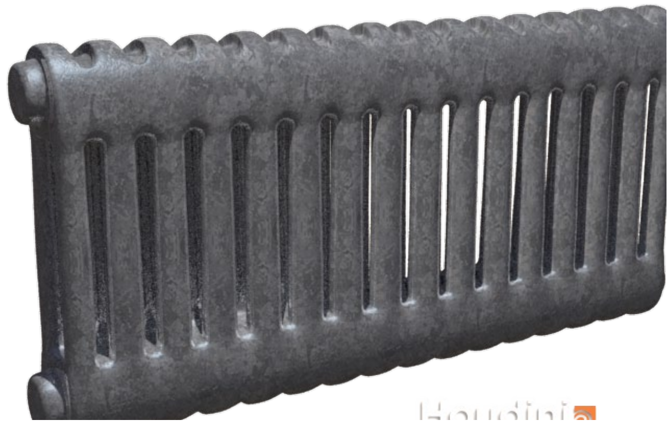


Procedural game art portfolio

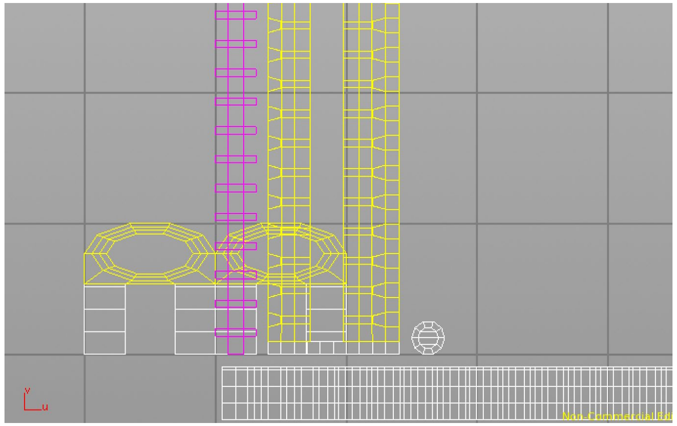
by Konstantin Magnus Lucke 9/2014

km@konstantinmagnus.de

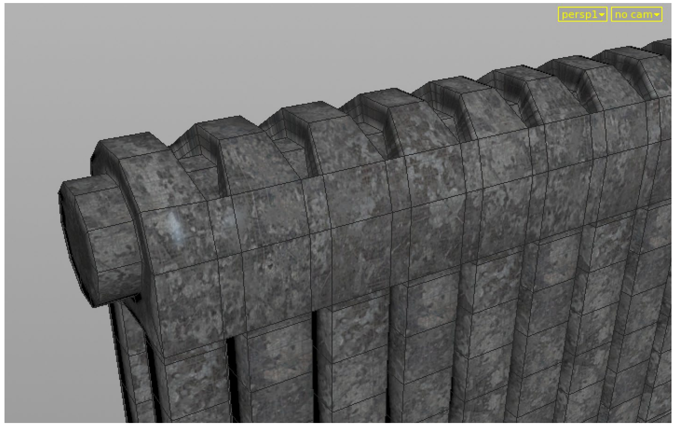
a | Procedural solid modeling and UVing



a1: Subdivided model of a heating radiator with parameters for size, radii and divisions.

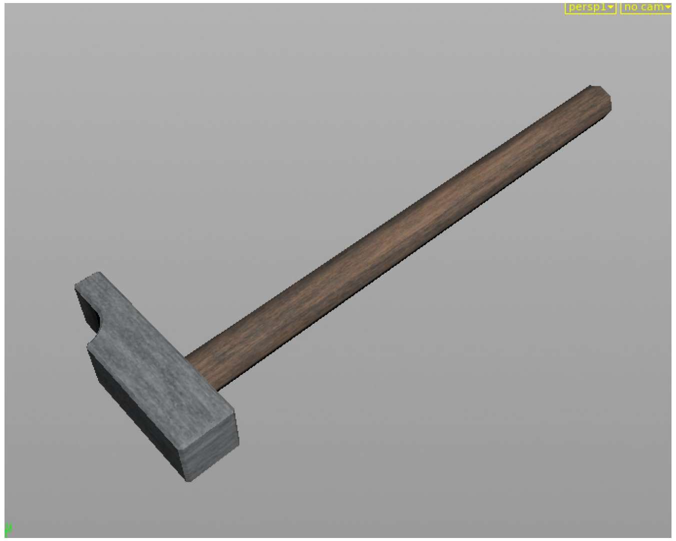


a2: Procedural UV map of the radiator model.

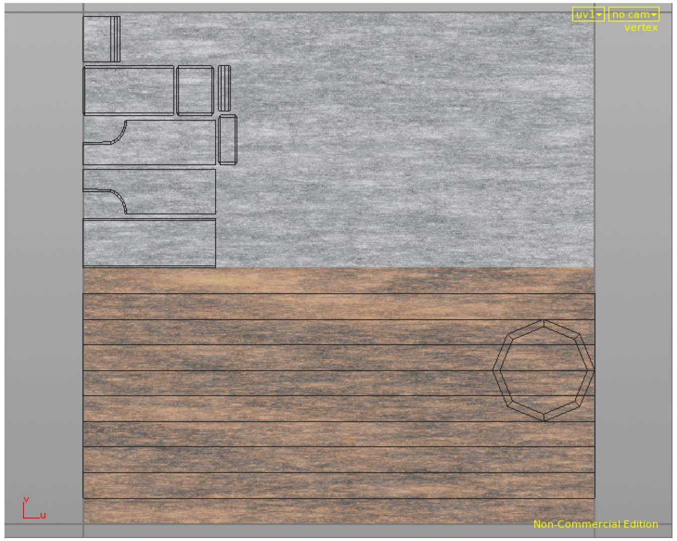


a3: Low poly mesh.

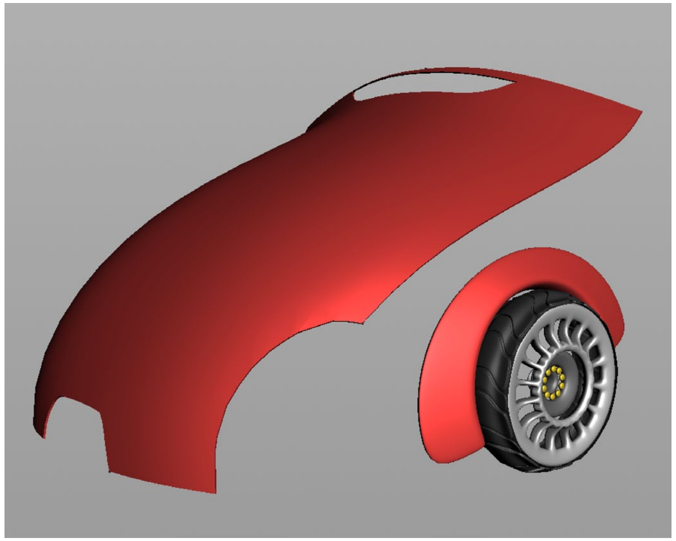
a4: Procedural hammer model with automatic UVing.



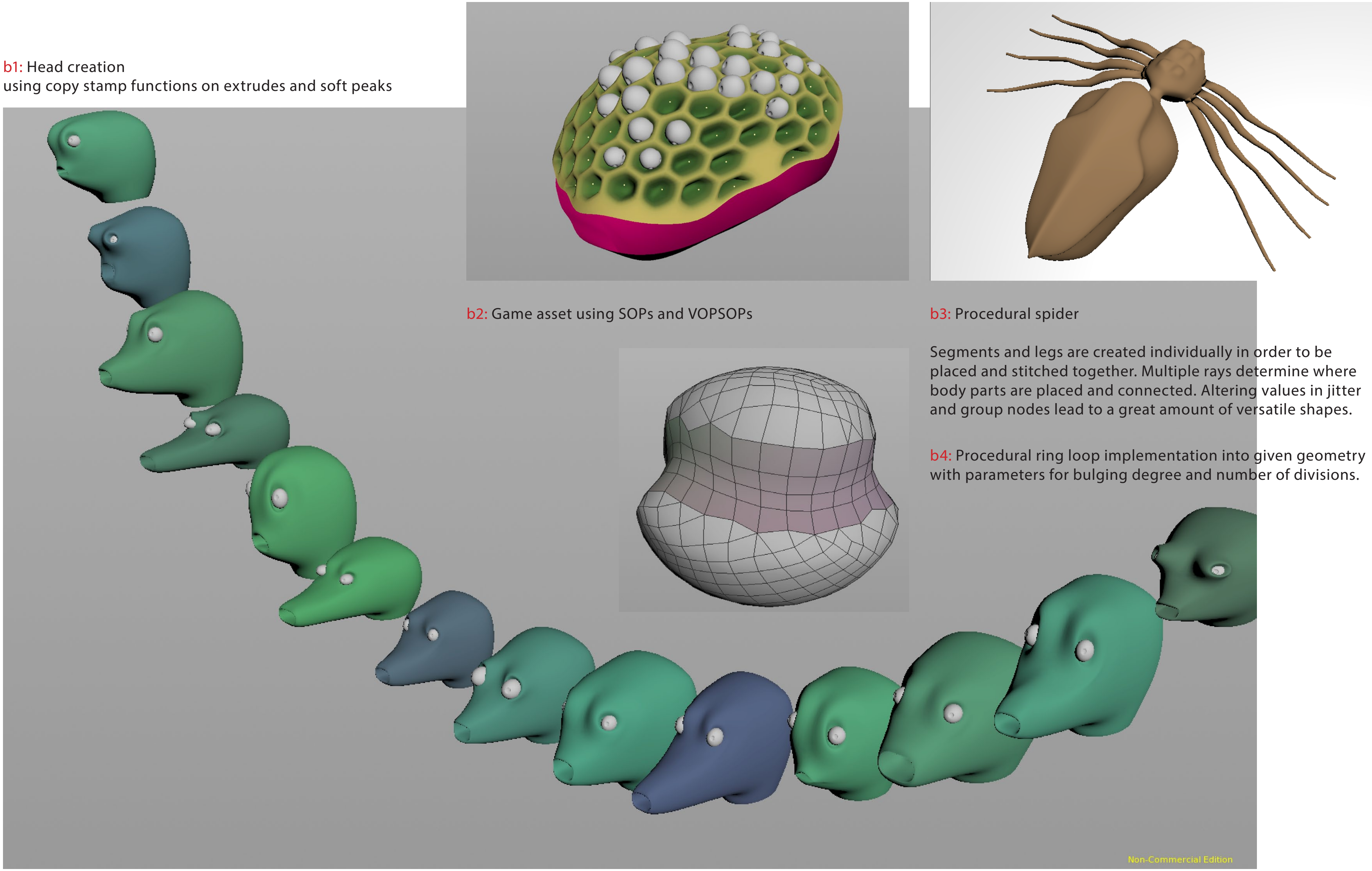
a5: Texture map using COP. UV Map from SOP context.



a6: Car hull parts build up of projected curves.
Wheel procedure uses polygon tools like extrusion.



b | Procedural organic modeling



b1: Head creation
using copy stamp functions on extrudes and soft peaks

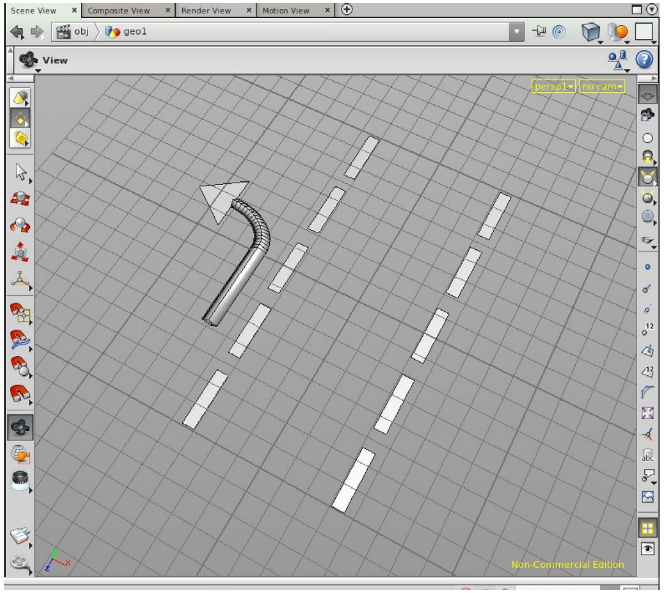
b2: Game asset using SOPs and VOPSOPs

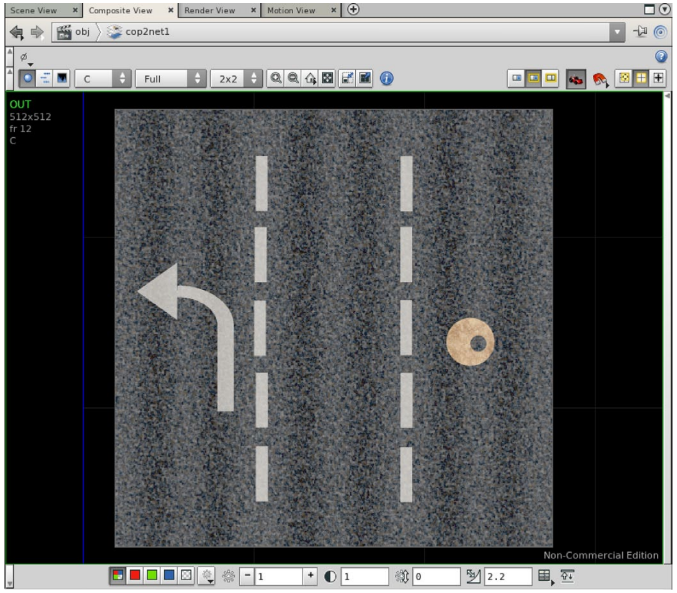
b3: Procedural spider

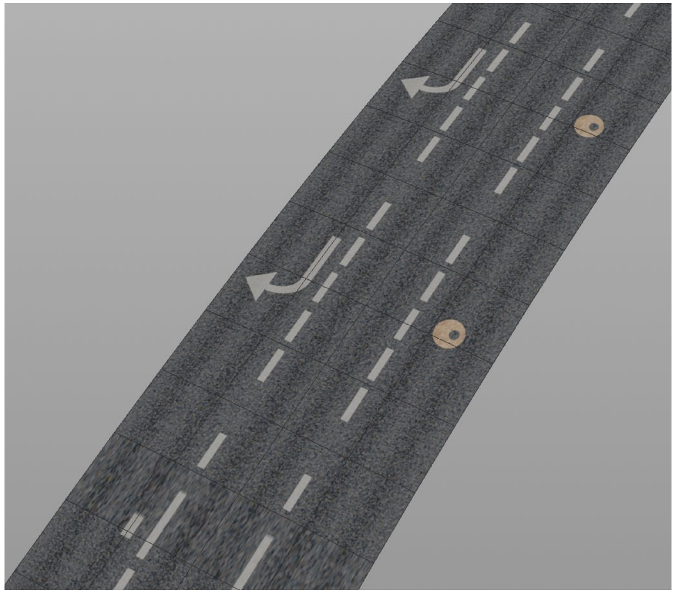
Segments and legs are created individually in order to be placed and stitched together. Multiple rays determine where body parts are placed and connected. Altering values in jitter and group nodes lead to a great amount of versatile shapes.

b4: Procedural ring loop implementation into given geometry with parameters for bulging degree and number of divisions.

c | Geometry based bitmap textures







c1: Tileable geometry.

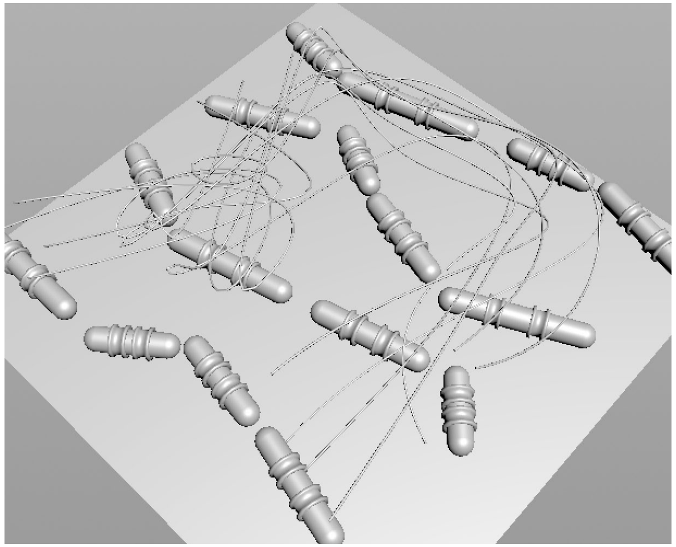
c2: Conversion of geometry to texture map in COP context.

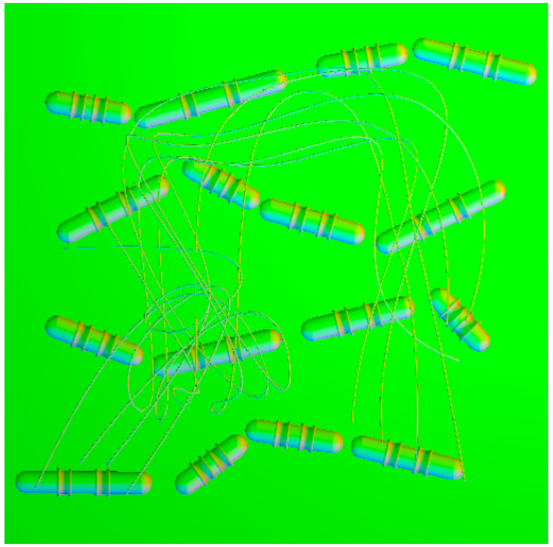
c3: Live updating texture projection out of COP.

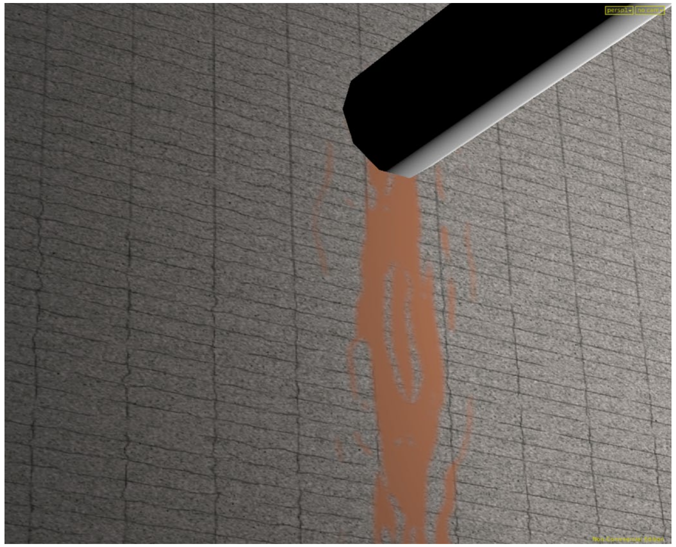
c4: Input geometry.

c4: Normal map creation using VOPSOP and COP.

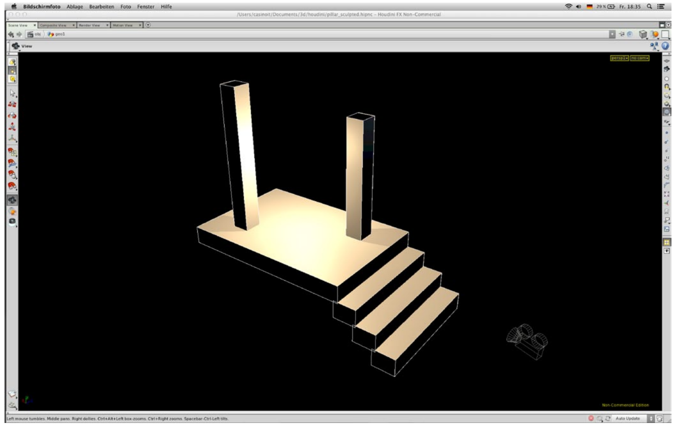
c5: Object-aware texturing: using expressions and COPs so that noise-based spill is painted where pipes touch the wall.



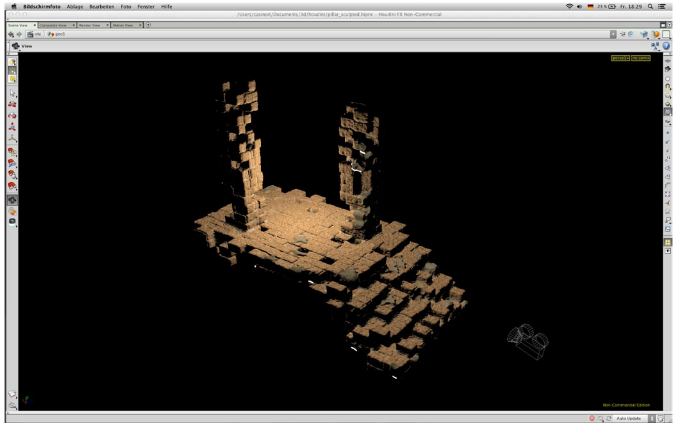




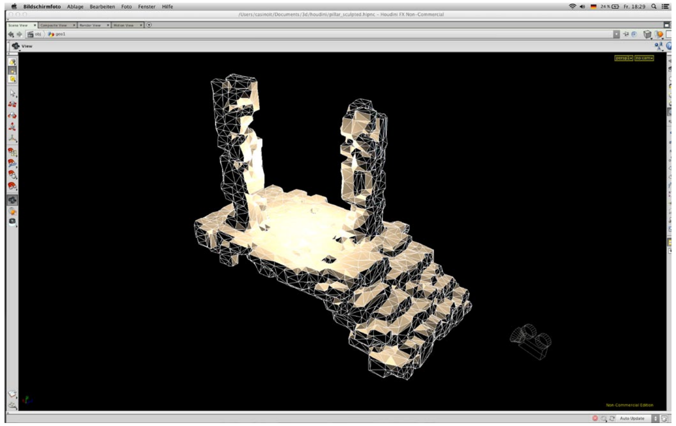
d | Procedural model enhancements



d1: User input: roughly placed solids.

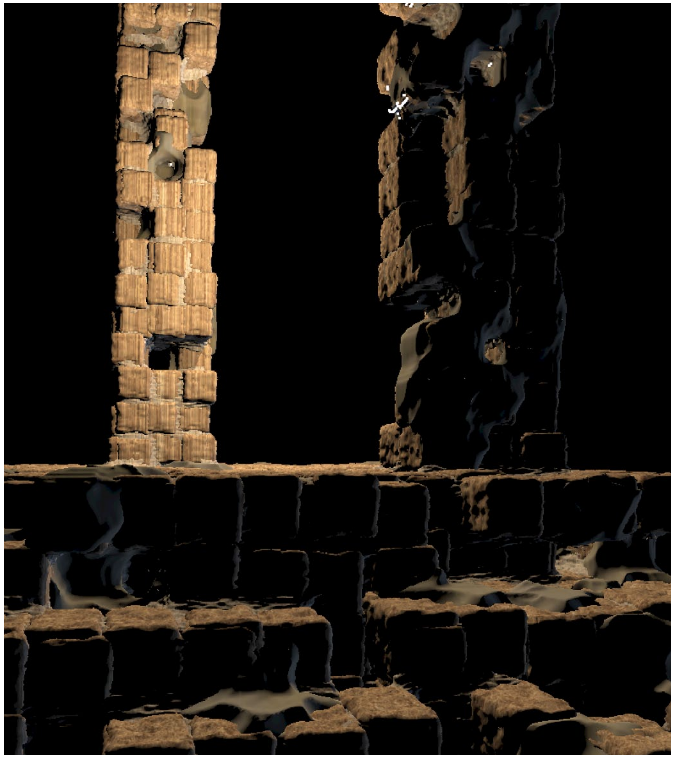


d2: High-poly result using VDBs and copy-stamping.

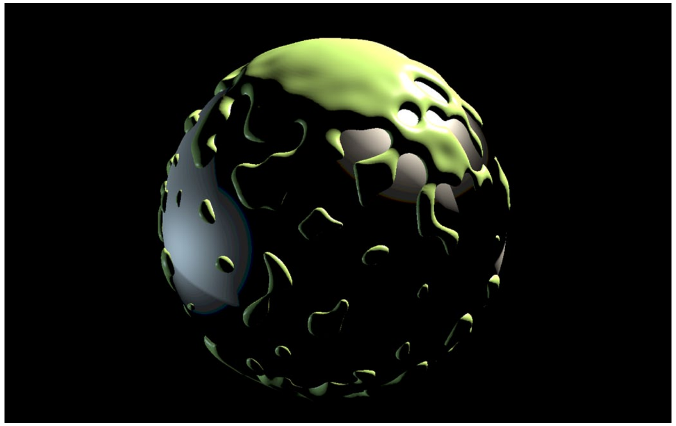


d3: Low resolution mesh based on high-poly result.

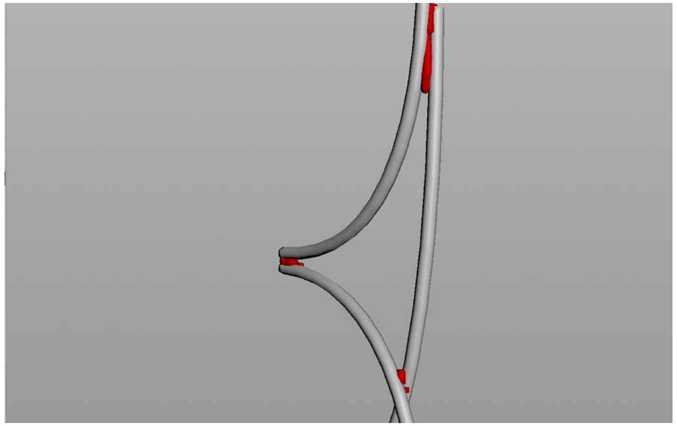
d4: Close up.



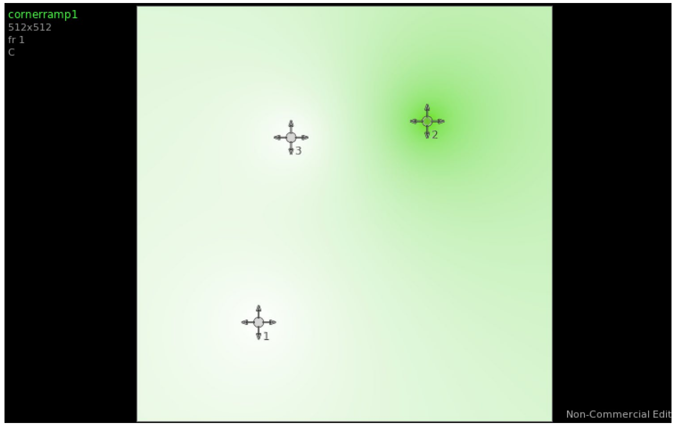
d 5: Procedural slime out of unevenly distributed points.



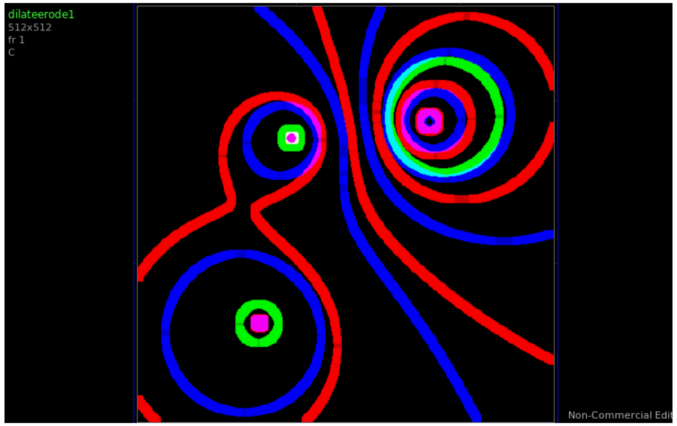
d 6: Brazing steel wires based on surface distance.



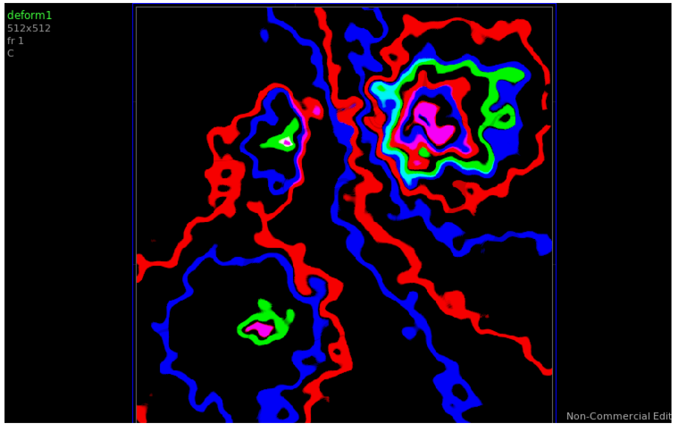
e | Landscape generation and deformation



e1: Radial color ramps allow intuitive control over high and low density areas. Quantization and edge detection result in rings.

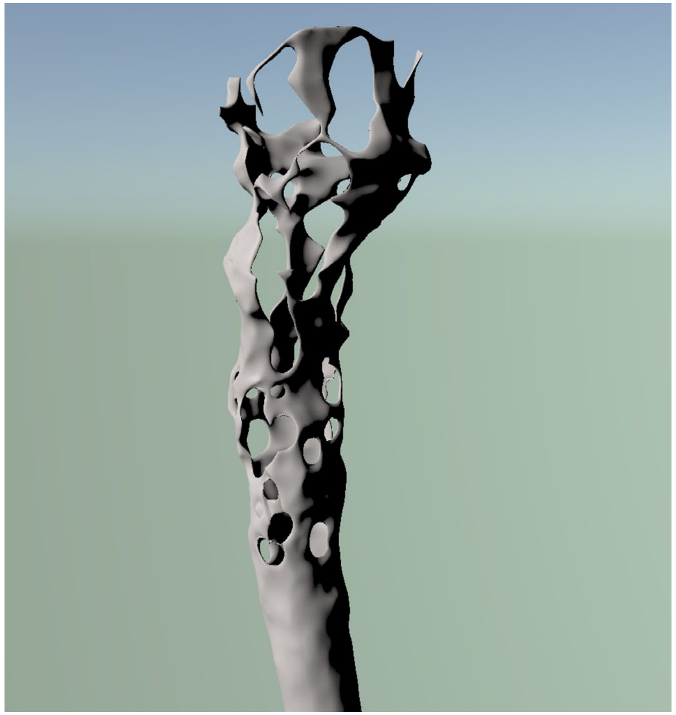


e2: The density of rings refers to the color ramps´ steepness. Those rings will never intersect, however there is a spatial tension between them.

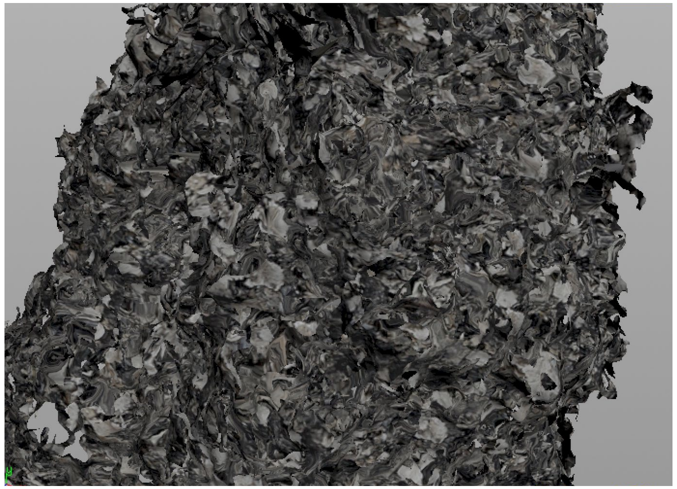


e3: Noise deforms the rings to get more natural results. Every color can be further processed or used for different landscape phenomena such as shaping or variated plant distribution.

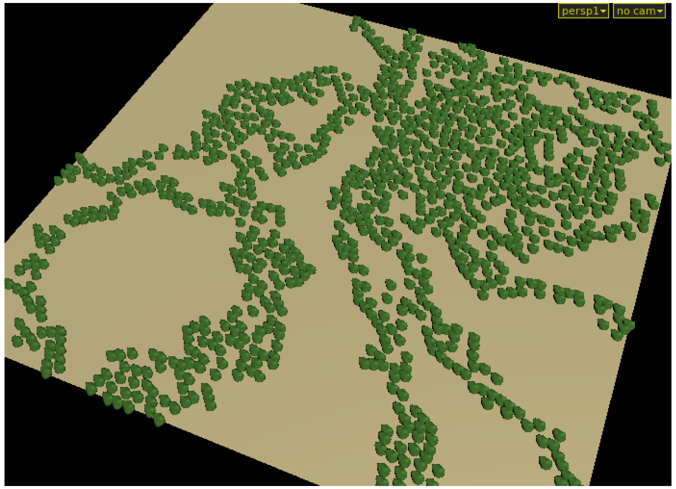
e5: Burnt paper.



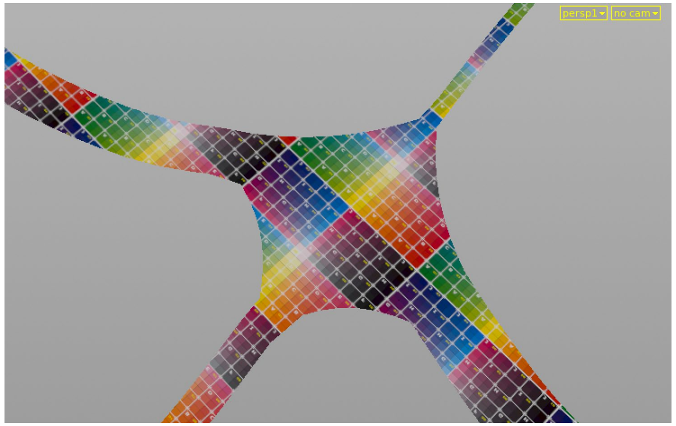
e6: Ashes.



e4: Tree mockups placed on plane considering every color coming from COP context.

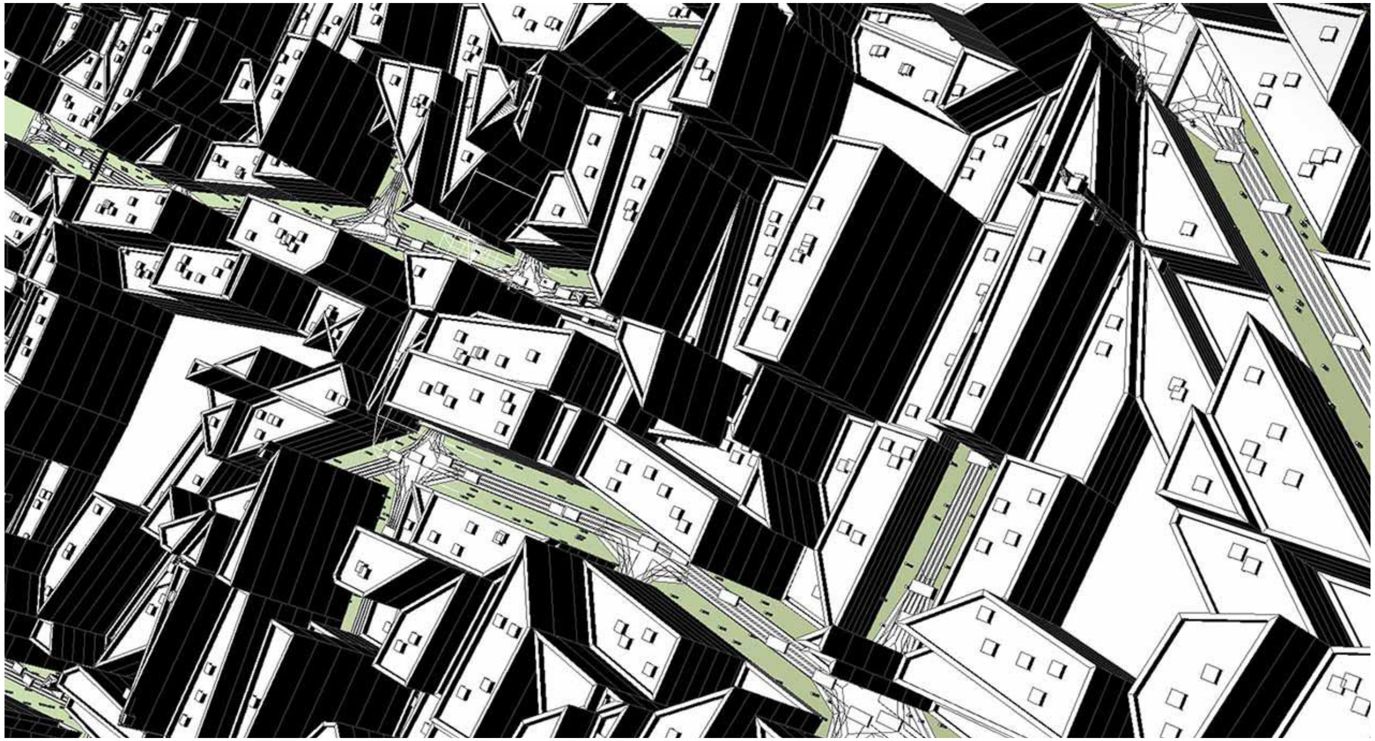


f | Road networks

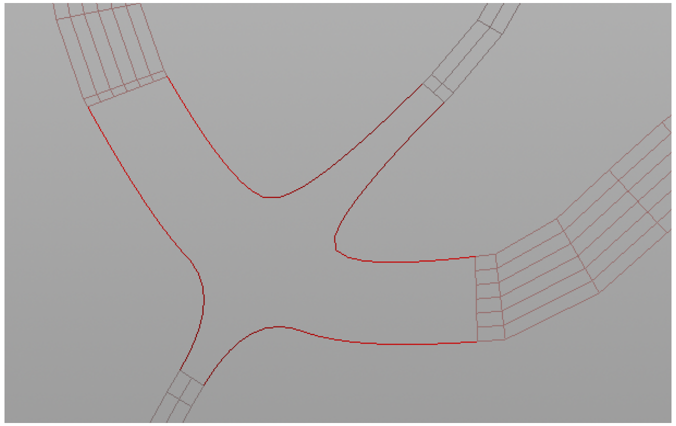


f1: Curves building up fused roads.

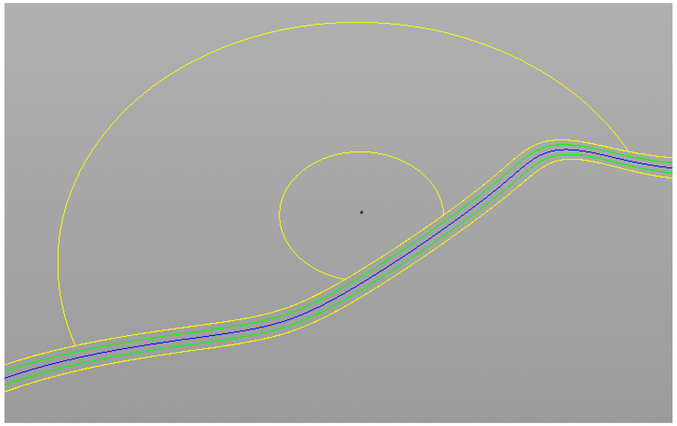
f2: Procedural city scape



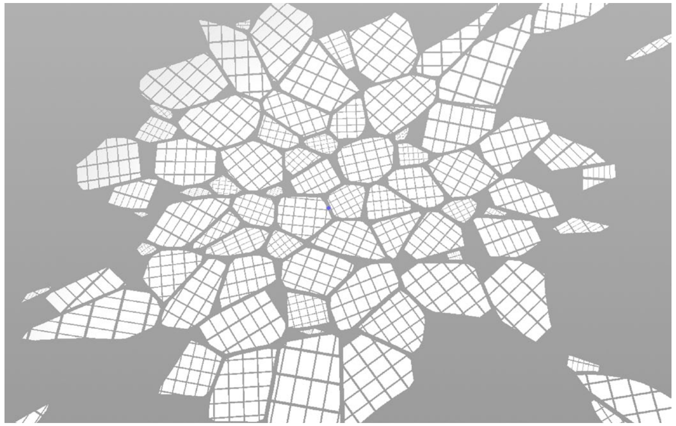
f3: Creating smooth crossings and lanes based on intersecting curves



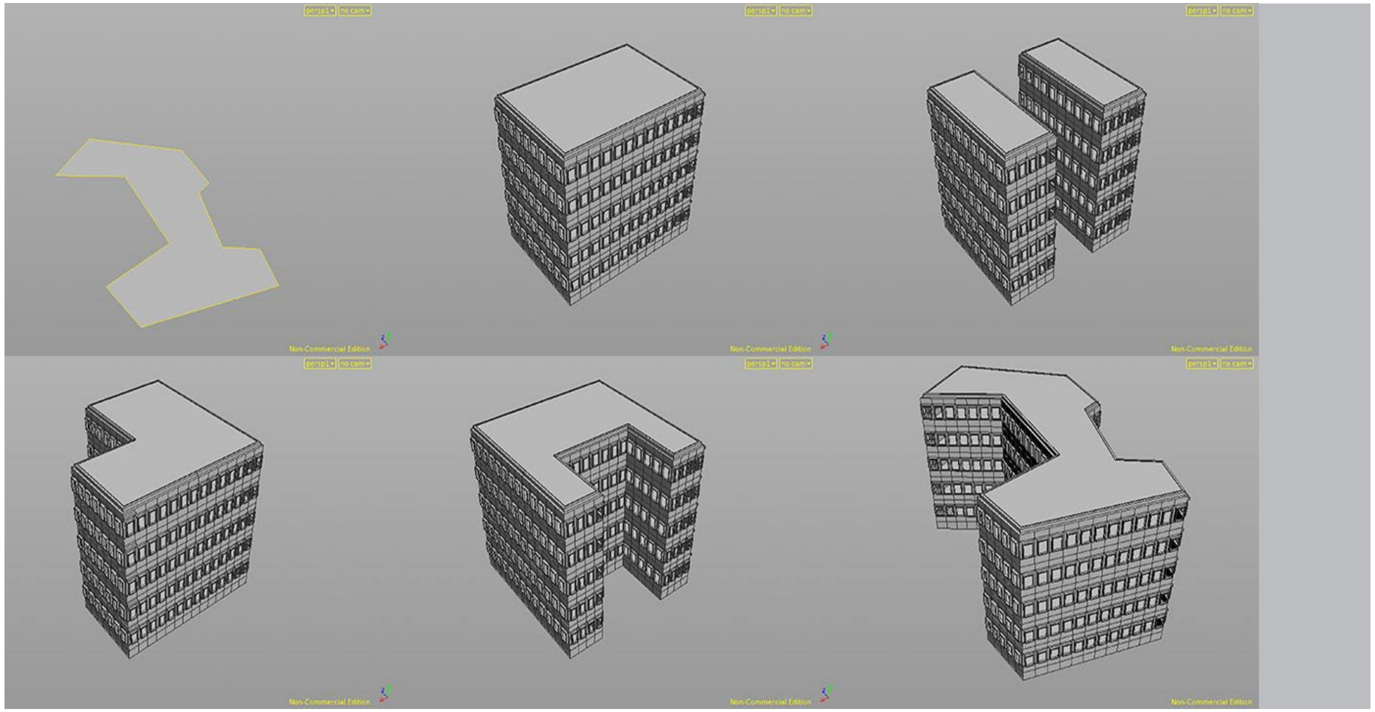
f4: River is accompanied by yellow roads and cuts ring roads.



f5: Voronoy pattern combined with rotated and scaled manhattan grids.

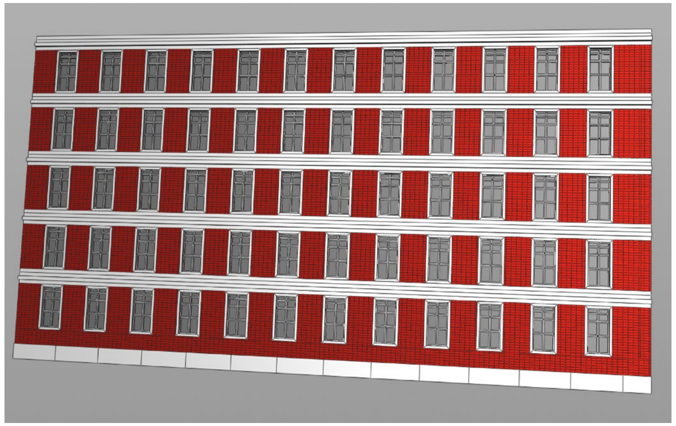


g | Building generation

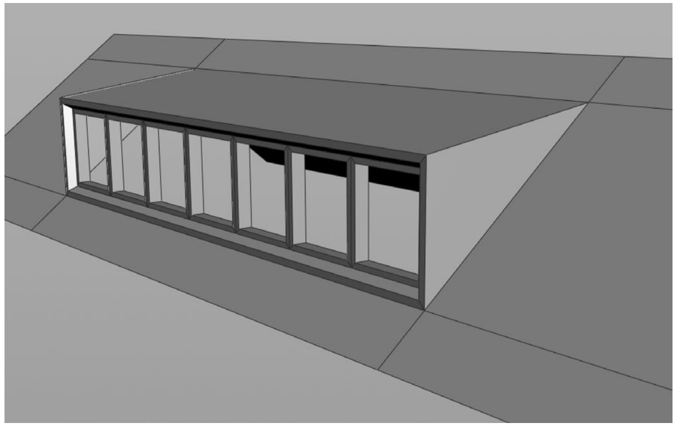


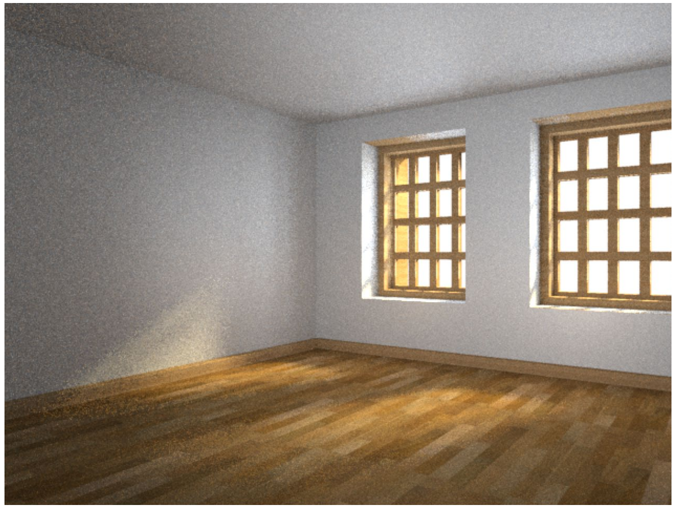
g1: Building generator adapting to various footprints.

g3: Parametric facade



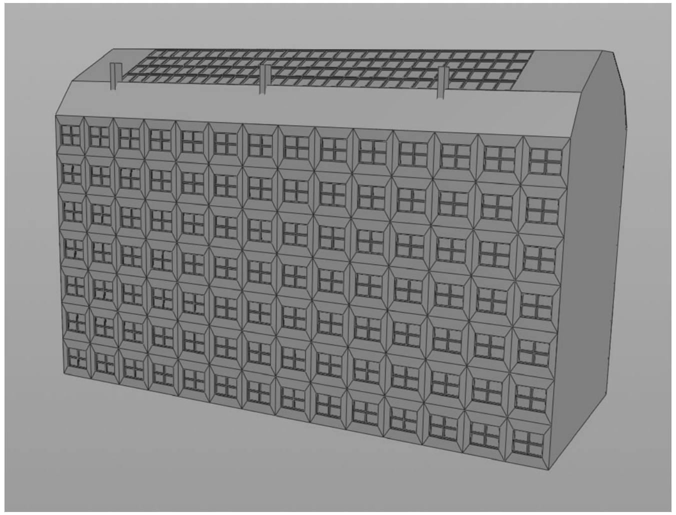
g4: Parametric solution for roof dormers.



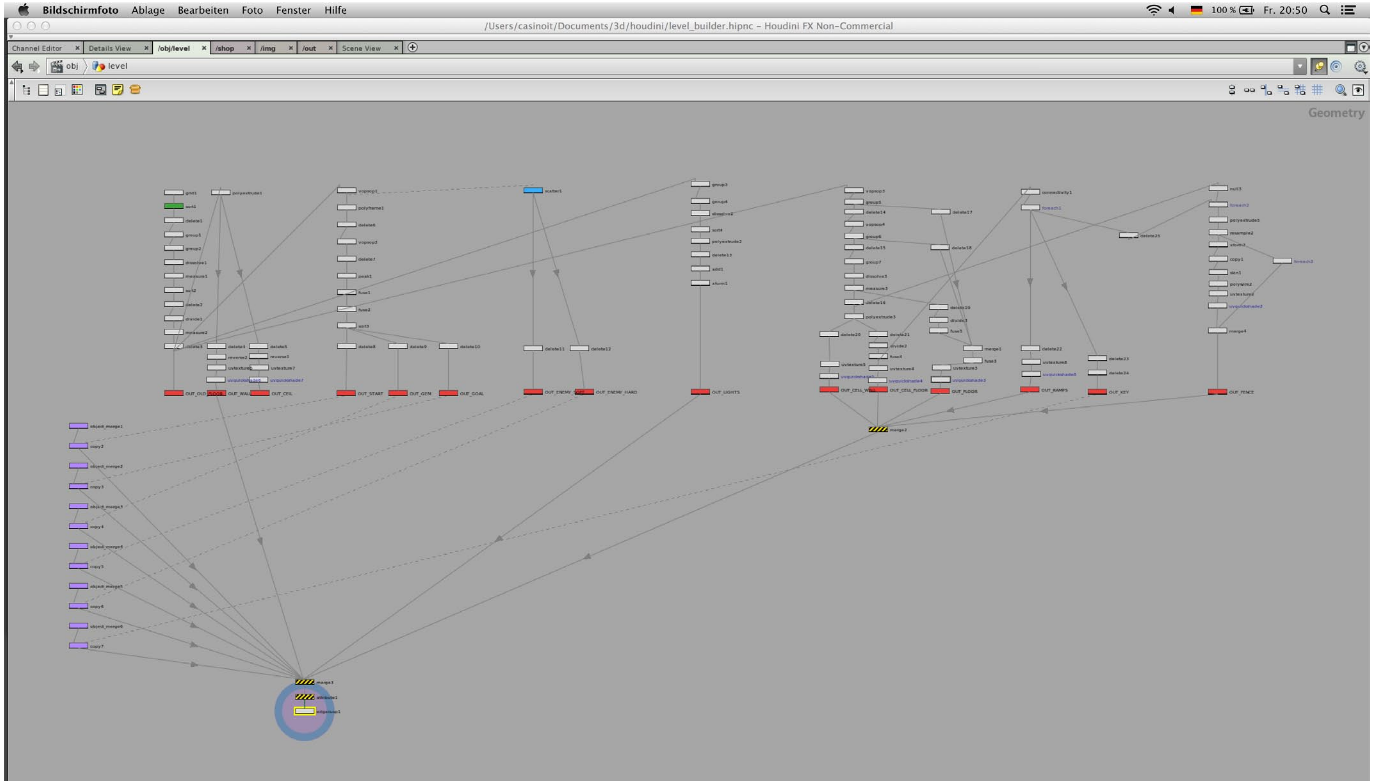


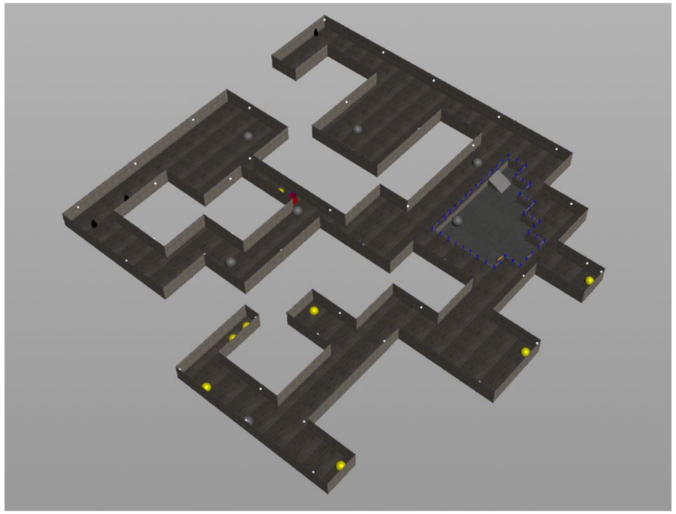
g2: Procedural interior room with adaptive area lighting.

g5: Parametric high rise building.



h | Level creation

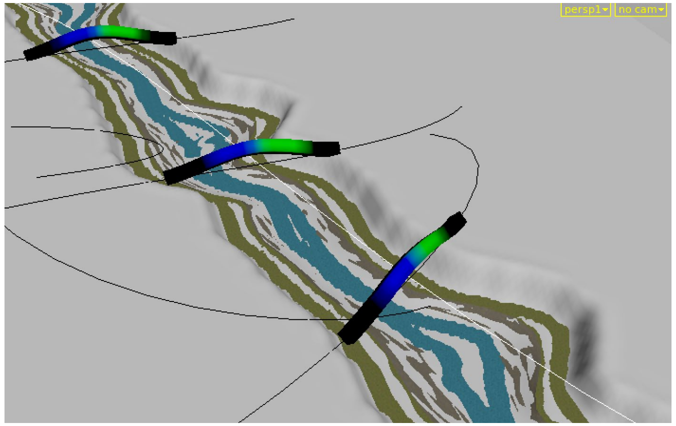




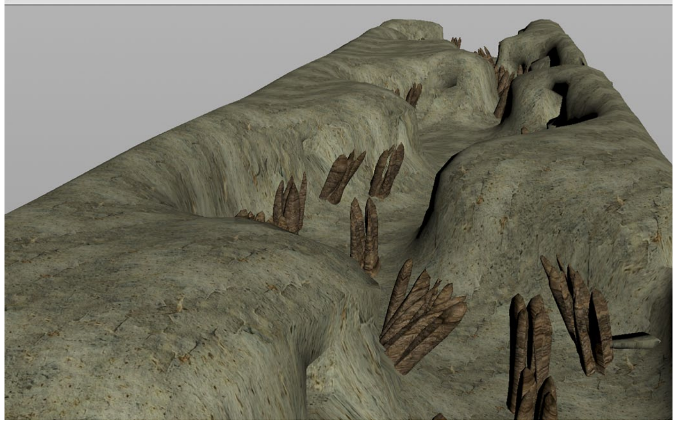
h1: The level geometry output can be varied by a single seed value.

h2: Houdini SOP tree
creating various game levels including walls, floors, pools, railings, ramps, lights, randomly placed enemies, gems as well as entry and exit teleporters.

h4: Work-in-progress river and bridge-asset.
Curves ‚notice‘ when they cross a river and build a bridge



h5: Valley procedure: A jittered curve pushes into landscape.
Caves and rocks are only built at certain surface angles.



h3: Exported level in Unity 3D player