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Independent Study and Mentorship

26 March, 2018

Retopologize  
Assessment 11: Research

**Date:** December 19, 2018

**Subject:** Retopologizing

**MLA Citation:**

Sanden, Henning, and Morten Jaeger. "Retopology for Beginners in Maya." YouTube, YouTube, 29 Jan. 2018, [www.youtube.com/watch?v=xpDWta5O3n8](http://www.youtube.com/watch?v=xpDWta5O3n8).

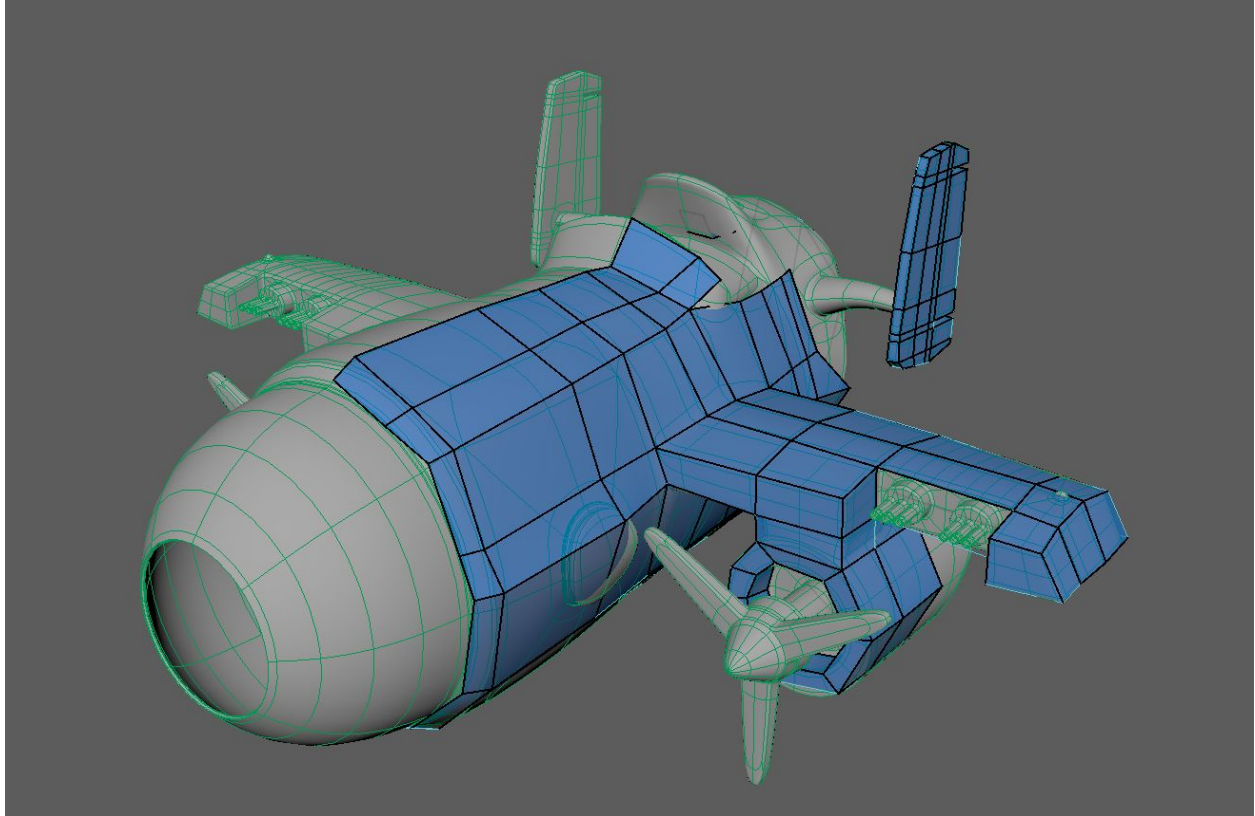
Retopologizing is an important concept for 3D modeling for video games and virtual reality in order to create a lowered polygon count on a model. The foundational idea is to take a model with bad topology and a high polygon count and recreate the model using retopologizing tools. This process has three main concepts including the retopologizing tools, topology, and the polygon count.

The most important part of retopologizing is the new topology that is created to replace the original high polygon retopology. The topology requirements will depend on the needs of the entire project and will usually use all quadrangles and have clean edge loops that allow for fast subdivision of the entire model. This idea can be seen in CG when studios create high and low poly versions of the same model and one goes to rigging and animation while the high poly

version is used in the final shot. This allows for computers to run well while the quality of the final product is not compromised. The topology requirements depend most significantly on the deformations that will take place on the model. For example, characters have heavy amounts of deformations that need to take place due to the motion they need to achieve in all of their actions. Characters are also heavily rigged in order to give animators the most control possible over the acting decisions that take place in a scene. Thus the topology needs to be designed in a way that allows for the technical development of the shot through the rigging department. The retopologizing style of a face is based upon what parts of the face need the most support in regard to animating the character. One of the styles of topology that is quite common in faces is using concentric faces around the eyes and mouth of the character as this supports a lot of animation technique. Another style of topology is a grid-based system over the face. Yet another is a combination of the two systems which involves creating concentric circles around the eyes and mouth that naturally lead into a grid over the rest of the body. All of these styles support different portions of the faces for animation, so the modelers usually receive direction over what the topology of their model should look like from the rigging and animation departments.

As a whole retopologizing models is significant to lots of work in the animation industry and is a good skill to have for modeling. In the future, I will mainly be using Maya to retopo my models with the Quad Draw toolset and live surfaces. The live surface feature is particularly significant to work for retopologizing as it allows for the quad draw mesh to conform to the base mesh. This conforming is improved by the relax brush which conforms individual vertices to the base mesh. There are multiple other features that speeds up a retopo workflow including extend edge, extend loop and move vertices which allows for rapid expansion of the updated mesh. This

allows for the new topology to conform to the old topology. Overall this is a skill that will benefit me greatly in the future.



Notes:

- Quad Draw tools in Maya for retopo work
  - Use the live surfaces to have the vertices, lines, and faces conform to the model.
- When working in retopology start out very large so that there is plenty of room to work with.
  - This also keeps the polygon count extremely low so that polys are only added when needed for the model.
- When making decisions about topology try to maintain all quadrangles and add loops and resolution for deformation or silhouette.
- The model above is the process of quad drawing on top of a preexisting model