mesh(flow|git)

understanding and managing mesh editing workflows

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blender conference 2014

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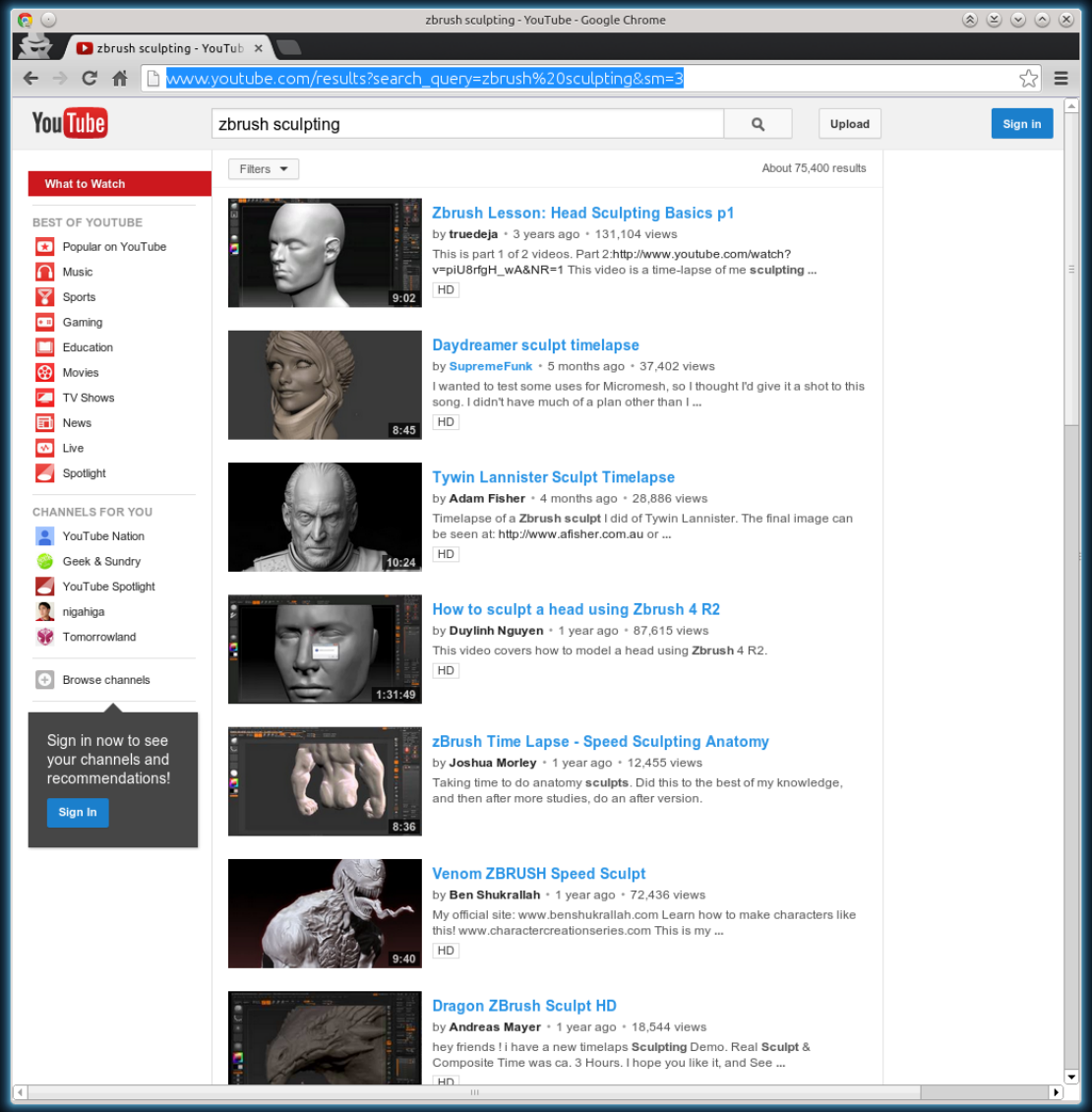
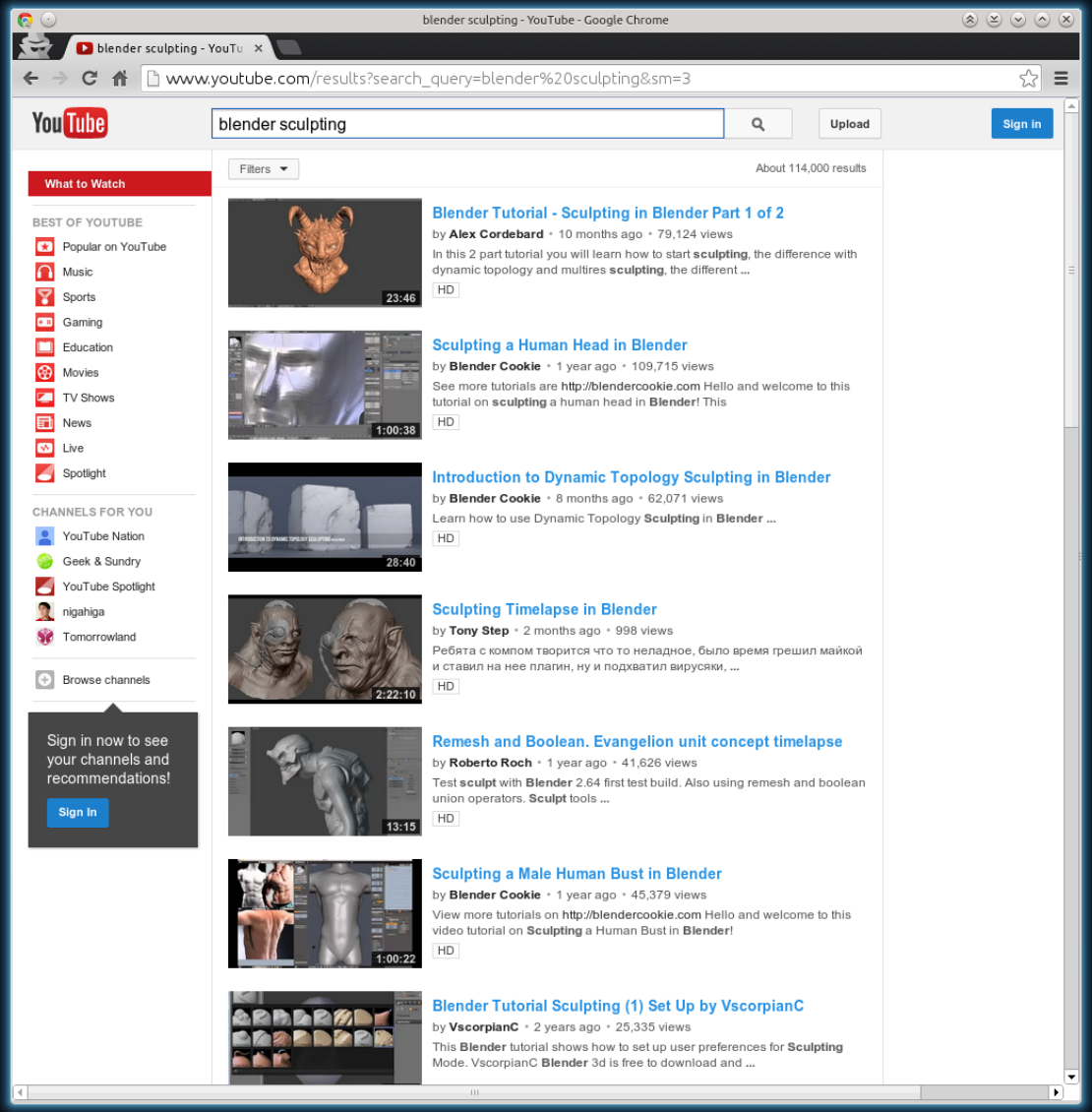
Blender* [/home/probusto2/projects12/sculpt/oldman01/snap000430.blend]
File Add Render Window Help
Default
Scene
Blender Render
v2.68 | Verts:98306 | Faces:98304 | Tris:196608 | Objects:1/3 | Lamps:0/1
Brush
Grab 2 F
Radius: 77
Autosmo: 0.000
Normal Weig: 0.000
Area Plane
Front Faces Only
Overlay:
Alpha: 1%
Sculpt Mode
View
Lens: 35.000
Lock to Object:
Lock to Cursor
Lock Camera to View
Clip:
Start: 0.100
End: 1000.000
Local Camera:
Camera
Render Border
3D Cursor
Location:
X: -0.0215
Y: 0.1614
Z: -0.0874
Item
Icosphere
Display
Only Render
Outline Selected
All Object Origins
Relationship Lines
Grid Floor X Y Z
View Search All Scen
Scene
RenderLayers
World
metal putty
wax red
wax red F
Type Image or Movie
Preview
Texture Material Both
Show Alpha
Colors
Image
_stone.jpg F
Source: Single Image
tcaps/wax_red.JPG
View Sculpt Brush Hide/Mask Sculpt Mode
-40 -20 0 20 40 60 80 100 120 140 160 180 200 220 240 260
View Marker Frame Playback
Start: 1
End: 250
1
No Sync

researcher/scientist: can i improve my skills by studying artists?

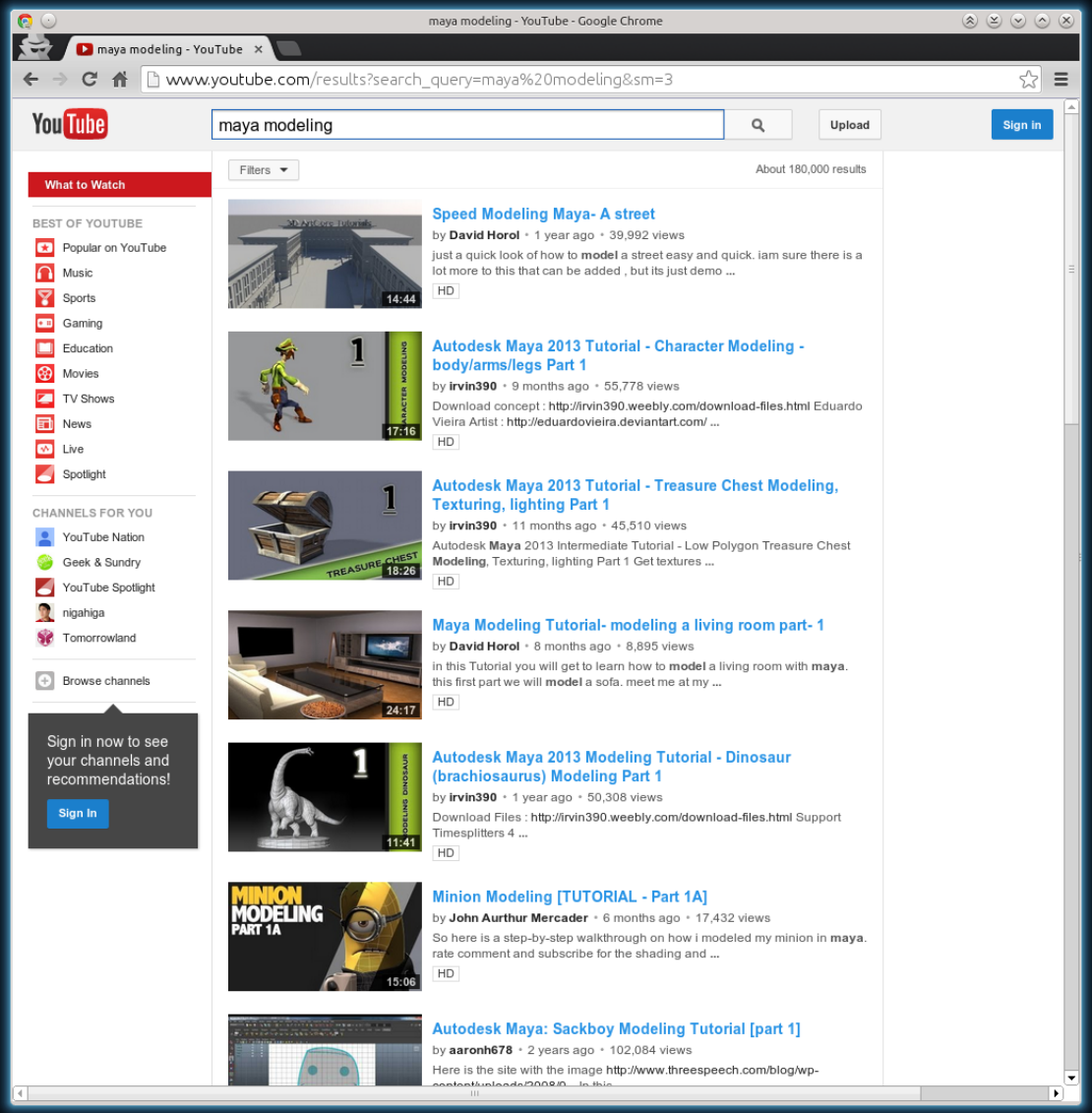
lots of help out there



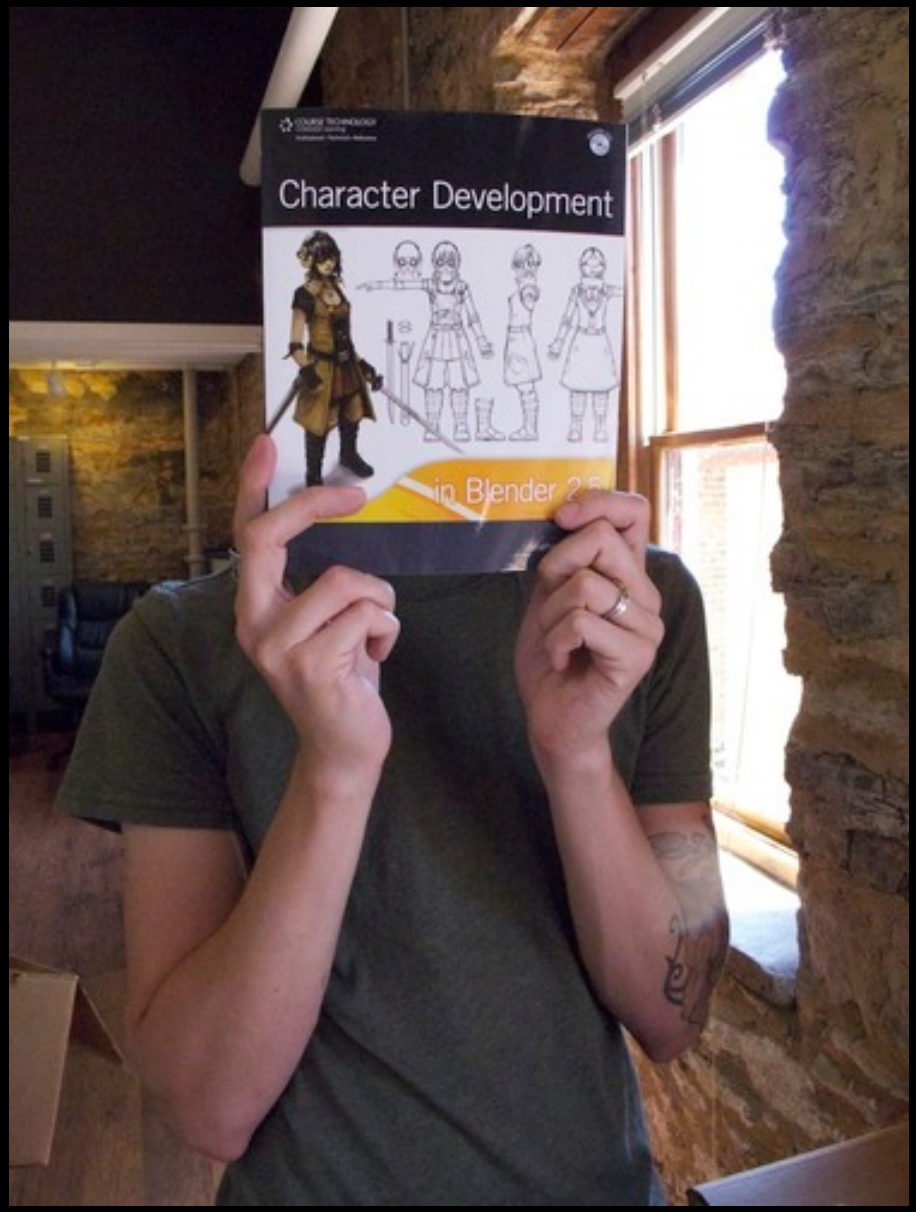
"zbrush sculpting" yields 75k results



"blender sculpting" yields 114k results

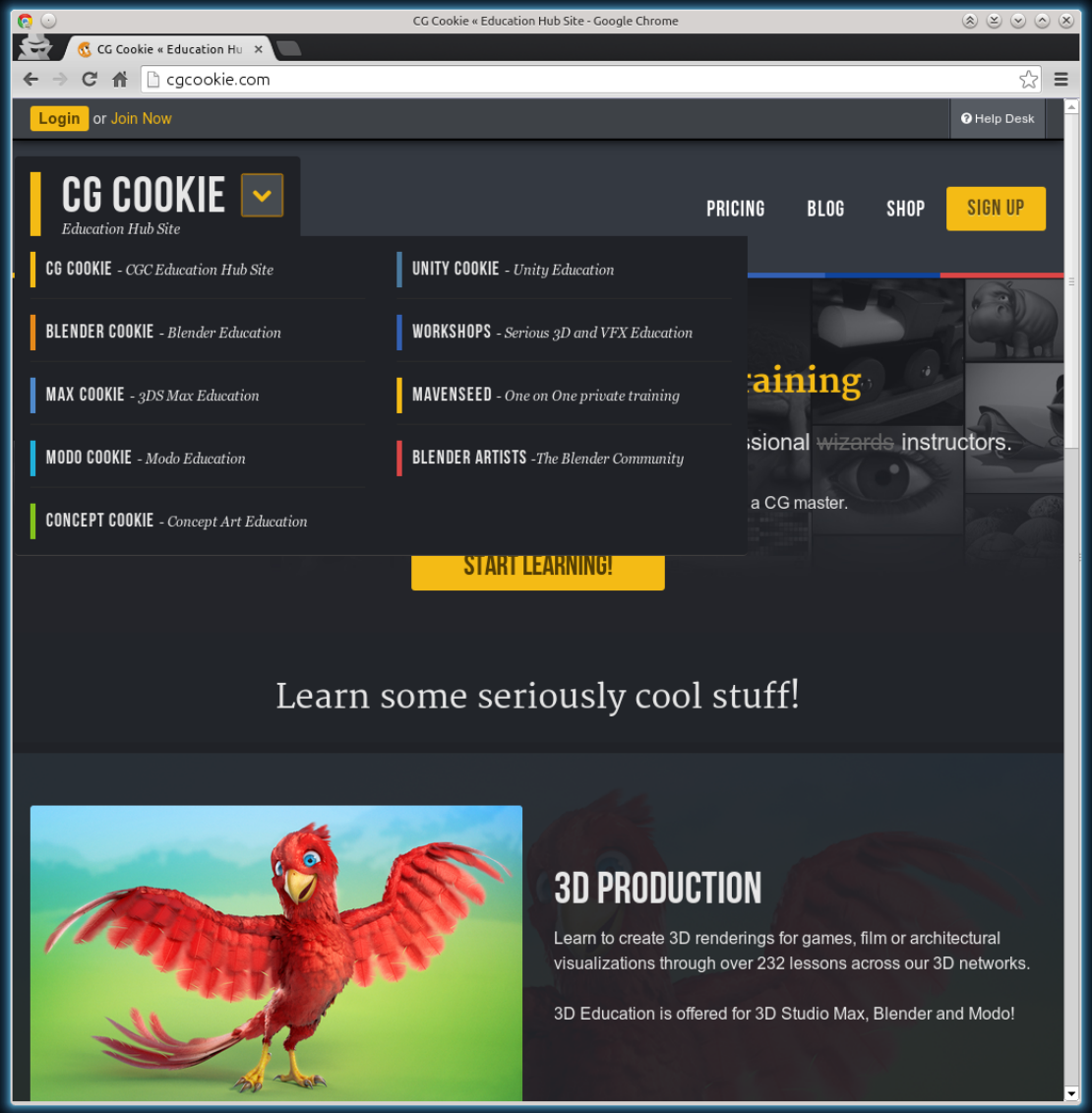


"maya modeling" yields 180k results



hundreds to thousands of books teaching modeling

[amazon.com, williamson 2013]



websites dedicated to modeling and sculpting

medium is challenging

medium is challenging
most video tutorials are *really* bad

medium is challenging
document tutorials can be hard to follow

medium is challenging
most time lapses are unhelpful

modflows

methods for studying and managing mesh editing workflows

phd dissertation

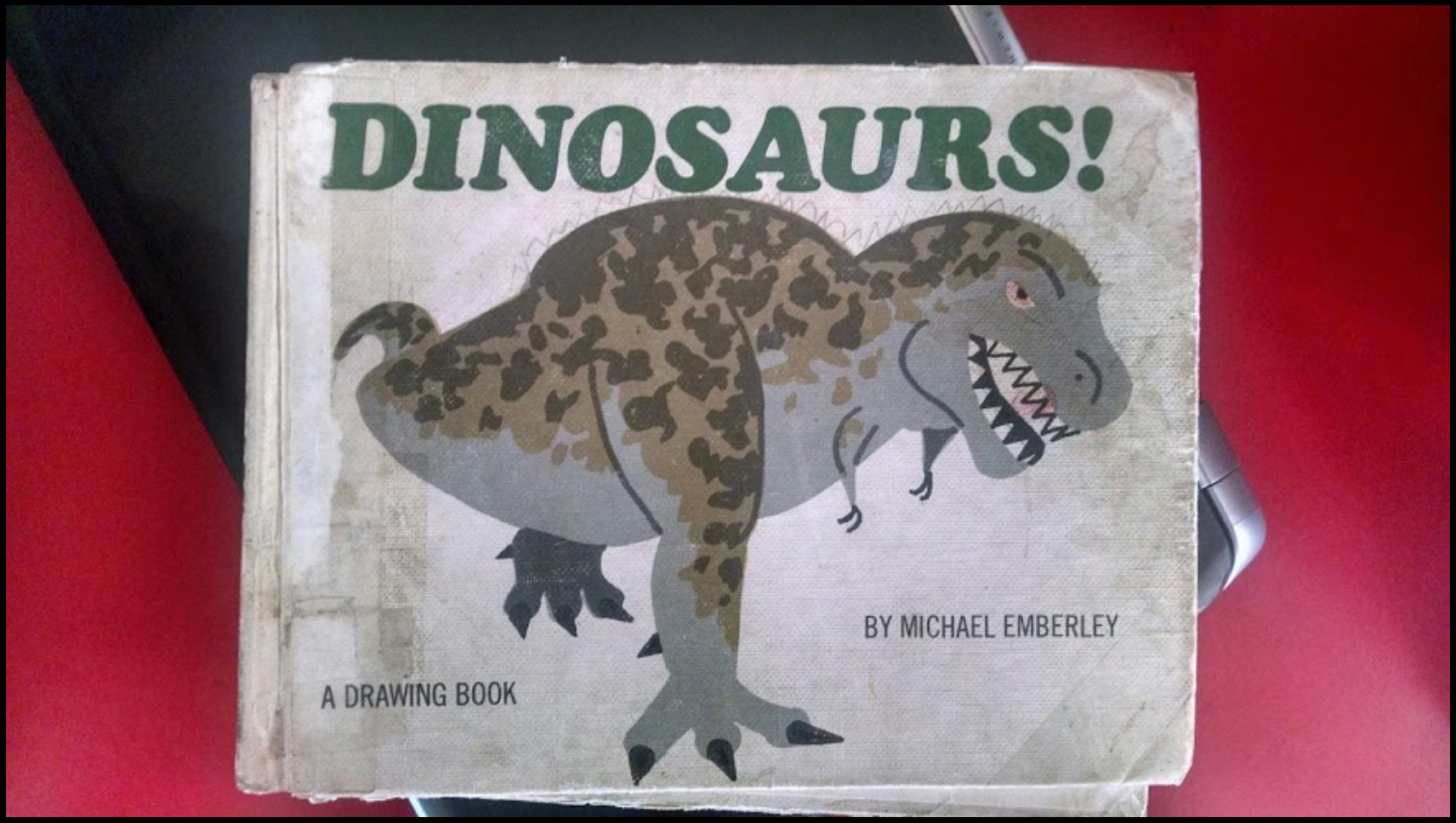
1. meshflow
2. meshgit

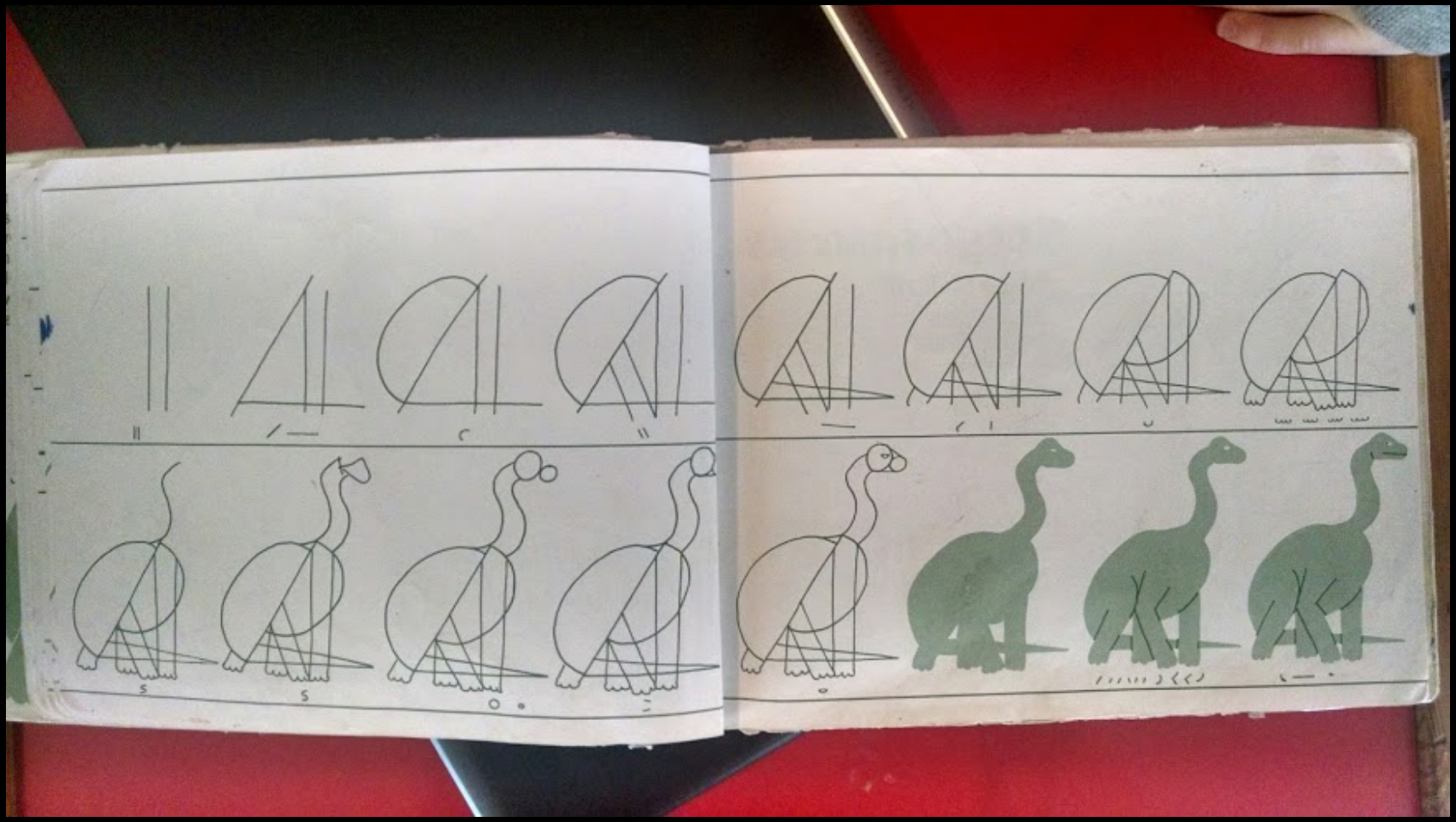
meshflow

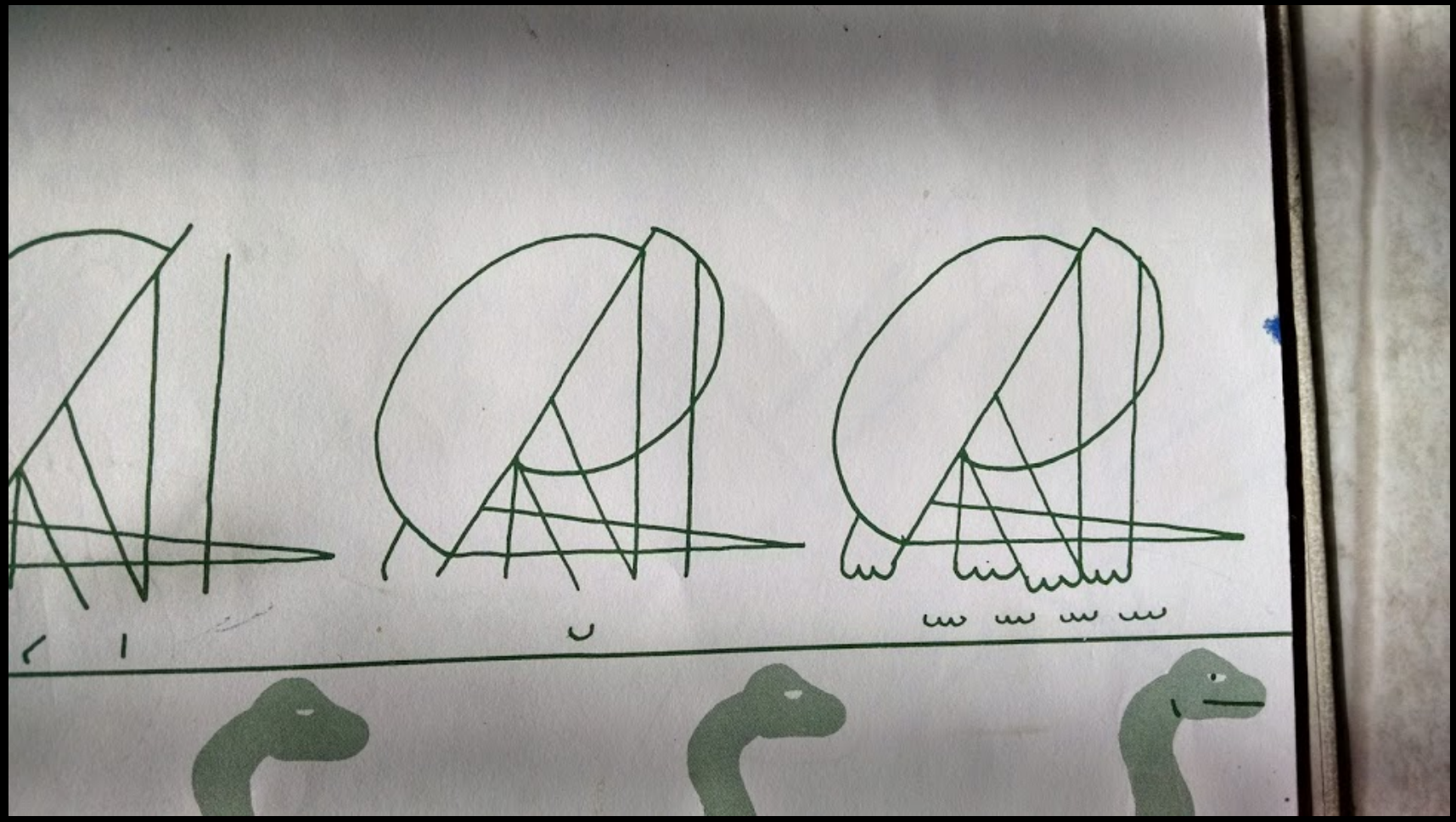
interactive visualization of mesh construction sequences

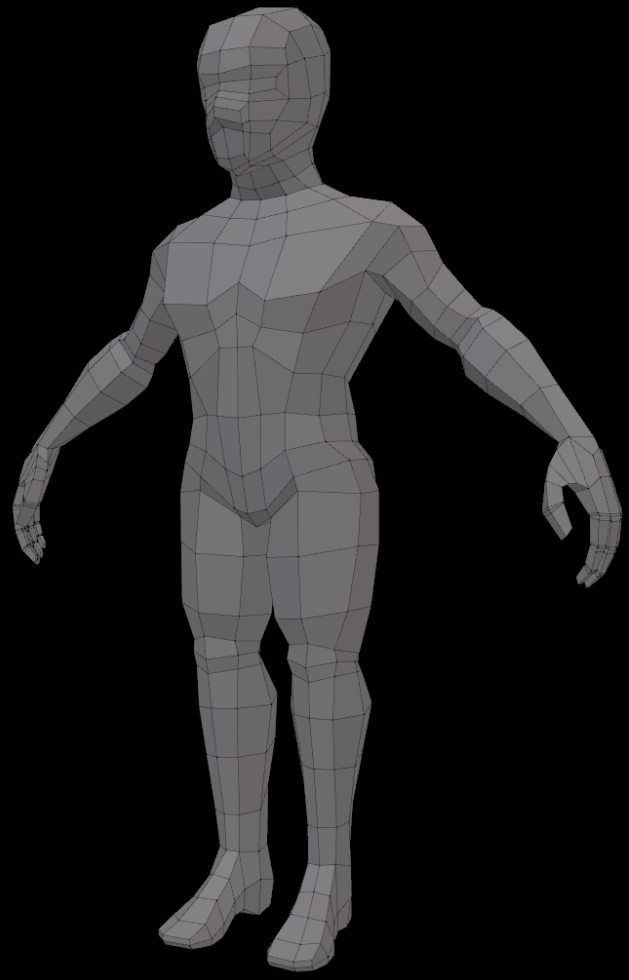
j.d.denning, w.b.kerr, f.pellacini

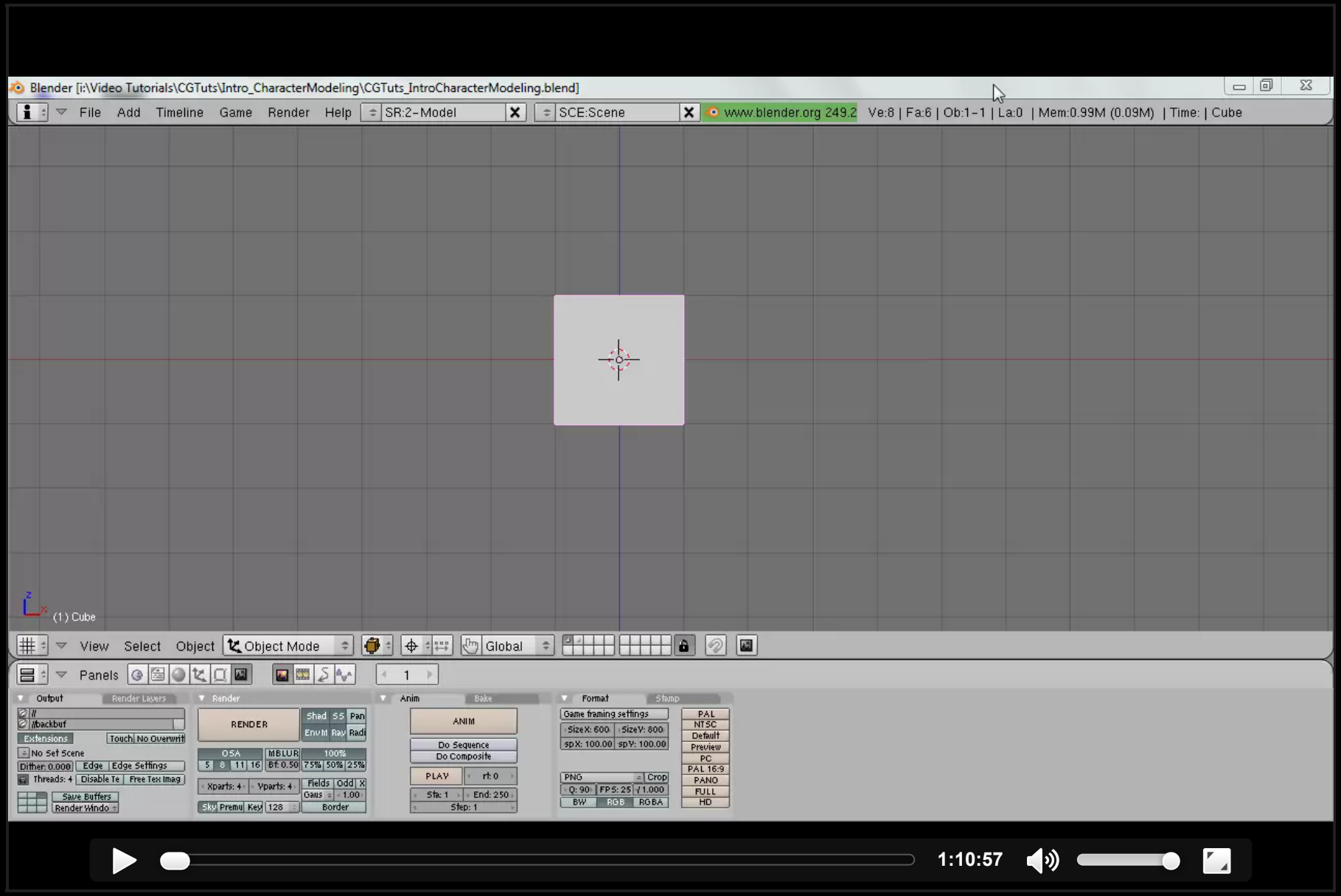
acm tog (siggraph), 2011


DINOSAURS!
BY MICHAEL EMBERLEY
A DRAWING BOOK



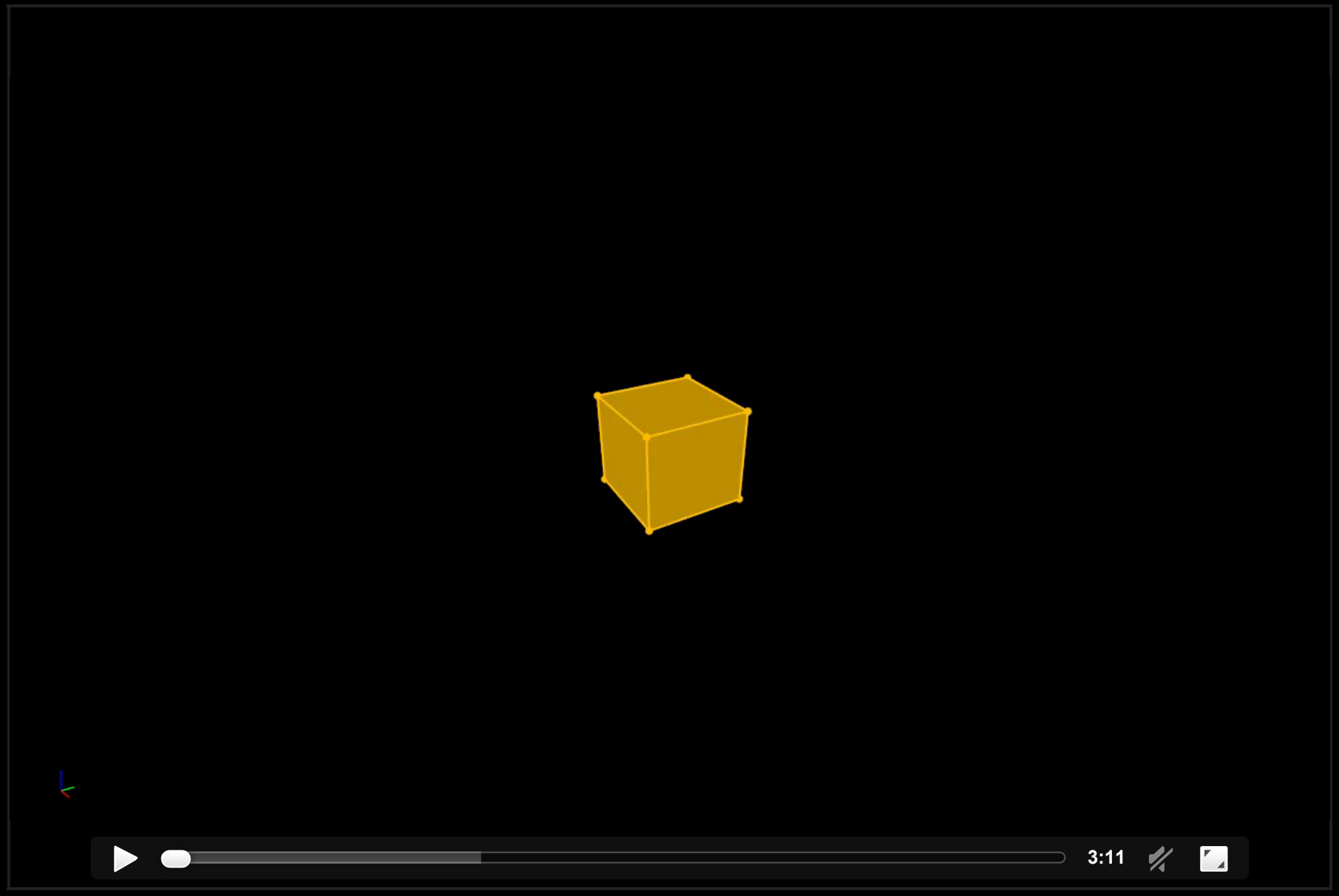




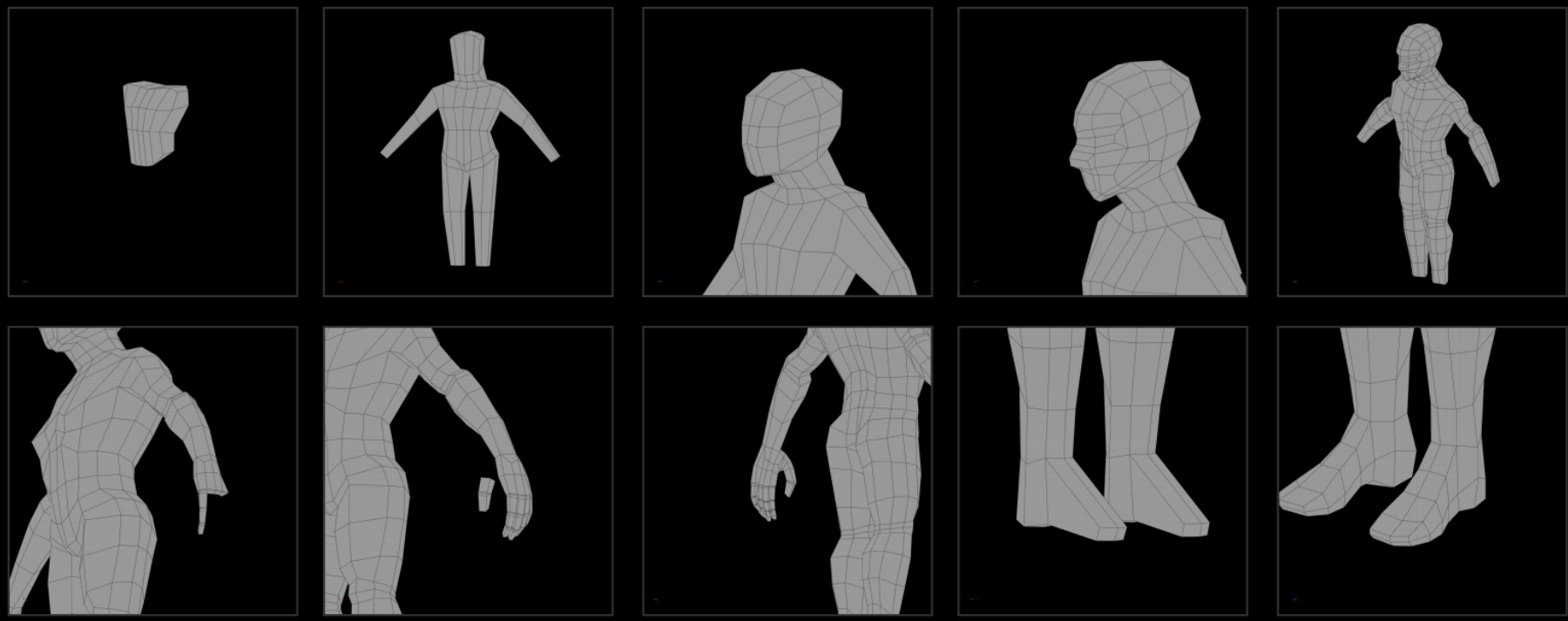


video tutorial, audio annotations

[cgtuts, jonathan williamson, 2010]



time lapse, fast playback



document tutorial, high-level overview

ideal medium?

high-level overview / summary

high-level overview / summary

low-level details

high-level overview / summary

low-level details

visually annotate changes

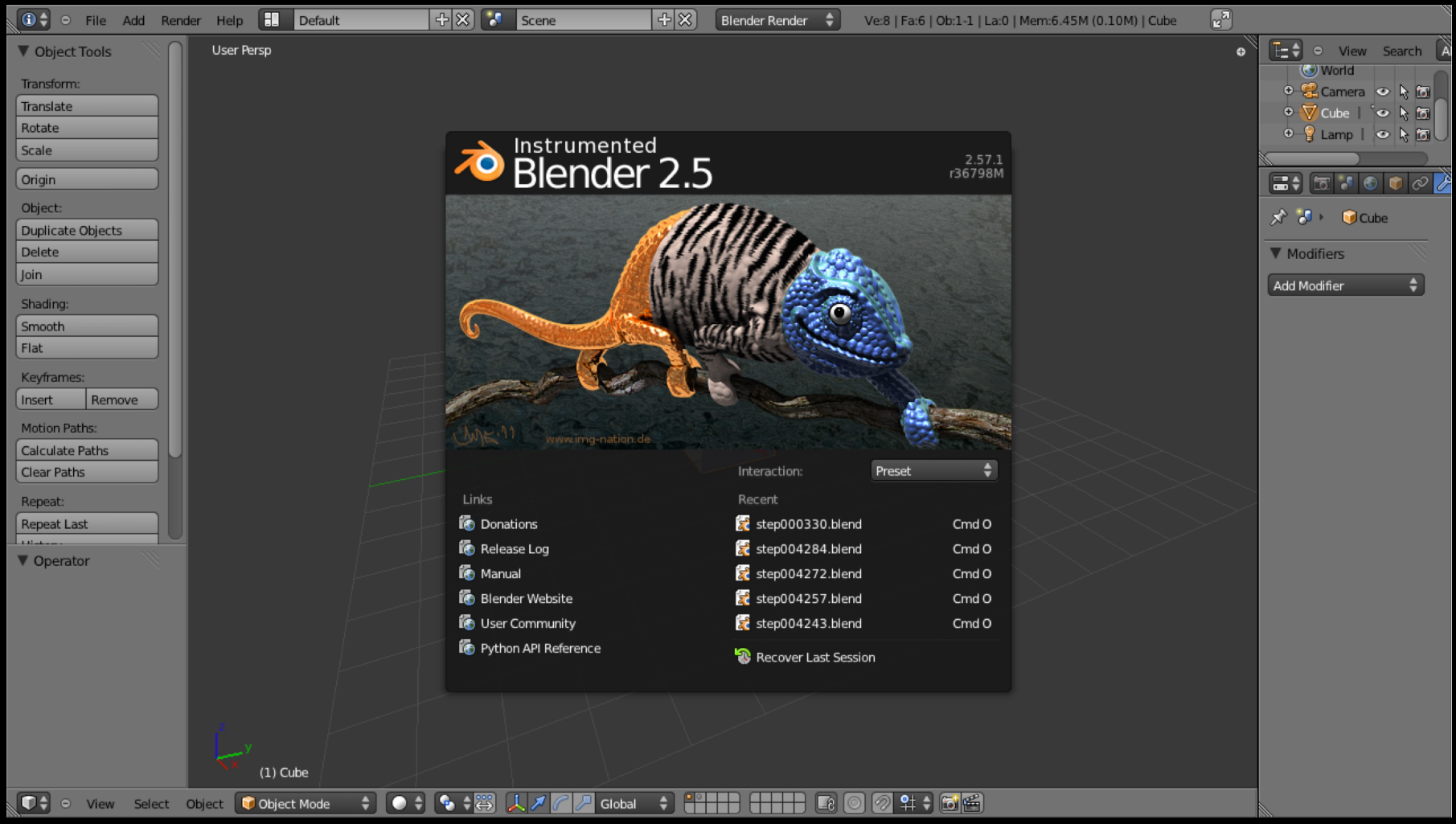
high-level overview / summary

low-level details

visually annotate changes

done fully-automatically

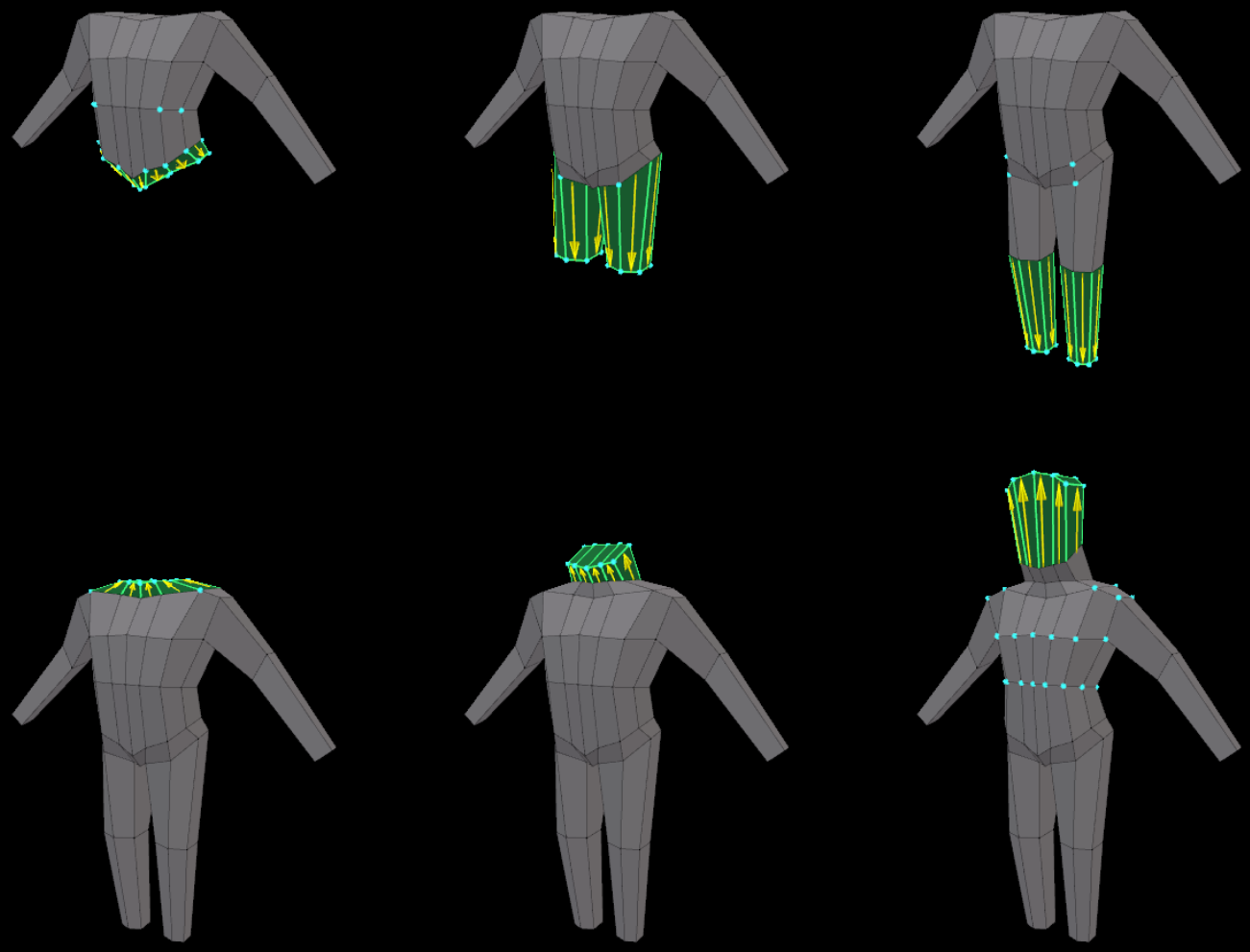

1:08

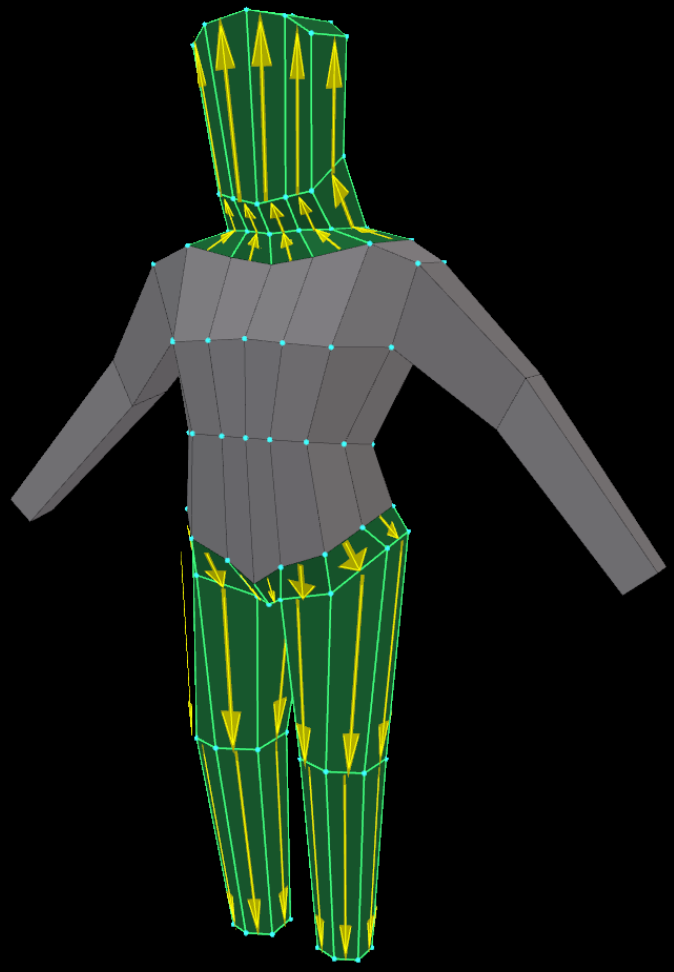


record every action along with mesh snapshot

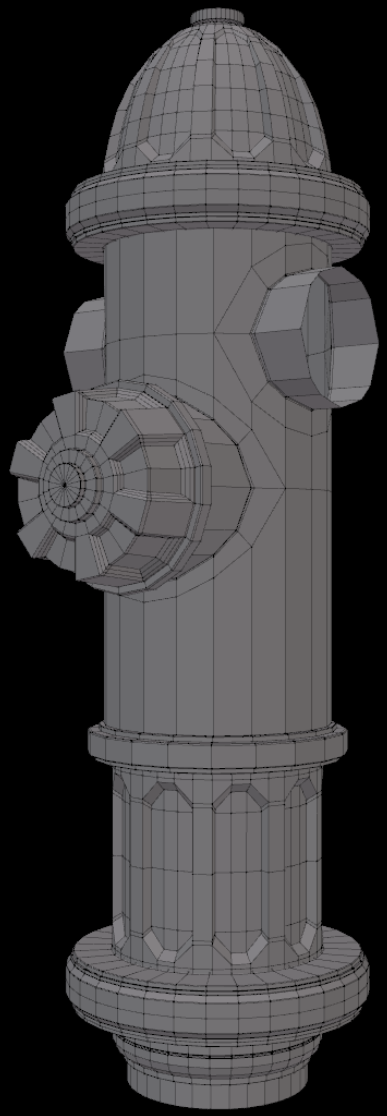
hierarchical clustering ⇒ levels of detail

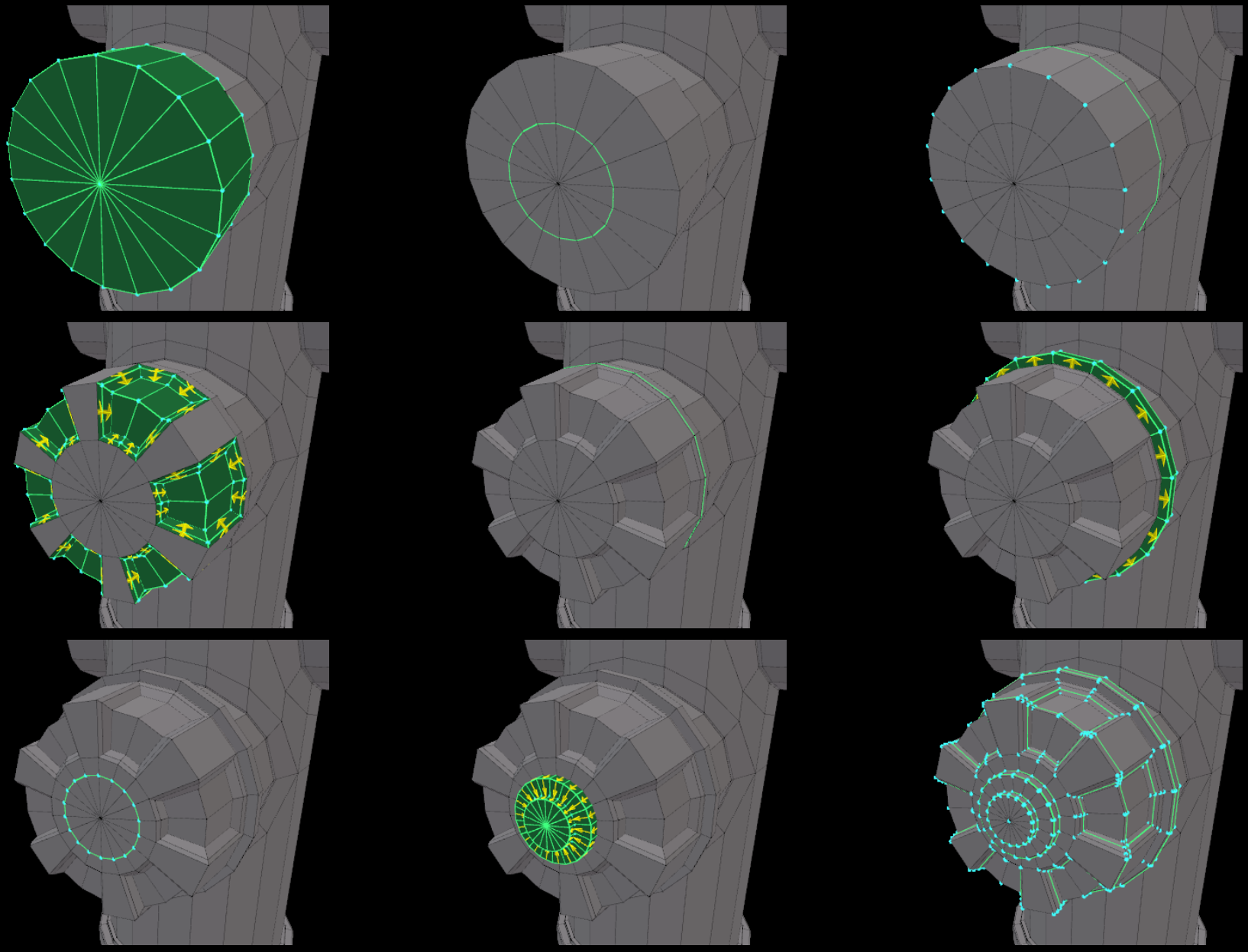
action + change ⇒ visual annotations





meshflow



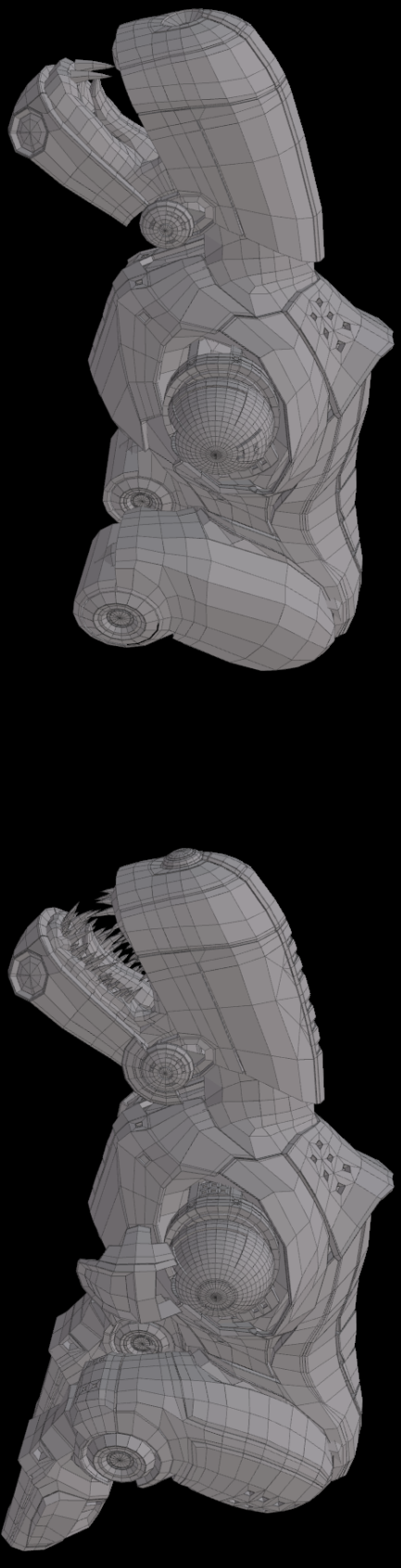


meshgit

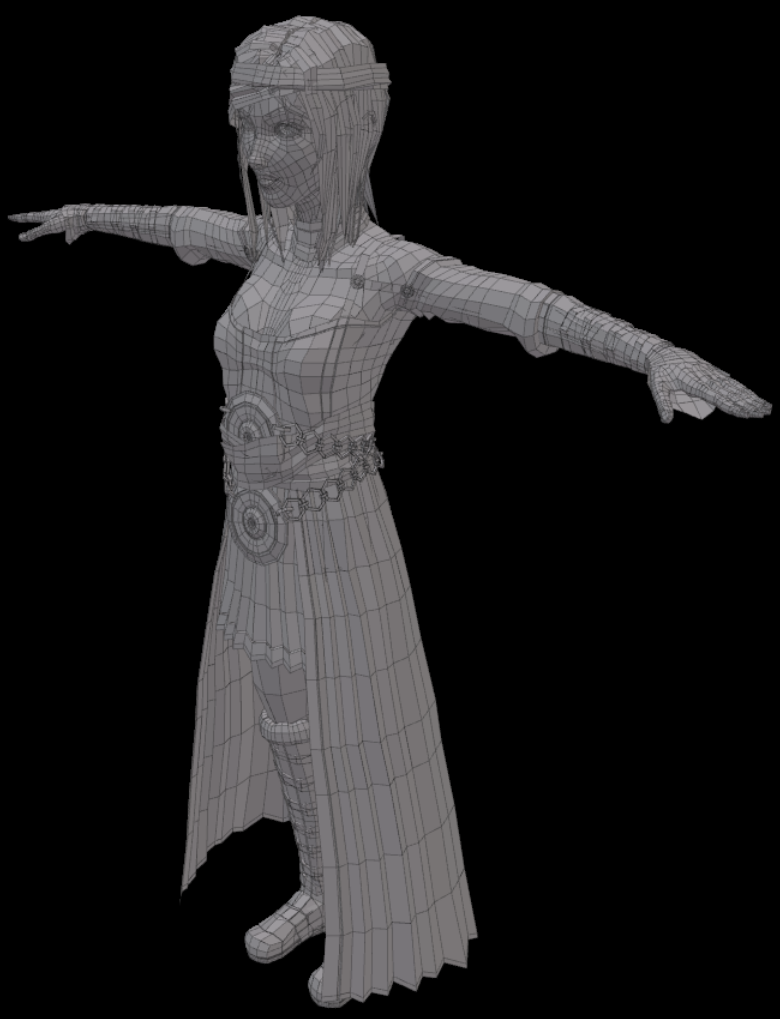
diffing and merging meshes for polygonal modeling

j.d.denning, f.pellacini

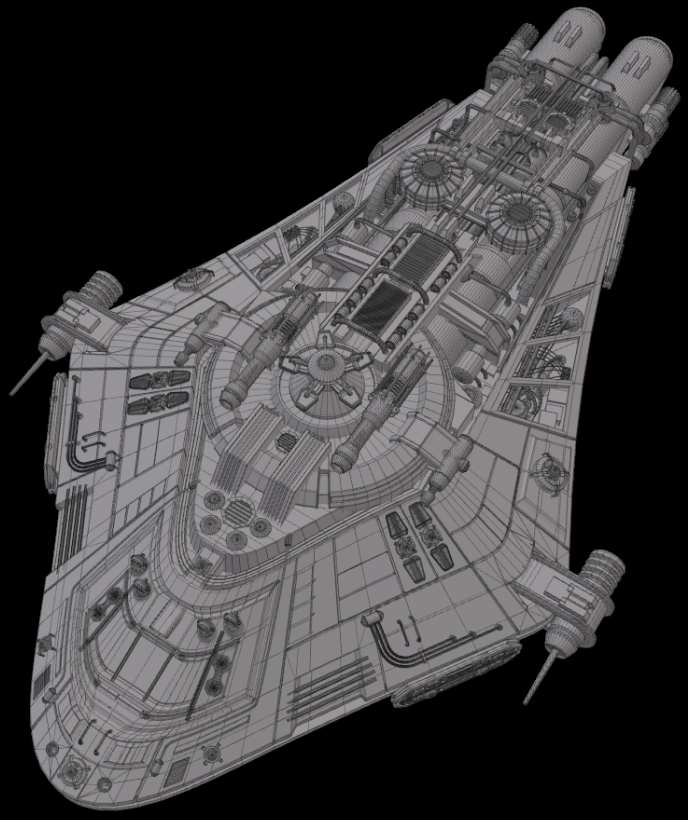
acm tog (siggraph), 2013



[goralczyk 2008]



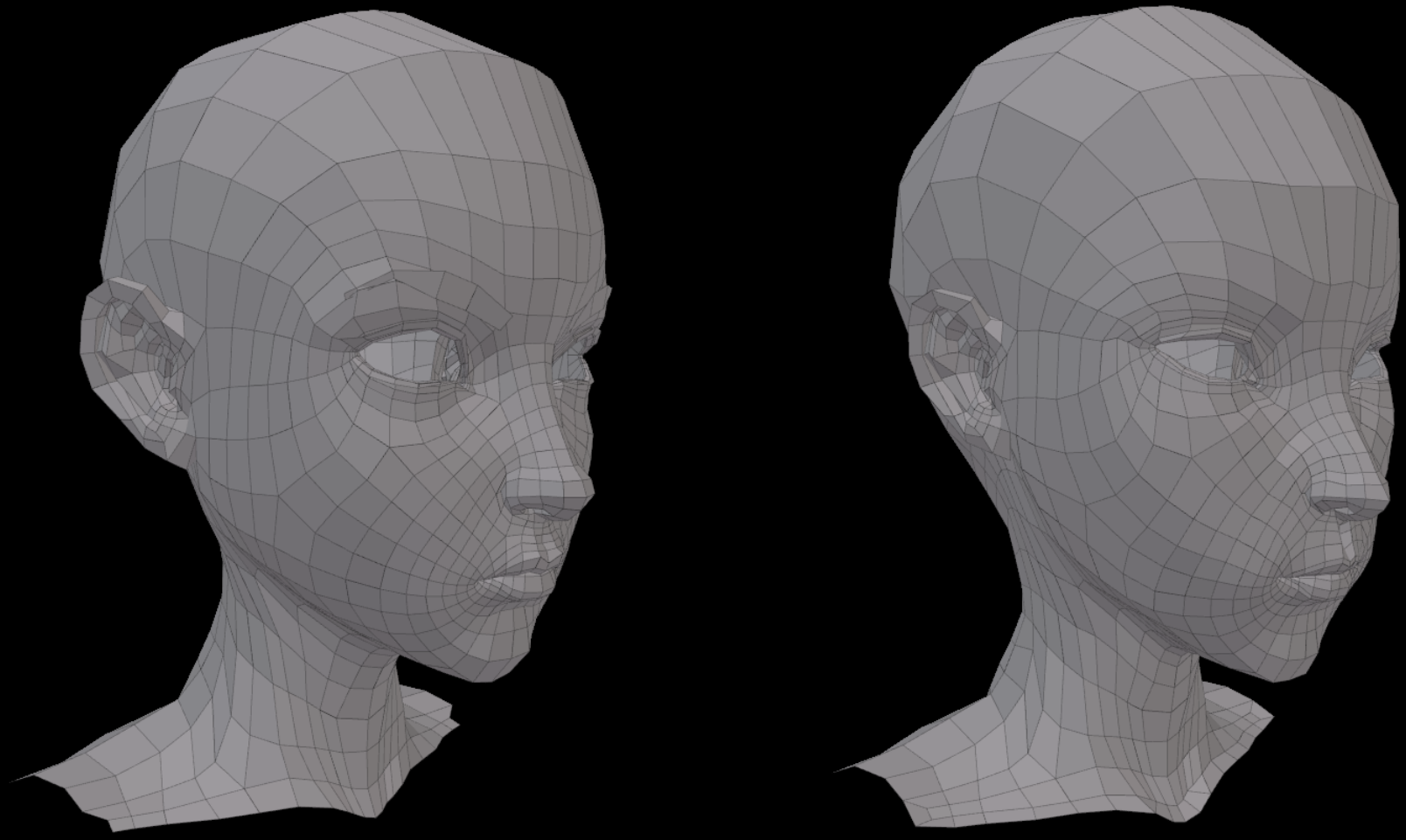
[williamson 2010, nyman 2010]



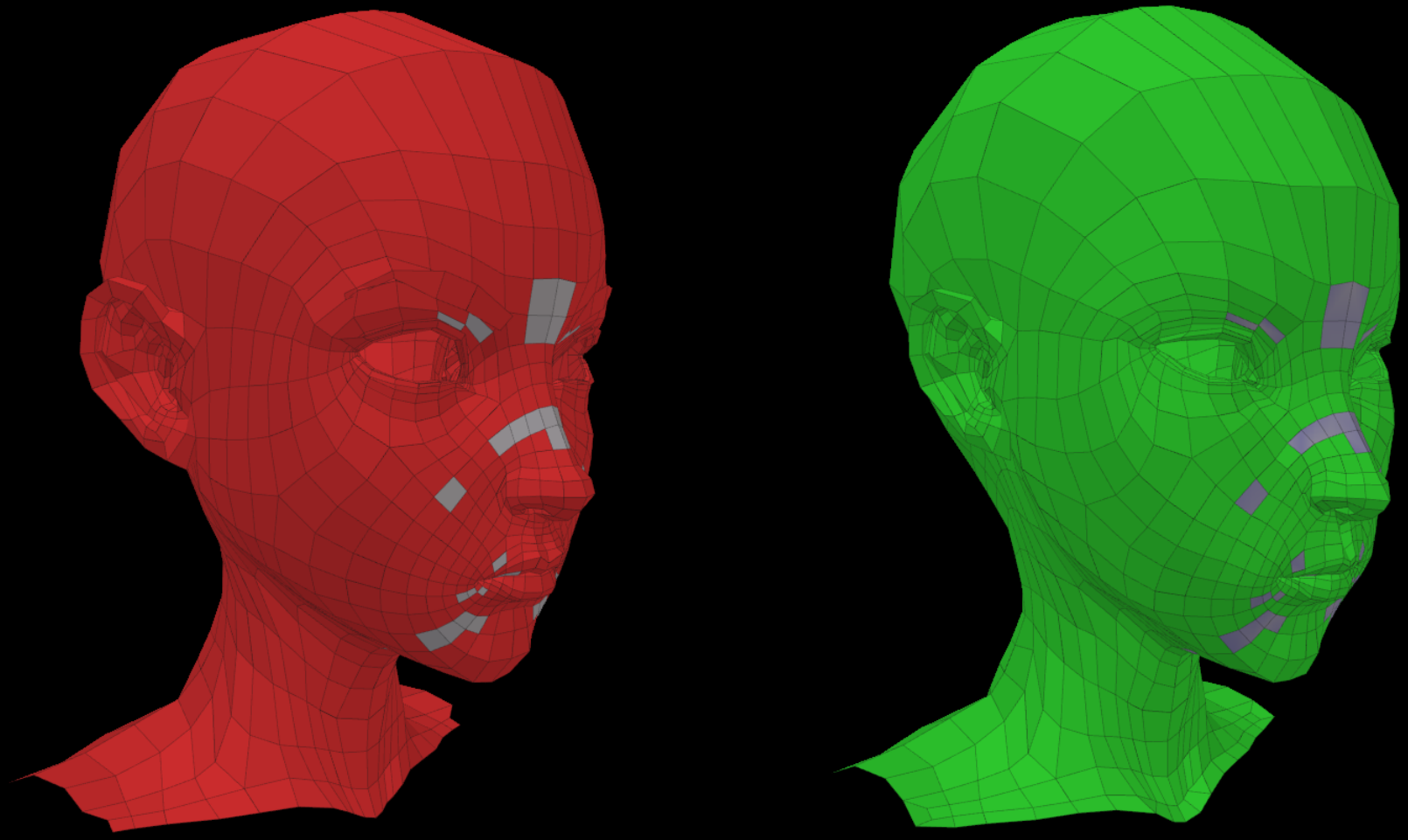
[kuhn 2012]

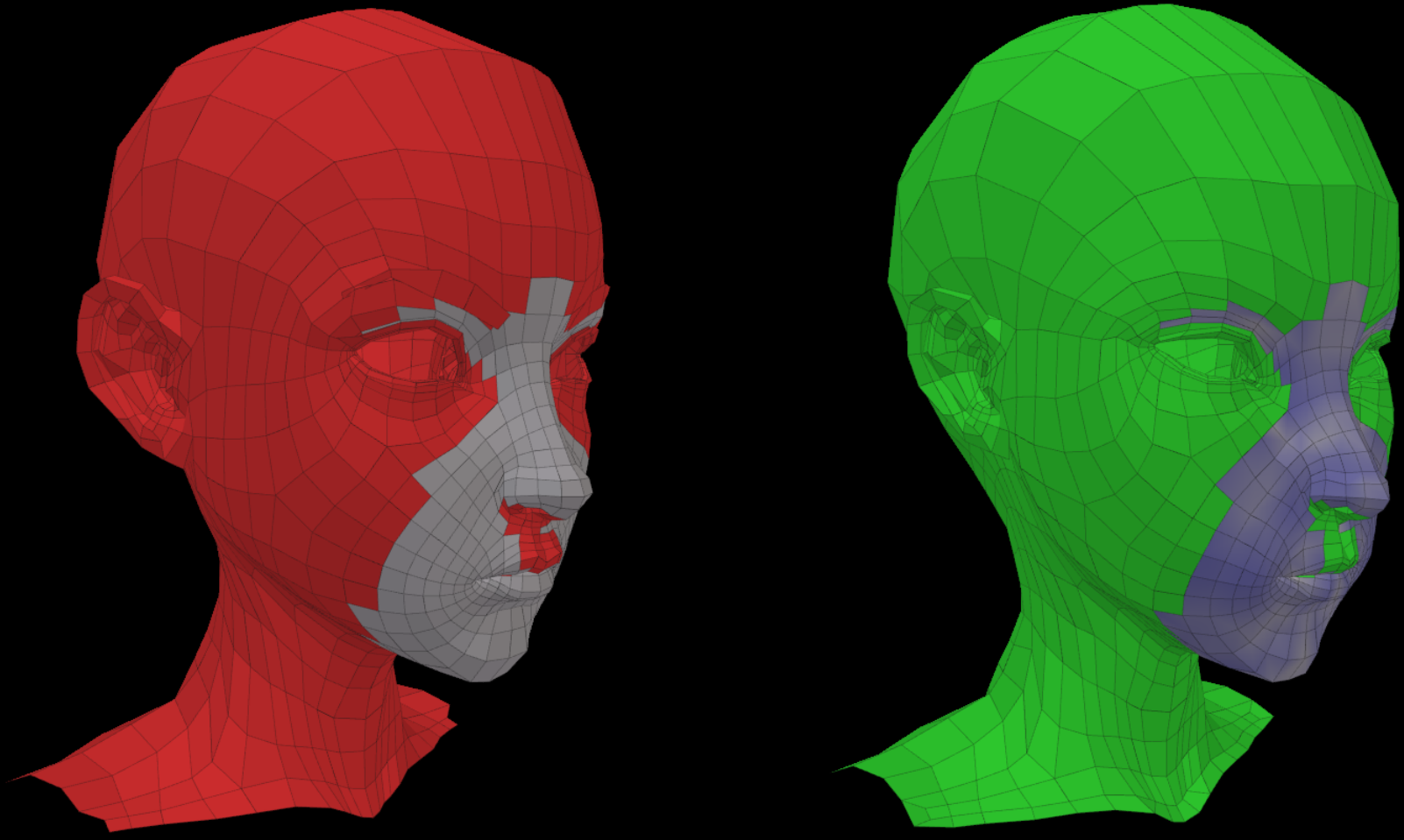
cost metric $\Rightarrow$ cost for matching

matching algorithm ⇒ perform matching

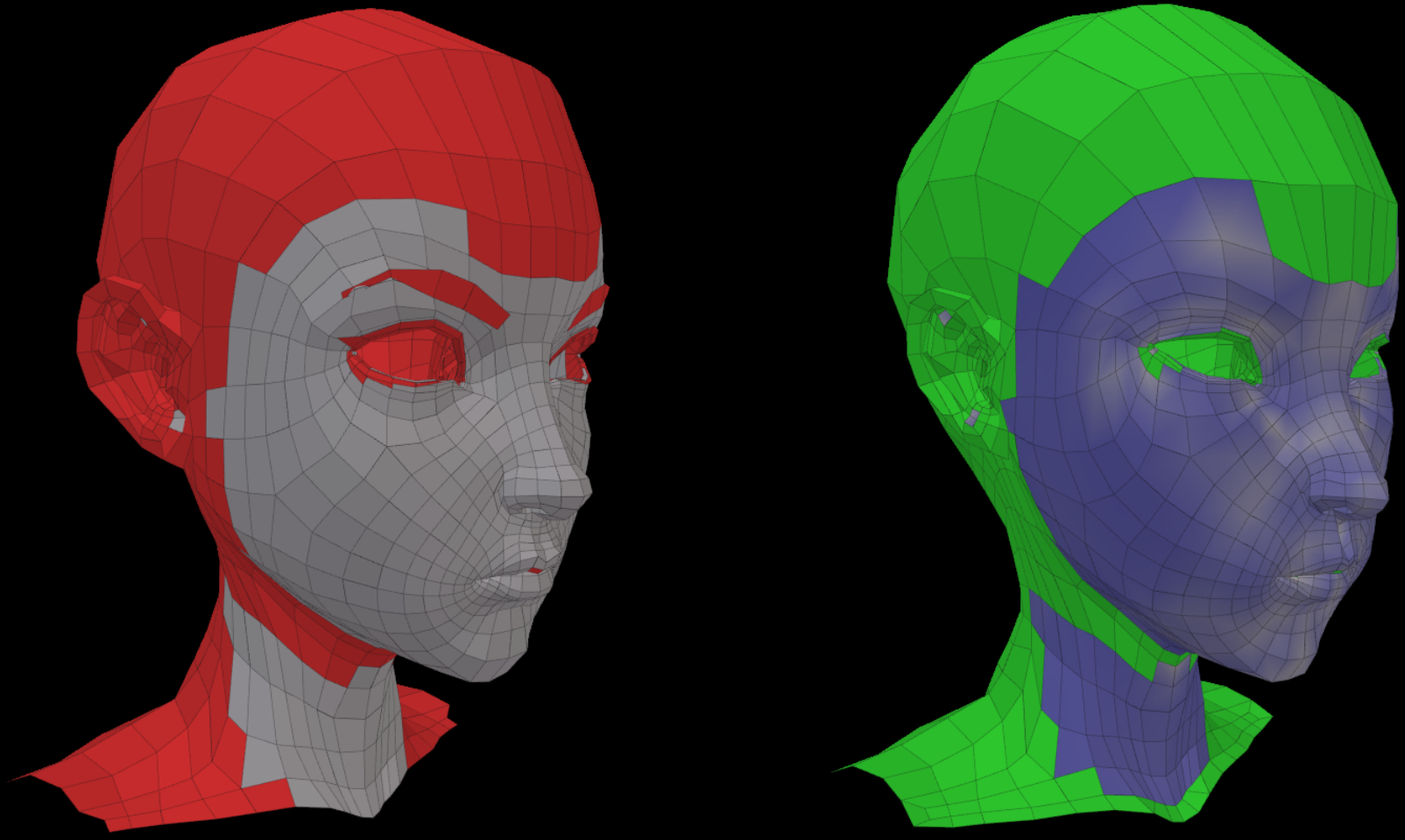


[blender 2011]

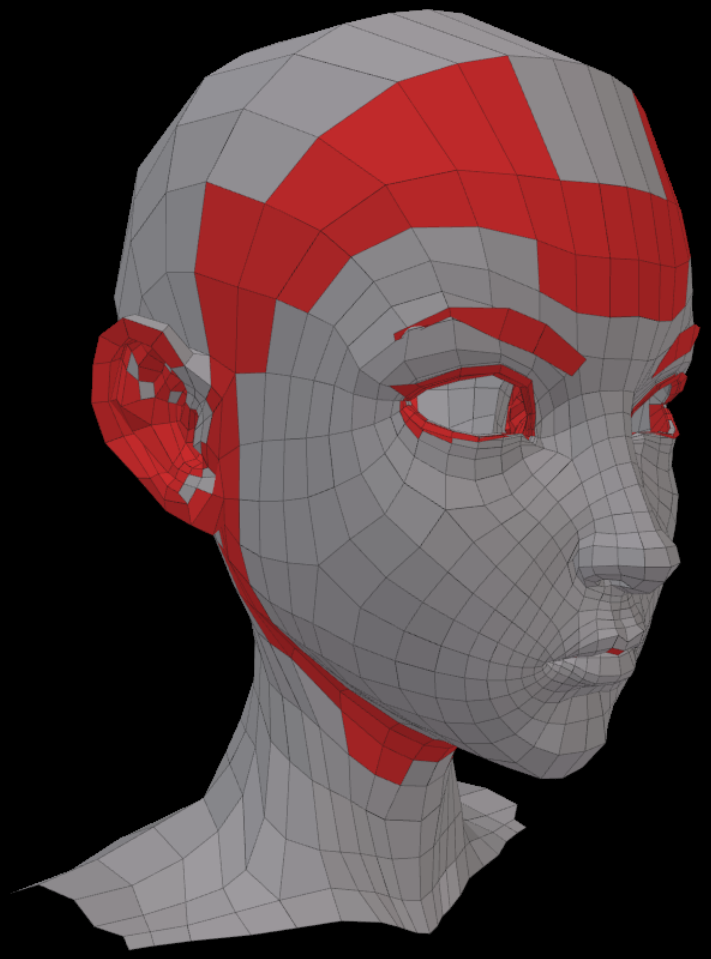


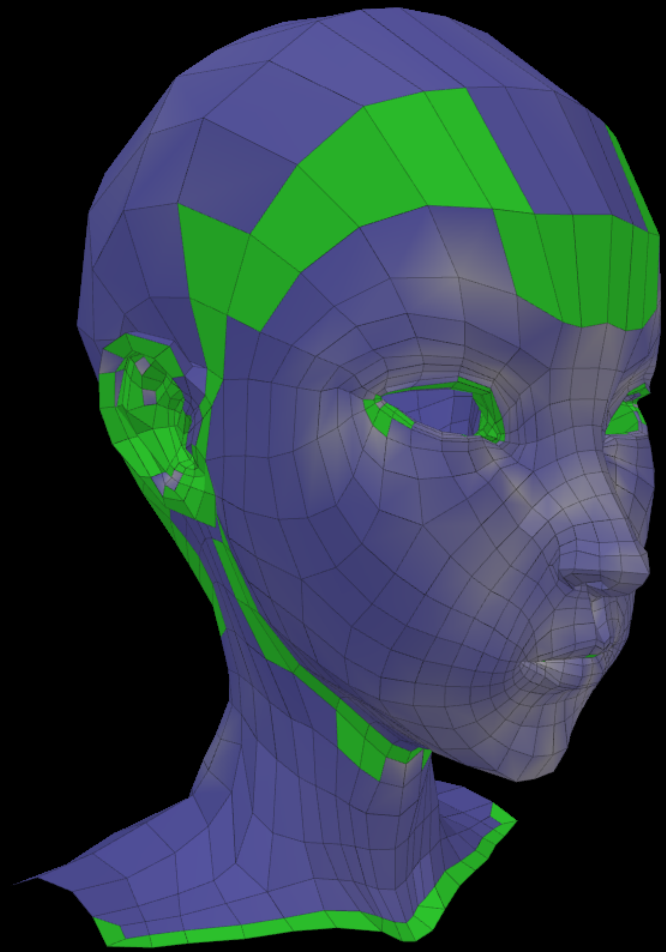


[blender 2011]

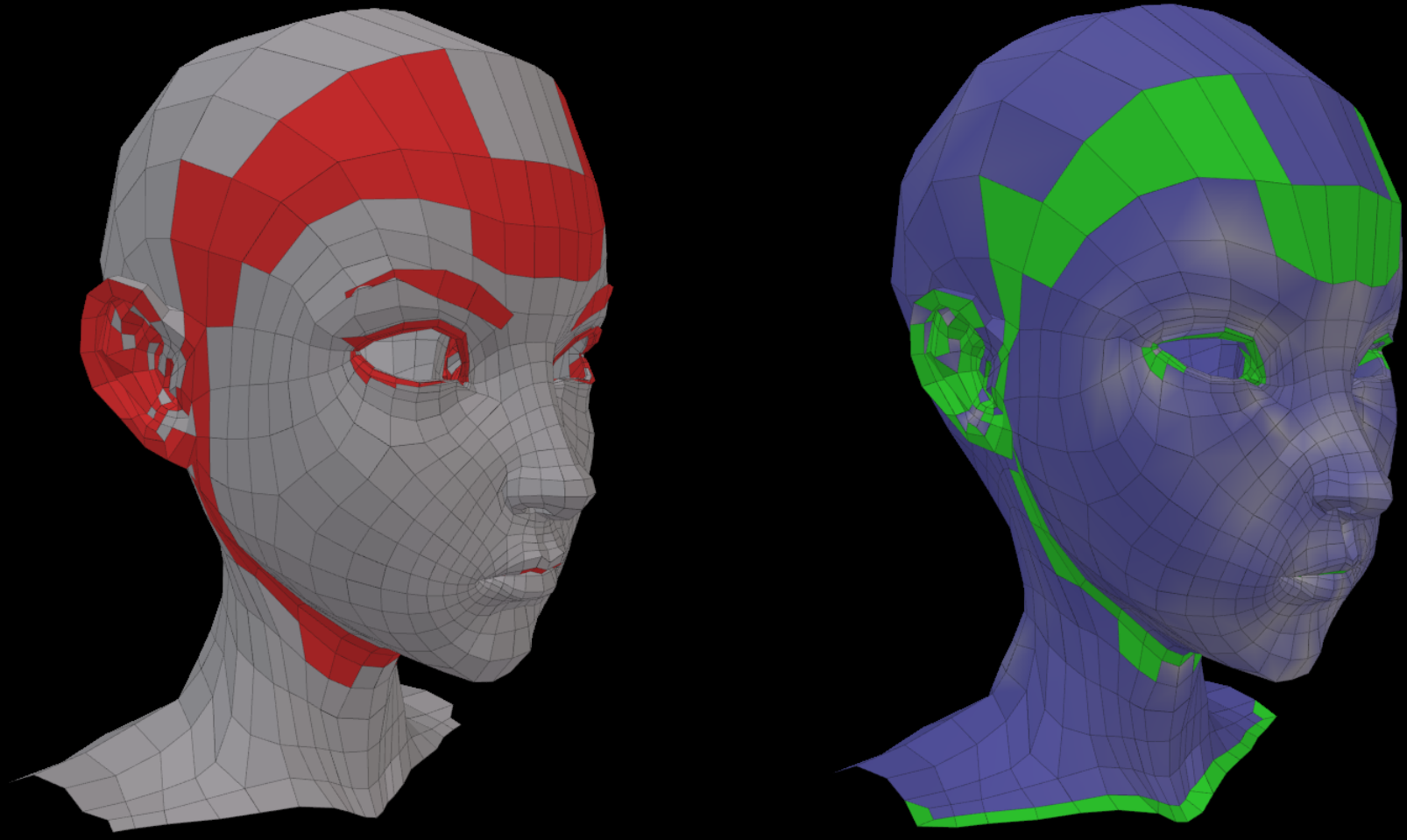


[blender 2011]

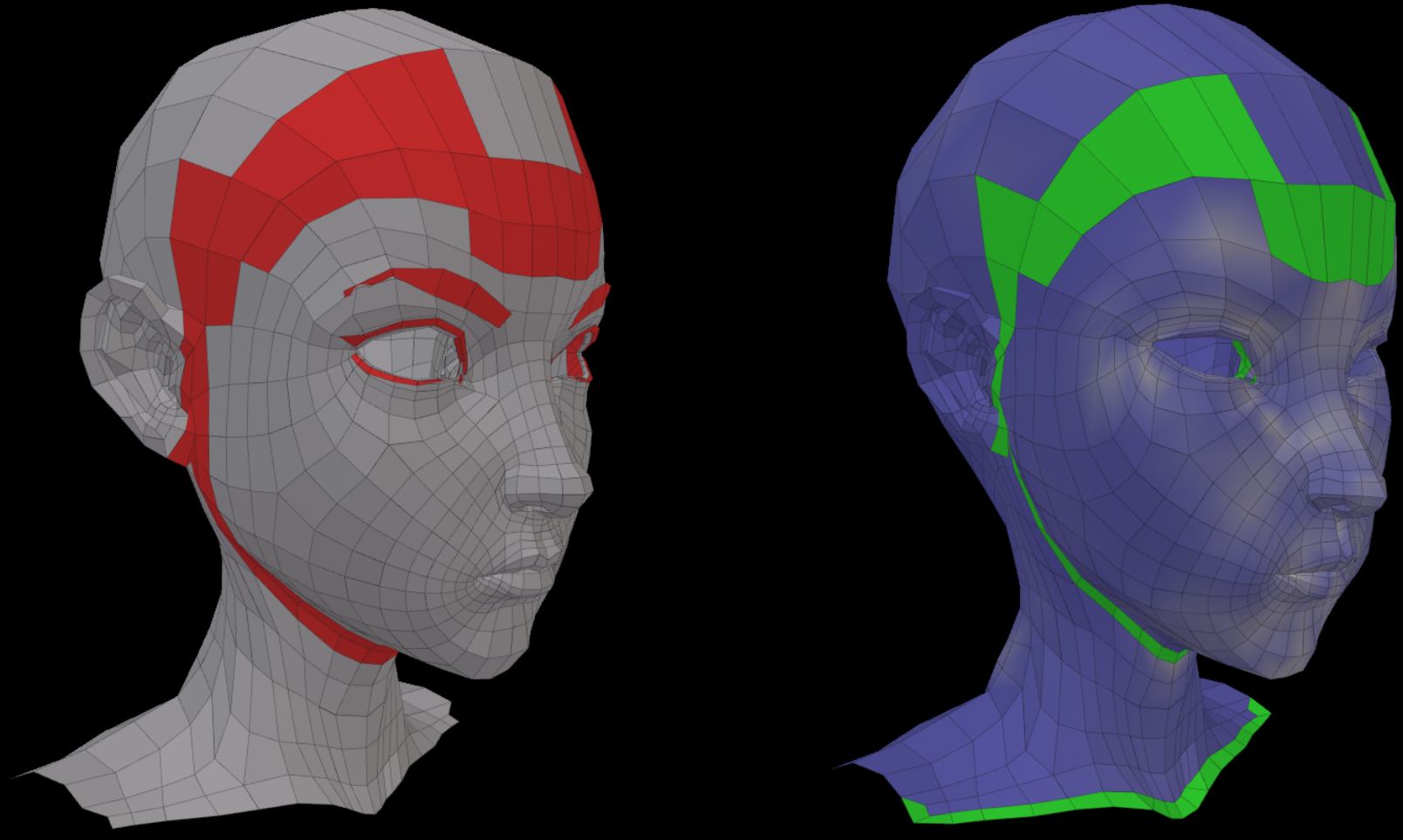




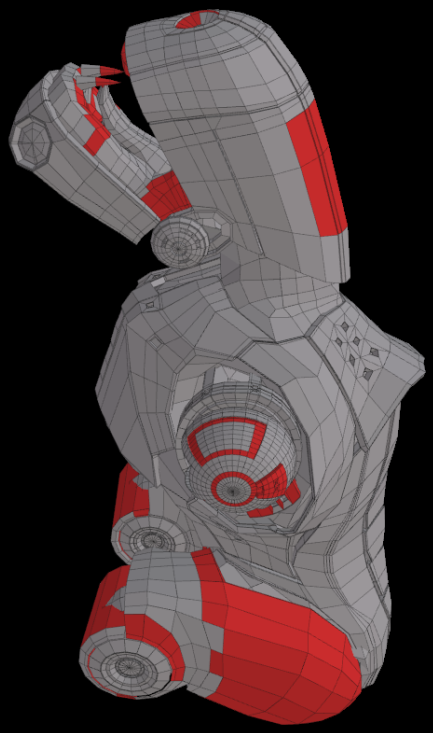
[blender 2011]

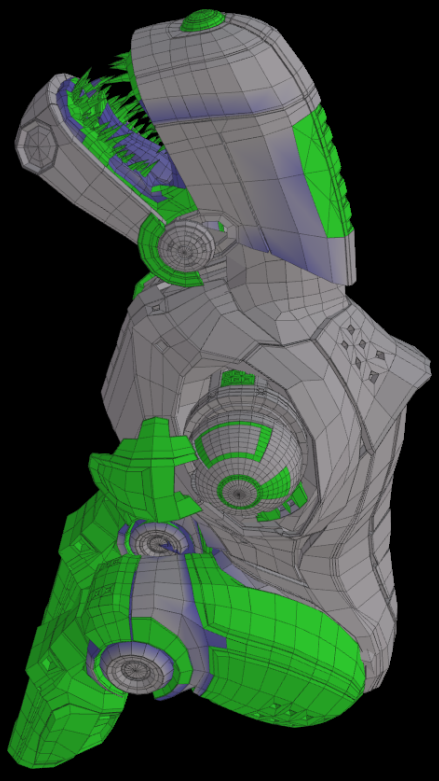


[blender 2011]

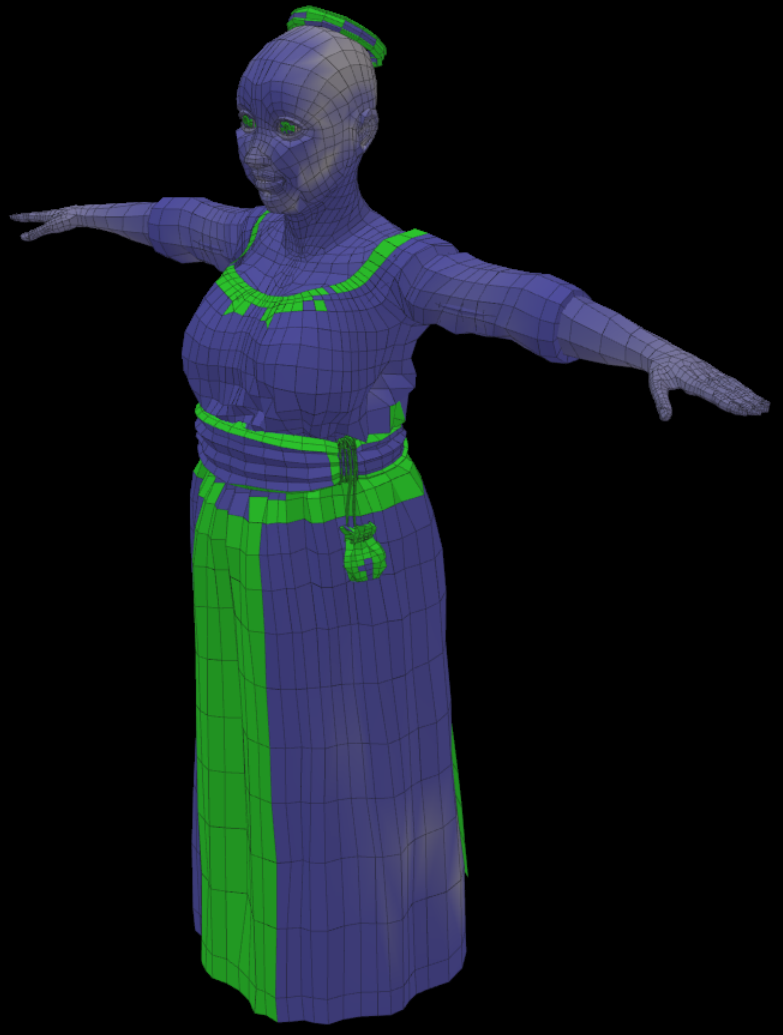


[blender 2011]

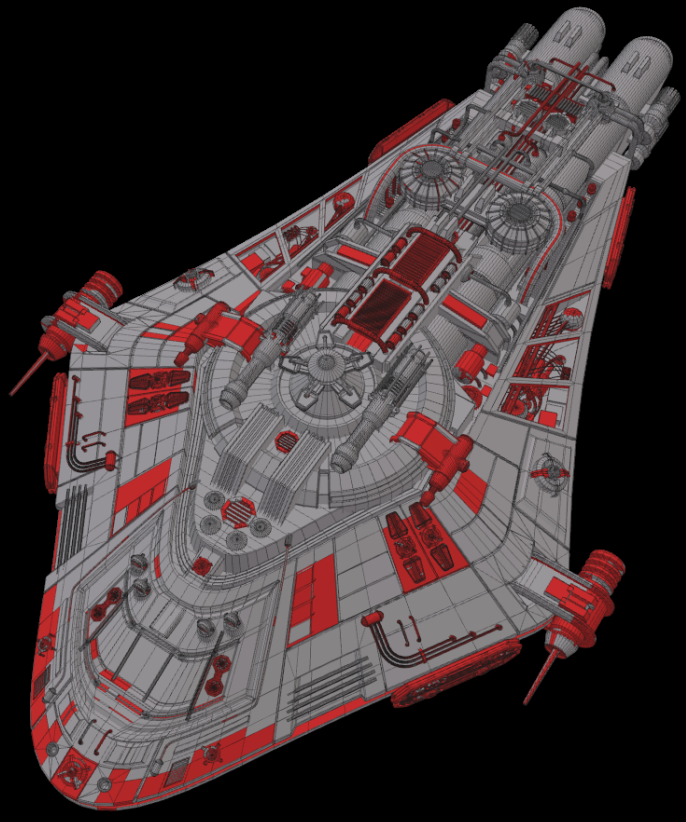


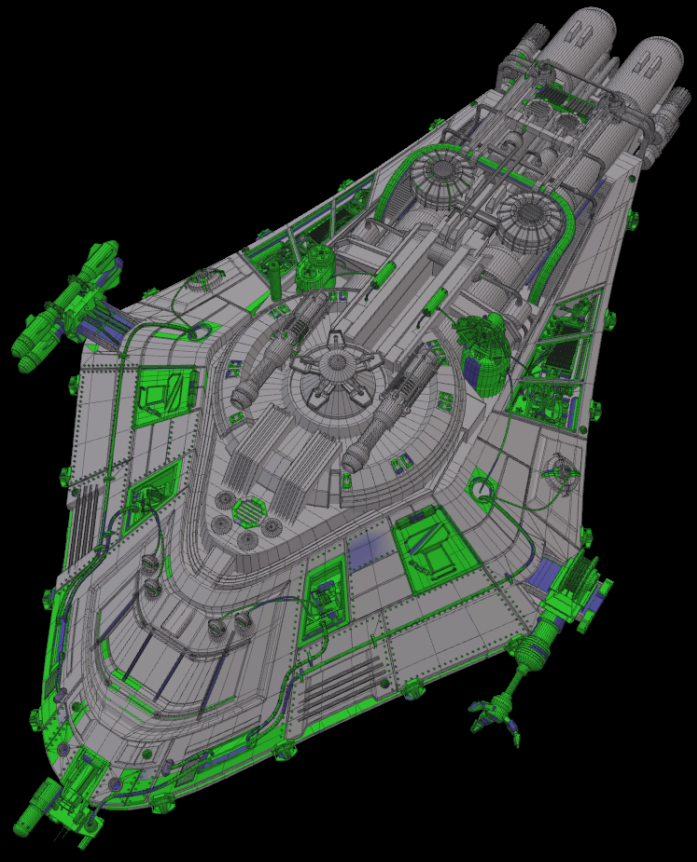


[goralczyk 2008]



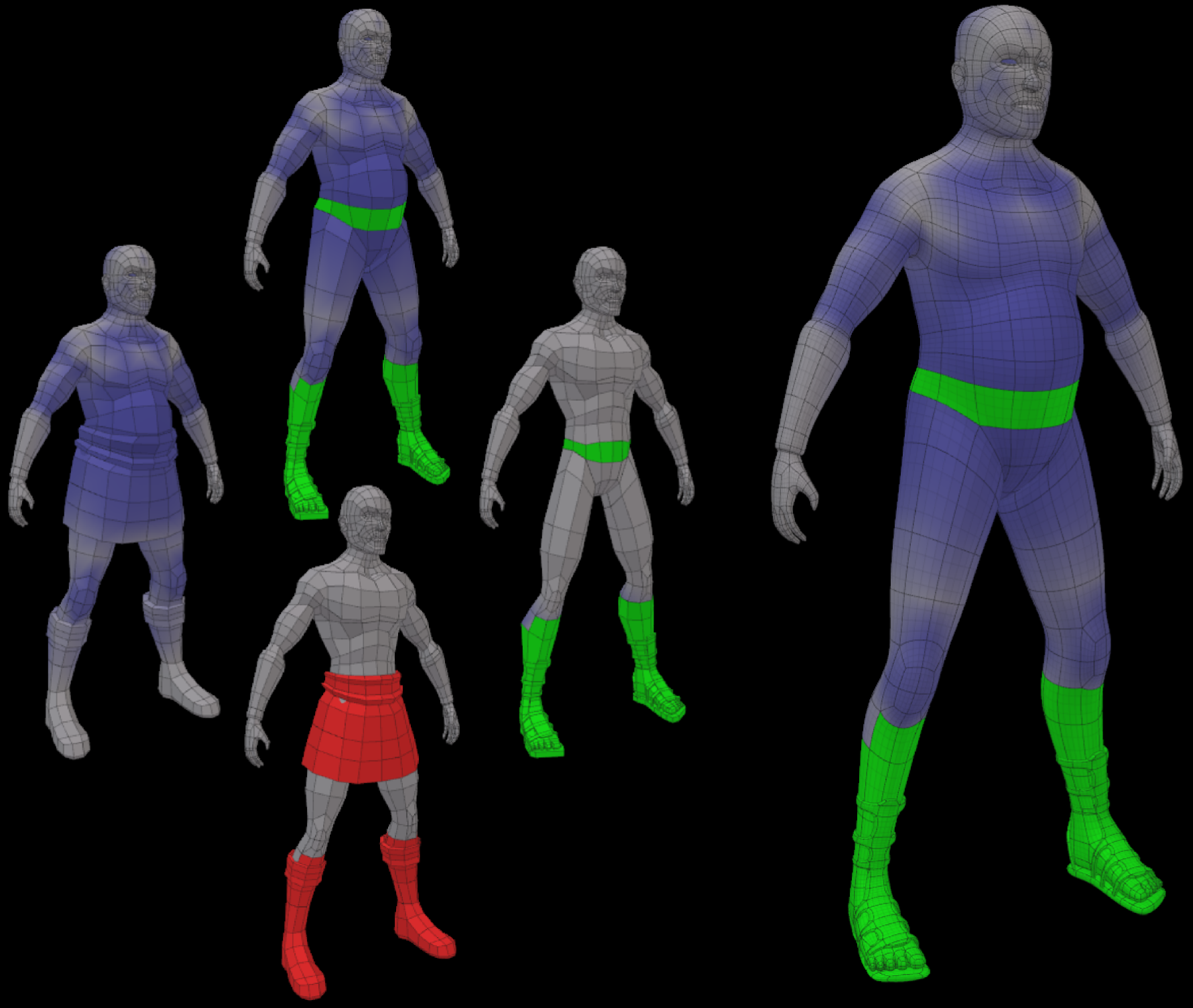
[williamson 2010, nyman 2010]





[kuhn 2012]

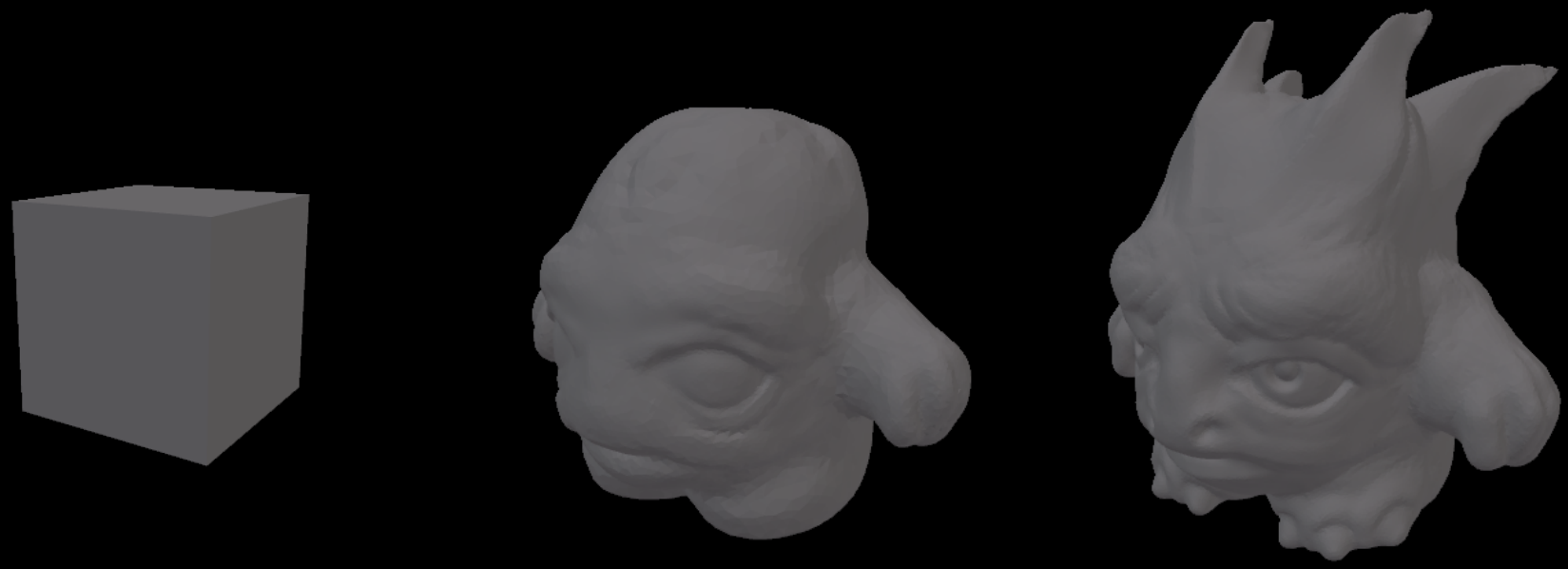
[vazquez 2009]

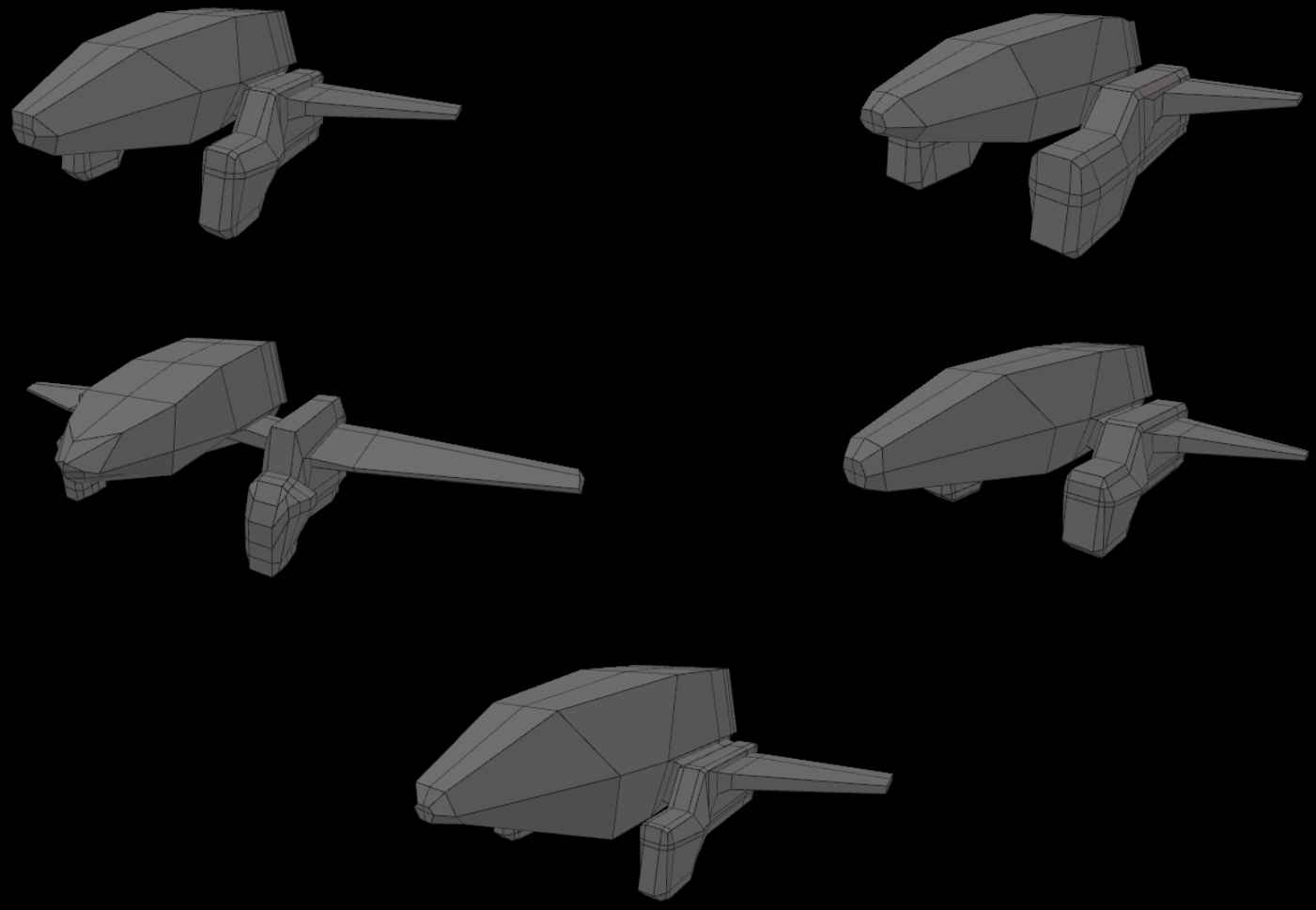


[silva 2011]

meshflow : interactive visualization of mesh construction sequences

meshgit : diffing and merging meshes for polygonal modeling





on-going; need modelers!

thanks!

collaborators : fabio pellacini
brandon kerr
jiawei ou

artists : jonathan williamson
pablo vazquez
andy goralczyk
many others

funding : nsf
intel
sloan foundation

thanks!

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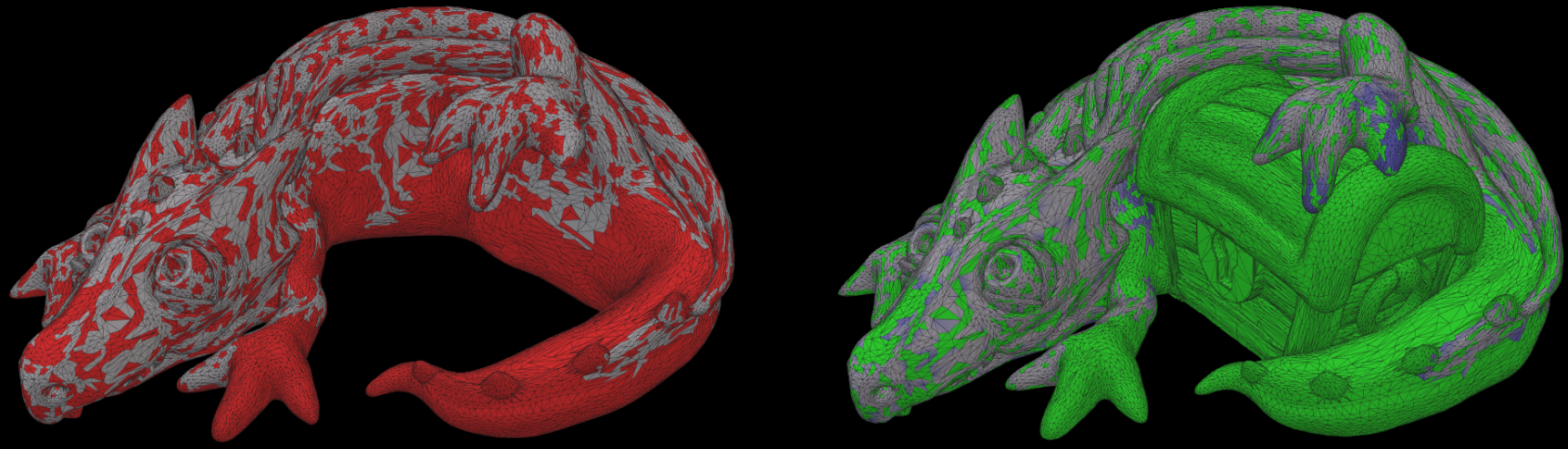
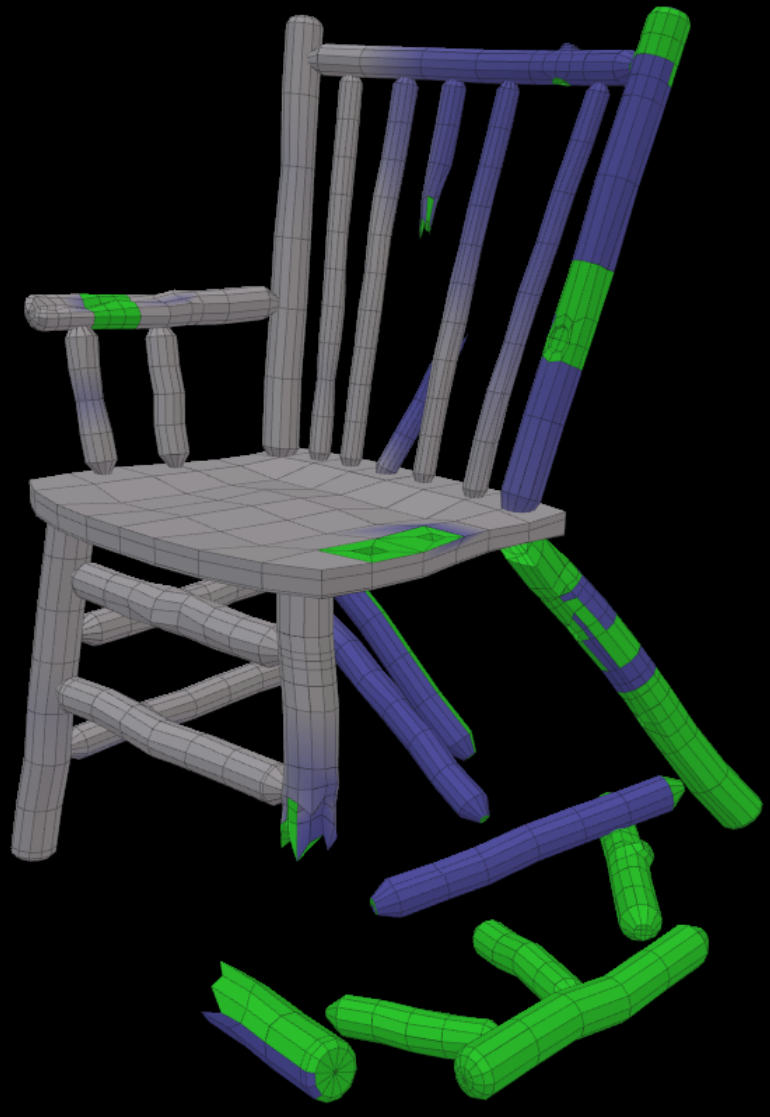
@gfxcoder



[Böhler 2012]



[Lumpycow 2010]