FABRICE SUMM   WEB PORTFOLIO

3D
3D playground

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SKETCH N'SLICE - SIMPLE DESCRIPTION

COMPLEXITY NEEDS SIMPLE TASKS:
sketch n'slice is a step by step method. i show how to create suitable
basemeshes, how to draw on surfaces, how to create mesh segmentations
and finally how to make clean geometries with precise geometric details and
matching surface continuities. all is done half manually, half non-destructive,
and most important: it's simple to follow and easy to master.

VIEWPORT WORKFLOW - DRAW YOUR IDEAS FIRST:
sketching on 3D models can be helpful in order to see what you intend to get.
sketch n'slice uses grease pencils to prepare cutting tools. it's way feels natural
to proceed, gives predictable results and is simple to handle.

SURFACE DETAILS AND REFINEMENTS:
sketch n'slice is primary used for detailing surfaces, but the method can also being
applied to split basemeshes in parts, separate surface quilts to create panels or to
build up additional geometries in a straightforward manner. the method is very
powerful for creating carvings, embosses, additional fillets/chamfers and more,
while keeping the underlying basemesh fairly intact, complex and clean!

SAME TOOLSET - SAME WORKFLOW:
initial base creation isn't bound on any restricting technique. sketch n'slice can be
applied on manifold geometries as well as on loose quilts. the principle is simple -
the method mimics workflows used in CAD applications to create freeform inter-
sections exactly where sketches were drawn on surfaces first hand.

AN ORGANIZED WORKFLOW ON BASEMESHES:
after surfaces are cutted in multiple slices, perimeters are created to ensure a proper
mesh-flow. clean-ups are done either manually or parametrically. with vertexgroups
and weights, the polys get specific areas to modulate the basemesh, while making it
possible to keep a proper mesh-continuity and also to control directional changes.
all modifiers are only used to parametrize and to drive the final output - that's the trick!

THE METHOD IN A NUTSHELL: WHAT IS THE SKETCH N' SLICE?

sketch n'slice mimicks how surface intersections are made in CAD and it is a series of interaction
steps, similar to a 'toolset', to model polygonal meshes like you would refine nurbs objects. the
main difference is that polymeshes need a bit of cleanups in order to work as sub-d models. what
is very uncommon for polygonal modelling, is the use of parametrizations to 'model' details,
which is a typical CAD workflow to create controllable features. the most surprising part although,
is how the mesh is handled: sketch n'slice works best with a meshdensity that you normally not
use in traditional modelling tasks - and there, this method shines!

TECHNICAL OVERVIEW

INSPIRATION:
- clear viewport interactions
- emulating workflows from CAD + CLAY
- redefining the use of modelling toolsets

WORKFLOW:
- half manual, half procedural
- meshing debate: concept vs. production
- mesh fragmentation: know your topo!
- simplified cleanup methods for SDS!
- first, learn to finish: OBJ/UV/PBR/TEX

DRAFTING:
- sketching with grease pencil
- direct ideation on objects + free space
- polys for drafting, volumes for masking?

MANUAL TASKS:
- poly-modelling -> oldschool vs. newschool
- repairing topology and cleanup procedures
- use SDSs only for mesh-elasticity

PROCEDURAL SETUPS:
- use modifier combinations only for what you need
- combine destructive + non-destructive workflows
- parametrize what matters

ABOUT MODIFIERS:
- procedural modifiers can help each other out to
  create exactly what you want. it's important to
  know their features and how they can team up
  together, especially such ones using additional
  data streams of vertex-groups/weights and edge-data
  for crease/bevel/seam/sharp. what is new, is how
  to proceed in a clear methodic manner in order to
  gain more control of the mesh of your 3D model.

CLEANUP PROCEDURES:
- dont mind the mess- all topological interactions
  are just temporarily, meaning 'errors' in meshes do
  not weight that much anymore - today clean-up
  procedures are simple, yet straightforward.

DIRTY TECHNIQUES - QUICK MODELLING WITH SKETCHN'SLICE:
- concept modelling is considered a preparation process, it is
  recommended to know exactly how to clean up the 'mess' either
  manually or methodicly - i showcase how to make fast concept
  models and how to prepare them with easy routines, so you can
  avoid common obstacles of modelling tasks and remeshing failures.

QMX OR NOT?
- mesh densities for sketch n'slice are a bit higher as your normal
  basemesh - the porpose is flexibility. sometimes it can also be
  great to remesh a model in a specific manner before detailing it's
  features. the algorhythms work very well, if you know how to guide
  them: with colored contour-loops you can help QMX to recognize
  meshflows better and obtain mesh-results that are pretty zbrush-like
  to work with!

SIMPLE PRINCIPLES - BASIC TOOLSETS

MAKE YOUR FIRST STEPS:

- sketch on surfaces with the grease pencil

- create a cutter: snap a polyline over the sketch, use
  extrusion and tilt functions of curves to create a ribbon,
  make a visual clone as poly, refine where it's necessary.

- intersect with the target surface, use knife-intersection

- on target mesh, bevel the imprint to create a perimeter

- mesh clean-up by merging points + cutting new lines

- inside the perimeter additional loops can create a set
  of various results (surface displacements) using vertexgroups,
  modifiers, edge-functions and seam to 'mark' the mesh segments.

FULL METHOD - THE KEYFEATURES

THE TECHNICAL FEATURES:

- imprints define surface behaviours

- mostly all functions are marked within the basemesh.
  (useful for visibility, faster selections of polygroups
  and edge-loops and UVs)

- mask material mimics visualization for surface-intersections
  in blender's object and edit mode. (zbrush-like masking)

- all shapes are projected as surface-intersections or booleans:
  intersections are used to define contacts and carvings of a mesh
  and serve as transitions for additional geometric interactions

- all booleans and surface-cuts use perimeters for all transitions and
  mid-res booleans with creases work now on sub-D base-meshes!!

- cleanups can be done manually or with parametric commands

- modifiers (nodes) are always used to create bevels, elevations,
  surface splits, masking polys, parametric carvings and to
  visualize pre-cutouts with booleans for sub-d basemeshes.

- mimicking additional CAD 'tricks': chamfer, fillets, trim, splits...etc.

- consider 'sketching' on surfaces; flat shapes can be used to project
  intersections on targeted meshes too (useful for embosses/cutouts)

- quilt duplication : sampling existing geometries and loose quilts,
  simplifies mesh-generation and the positioning of new objects.
  use it for geometry creation and cutout-objects.

- QMX or not: resampling vs.remeshing

TECHNICAL CONCLUSIONS - ENHANCE YOUR CREATIVITY

always consider using 'sketches' in 3D space, this simplifies further procedures and gives you more freedom to create complex shapes afterwards.

manual modelling is sometimes tricky, especially with SUB-D's and can create bottlenecks during a production and drain your motivation and creativity. this doesn't need to happpen, sketch n'slice can prevent this stunningly well, because you don't work with polygons like you usually do. the surfacing methods are optimized to let you 'model' all features correctly, opposite to procedural workflows that block you from manual interactions and force you to create generic results. you regain the freedom of creativity that you deserve without having any technical restrictions, nor being stuck in a narrow, old fashioned polygon-modelling workflow.

FINAL NOTES + LINKS

sketch n'slice has to be shown live and in action. in addition to this document, a new video channel with my tutorials is coming soon to show how my method can be used. stay tuned!.. in meantime you can already download blender 3D for free and do a lot with the vanilla version. i recommend you to buy meshmachine and hardops, if you're serious about modelling in 3D; although i use just a few operators of these addons to simplify my workflow, they come both with a lot of additional features and powerful functionalities.

Blender 3D: https://www.blender.org/

MESHmachine: https://www.blendermarket.com/products/MESHmachine

HARDOPS: https://blendermarket.com/products/hardopsofficial