

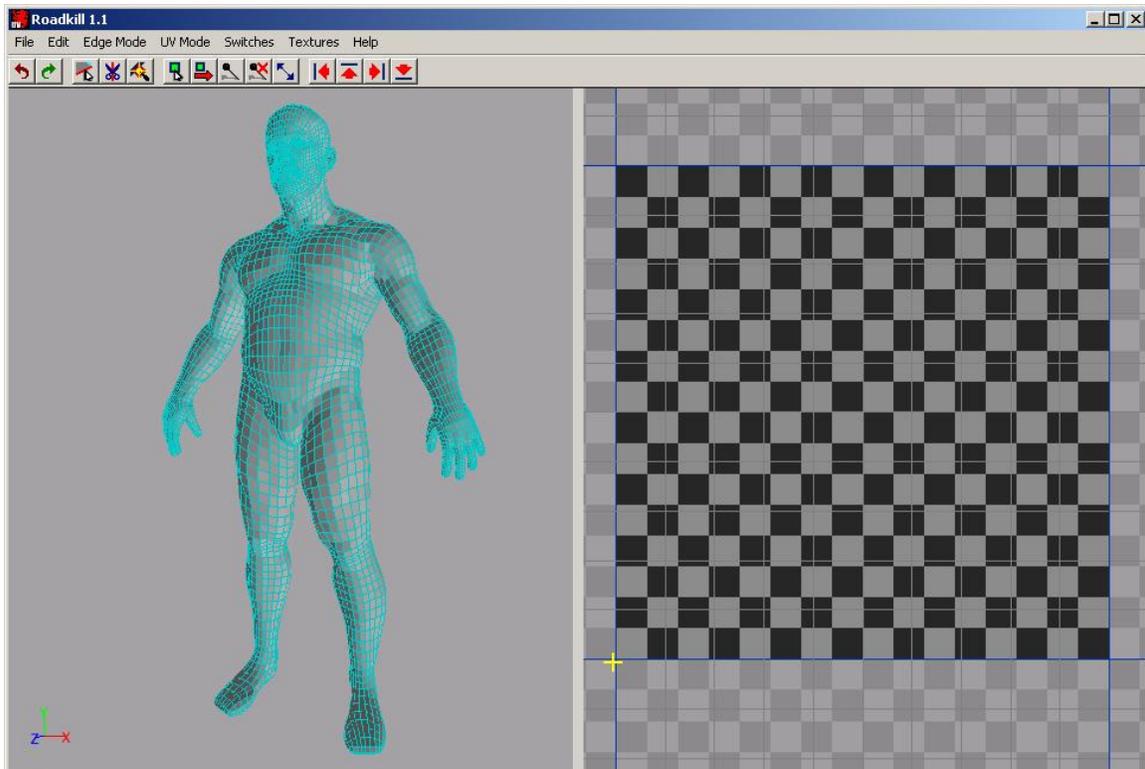
Roadkill 1.1

Unwrapping a human body

What follows is a quick tour of some of the more advanced features of Roadkill 1.1

We have a human body mesh (7680 polygons) in our art package that we want to unwrap. Export this mesh as an OBJ file then load it into Roadkill. Alternatively use the plug-ins for Maya, Max or XSi to send the mesh to Roadkill with Live Unwrap ticked.

You should see something similar to this.



To move the mesh in the 3D Object window

ALT + Left Mouse Button + Drag Mouse to Rotate

ALT + Middle Click + Drag Mouse to Translate

ALT + Right Click + Drag Mouse to Zoom

Edge Loop Cuts

We need to select some seams to unwrap this mesh with.

I'm going to start with loops around the waist, shoulders, neck, wrists and ankles.

To select edges:

Hit the 'E' key

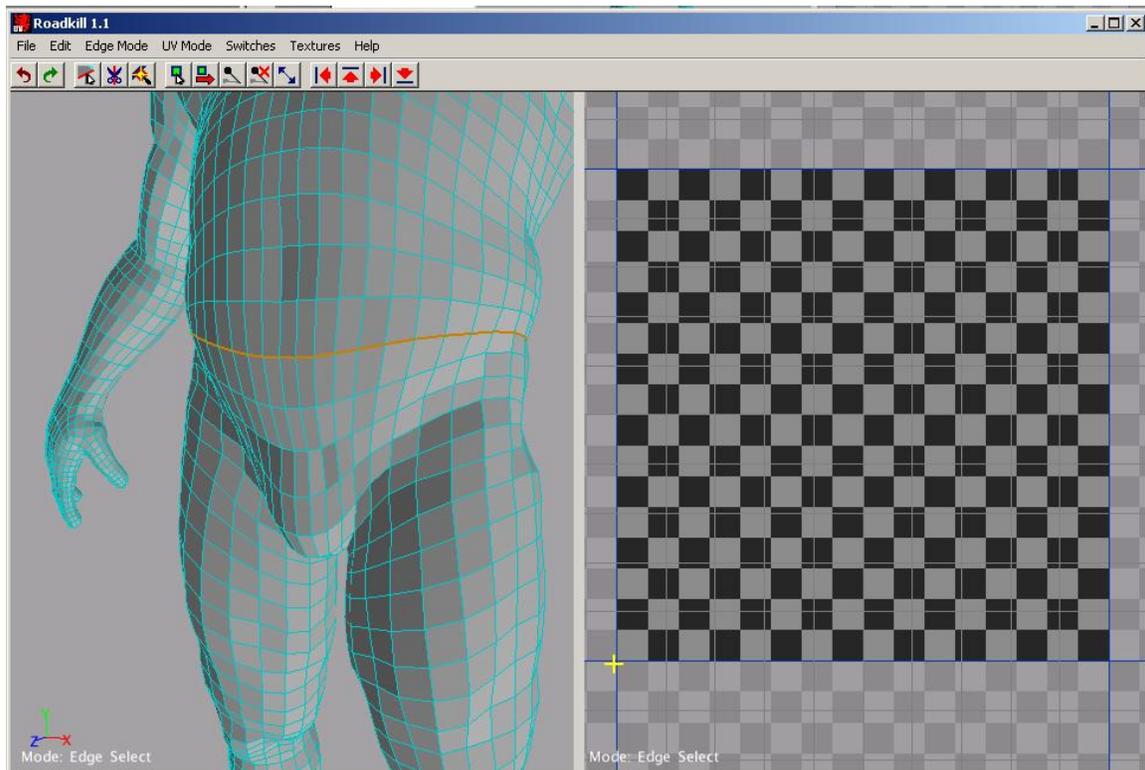
Or Edge Mode -> Select

Or click this icon 

Zoom in on an edge you want to select, I'm going to cut the waist first.

To select an edge loop, on a quad mesh double click an edge.

If it's not a quad mesh, see below for Topological selection.



The selected edge goes orange.

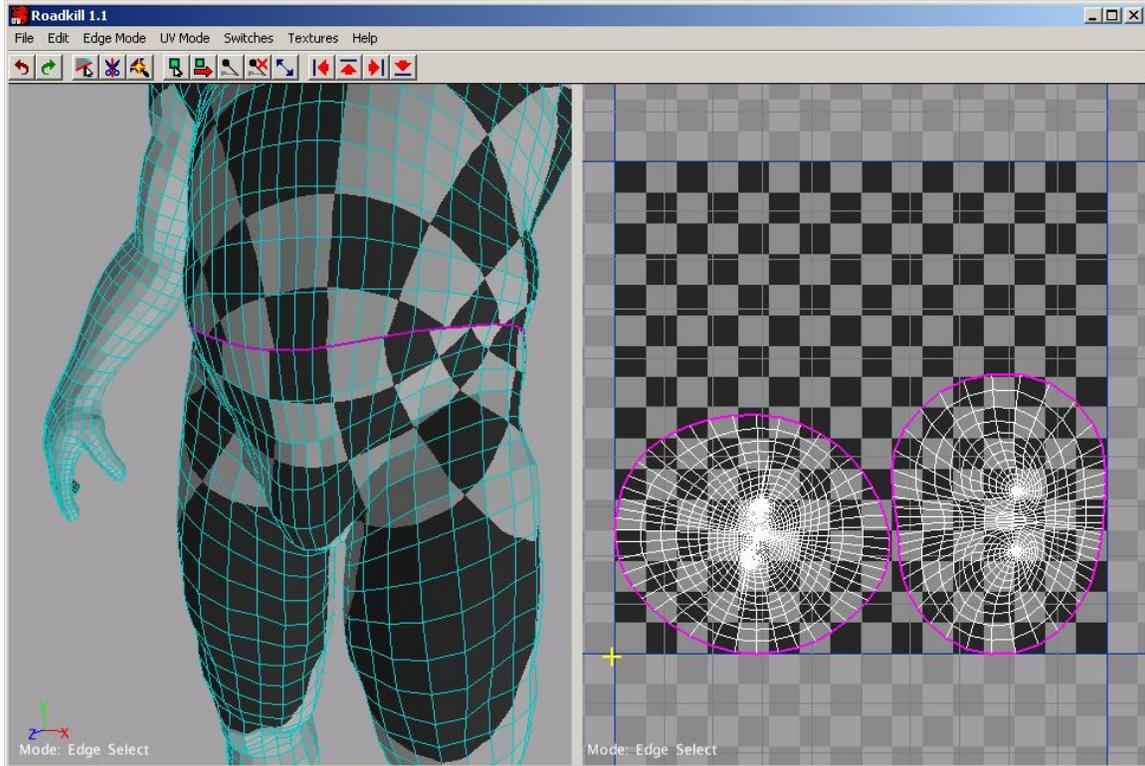
To cut this edge:

Hit the 'C' key

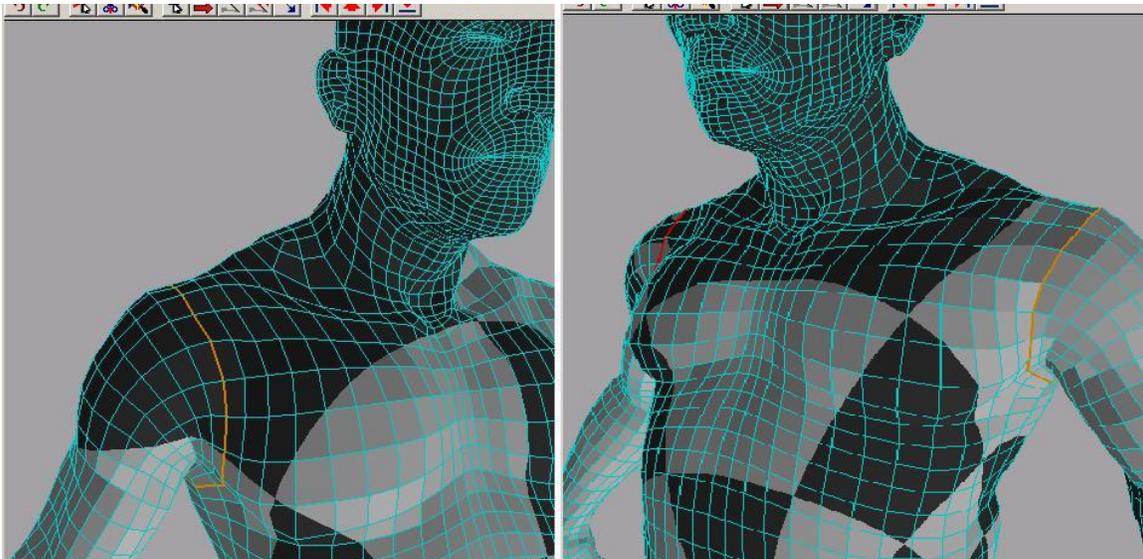
Or Edge Mode -> Cut Selected

Or click this icon 

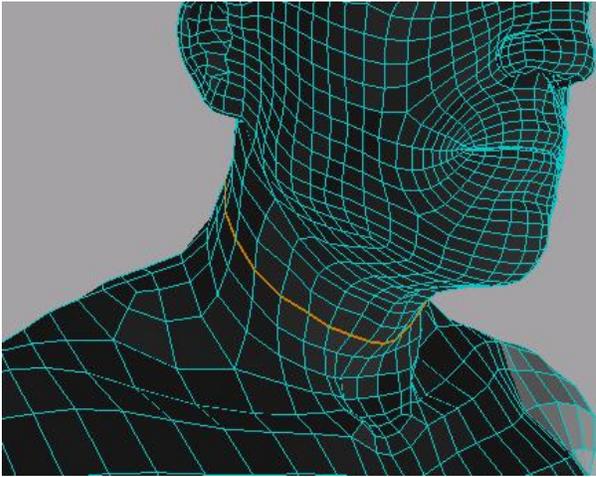
The cut edge goes magenta and after a short while the result of the cut appears in the UV window.



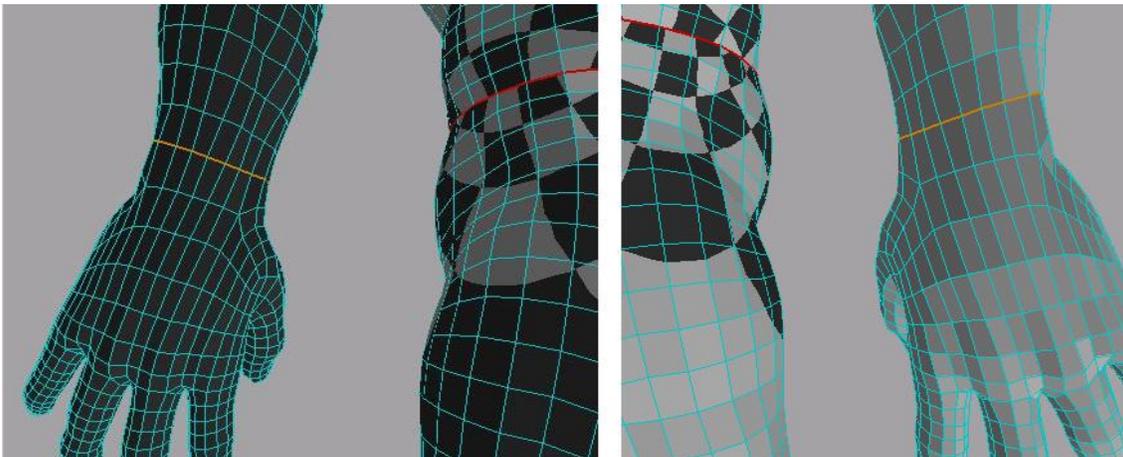
Do the same as above for the shoulders



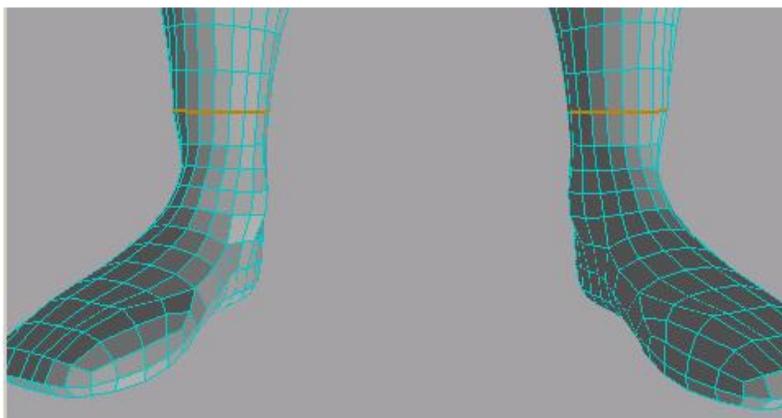
Neck



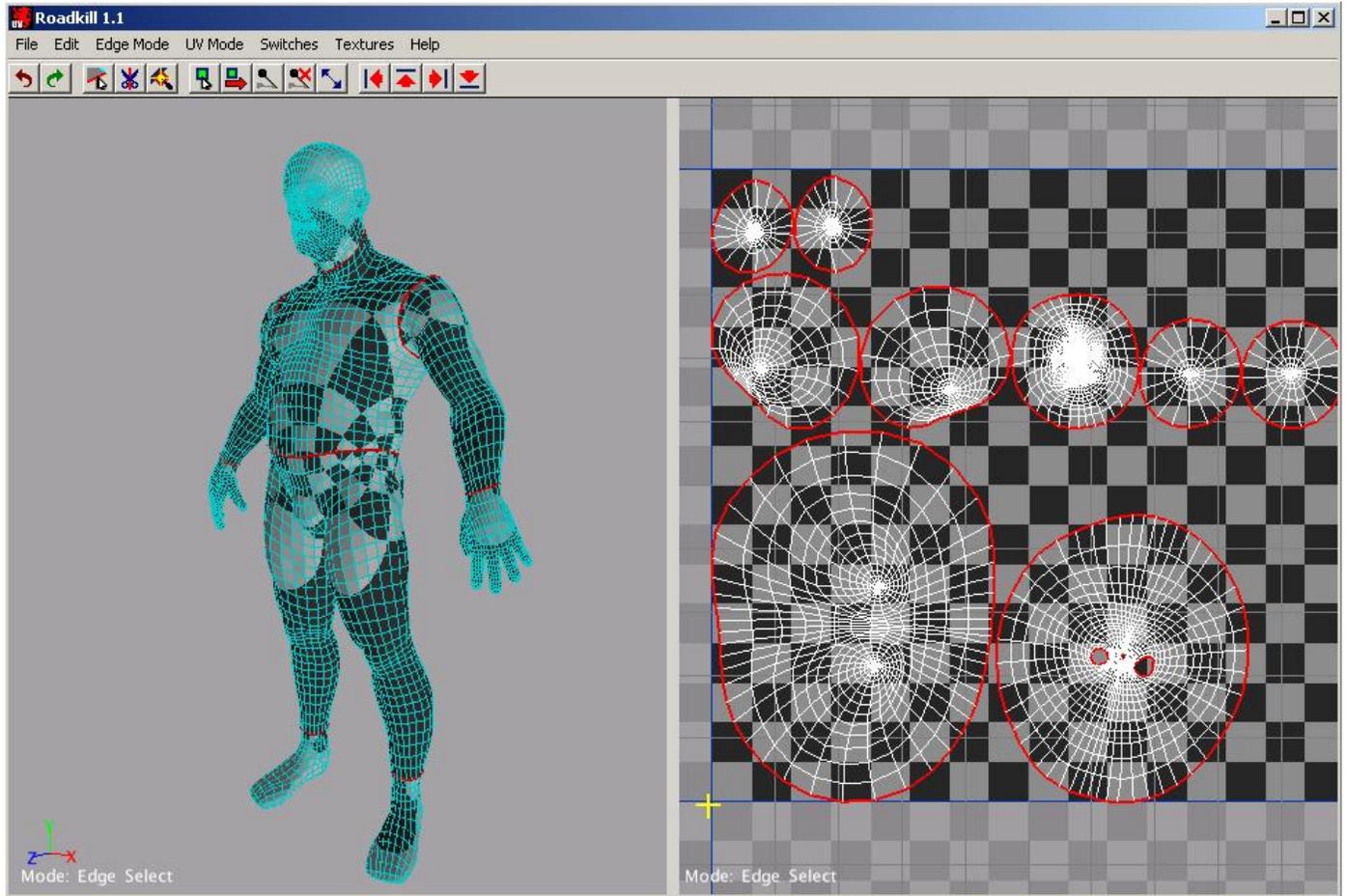
Wrists



and Ankles



This is how Roadkill looks after all the loop cuts:



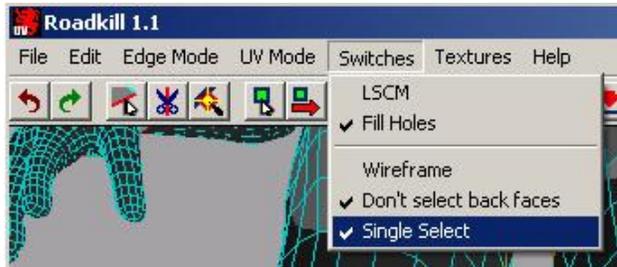
Topological Cuts

Now we need to make some cuts up the inner leg, down the inner arms, down the back of the head and back, round the hand fingers and round the feet.

The best way to do this is with the Topological Edge Selection.

To start, you may find it easier to turn on:

Don't Select Back Faces and **Single Select**



- 1) Select a start edge
- 2) While holding the 'T' key, select a second edge
- 3) The edges join up following the curvature of the object

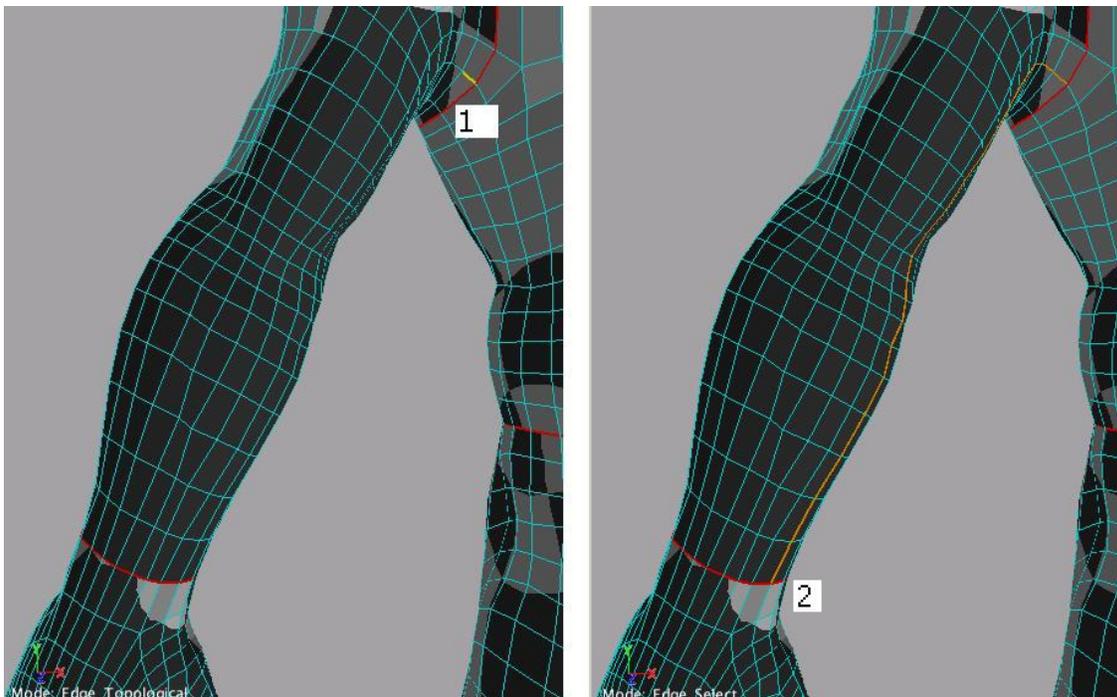
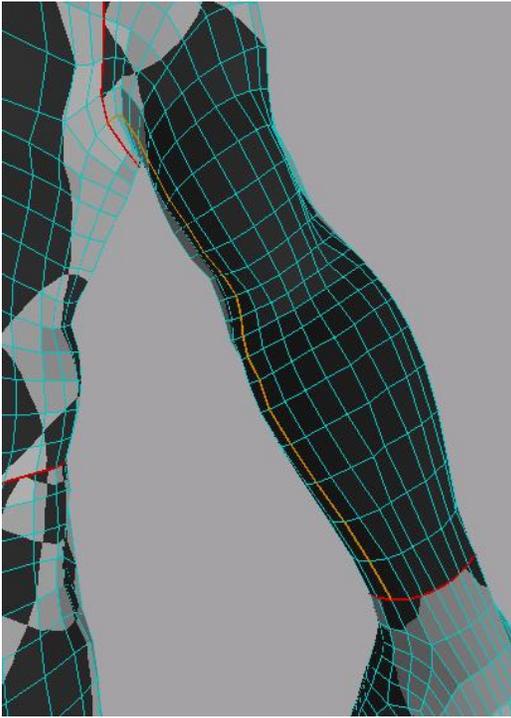


Figure on the left, (1) the first edge has been selected. The T key is being held. Figure on the right, (2) while holding the T key, the second edge was selected. Cut this edge.

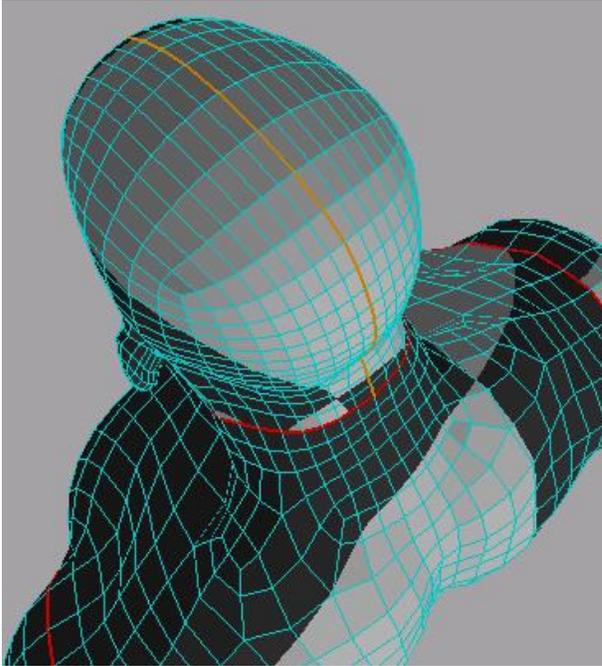
Do the same for the other arm.



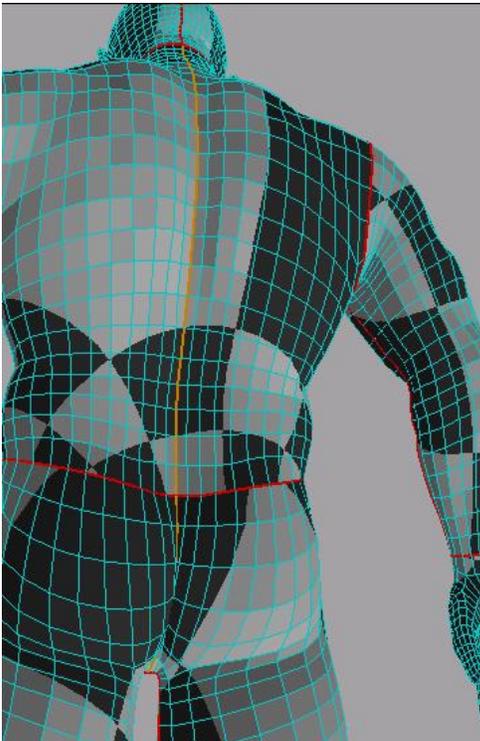
Inner legs



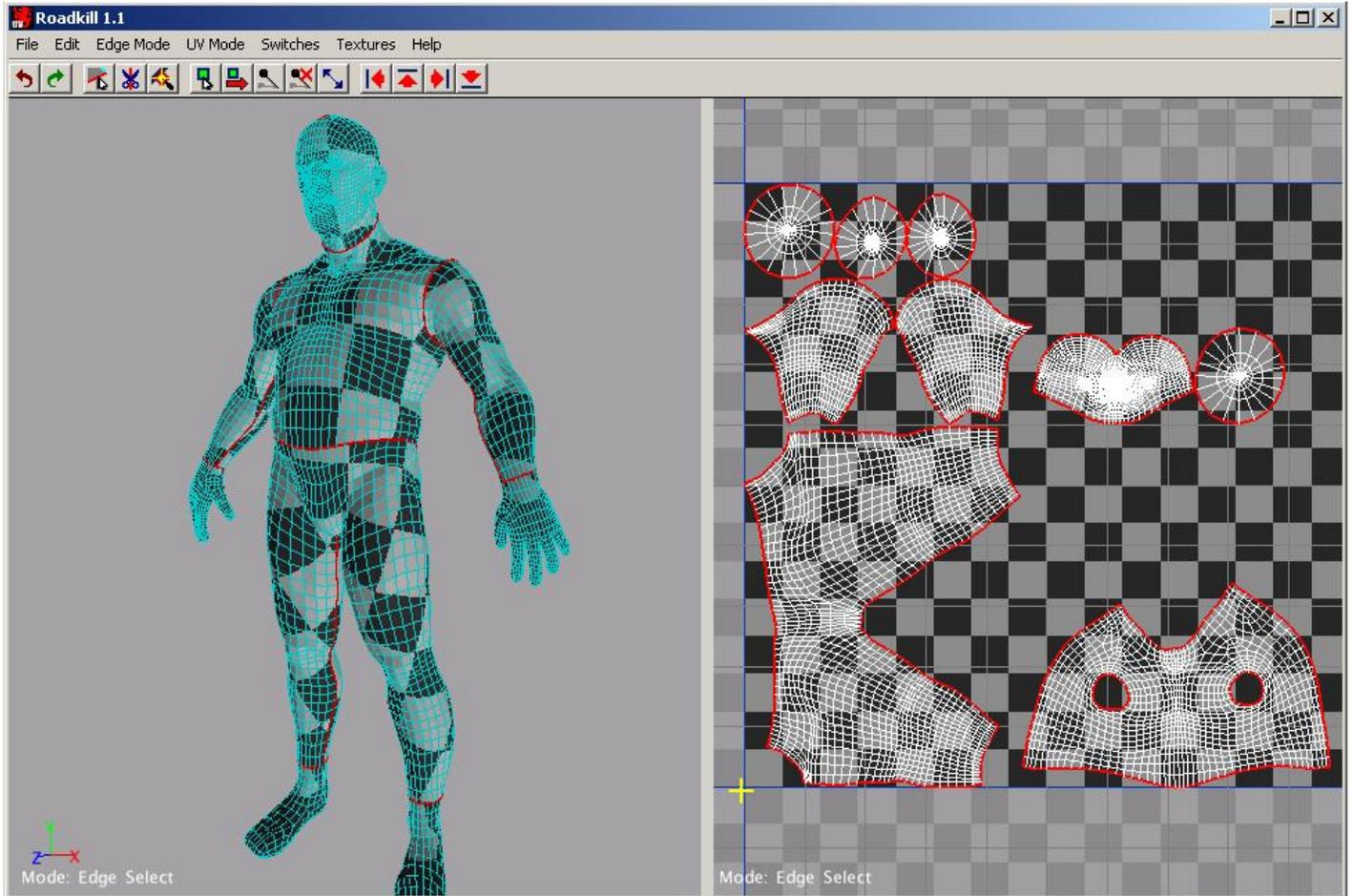
Back of head



And Neck to Crotch



This is how Roadkill looks after the basic topological cuts

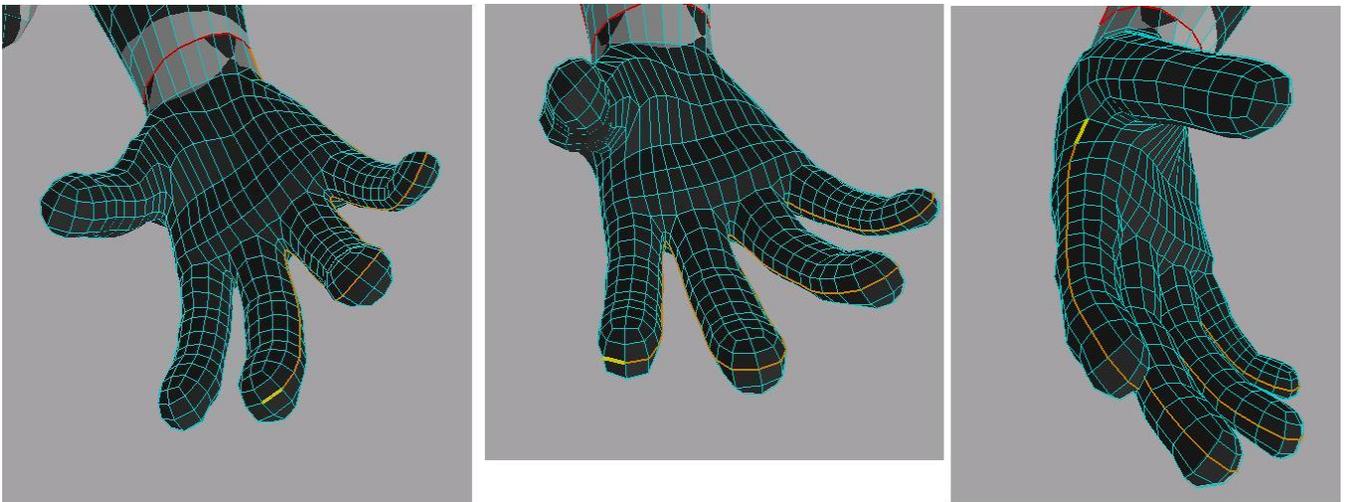
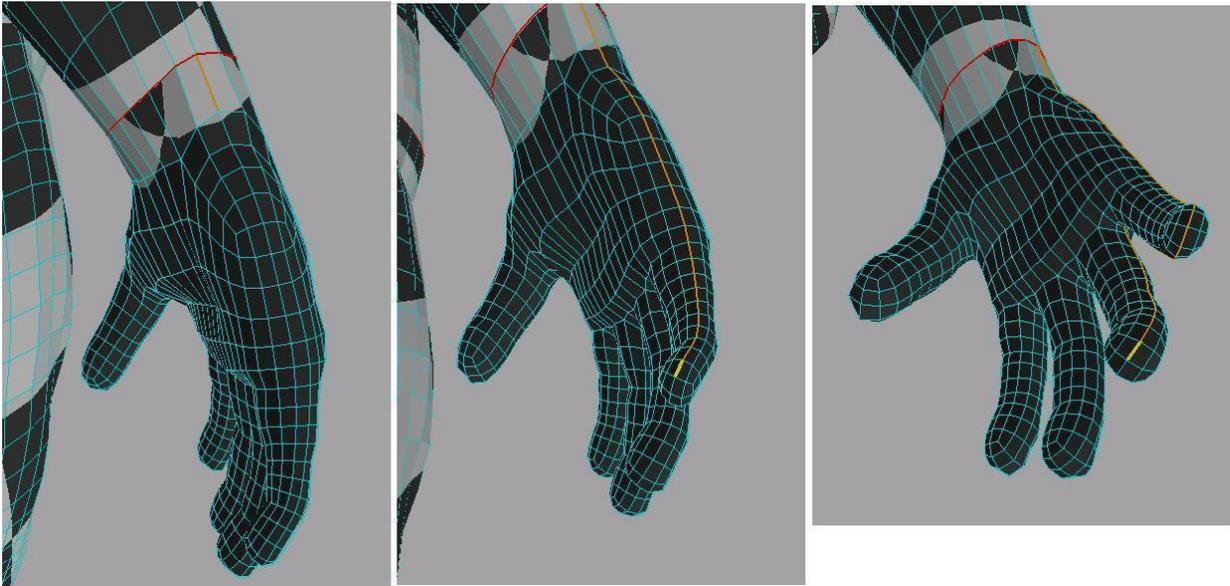


Continuous Topological Selection

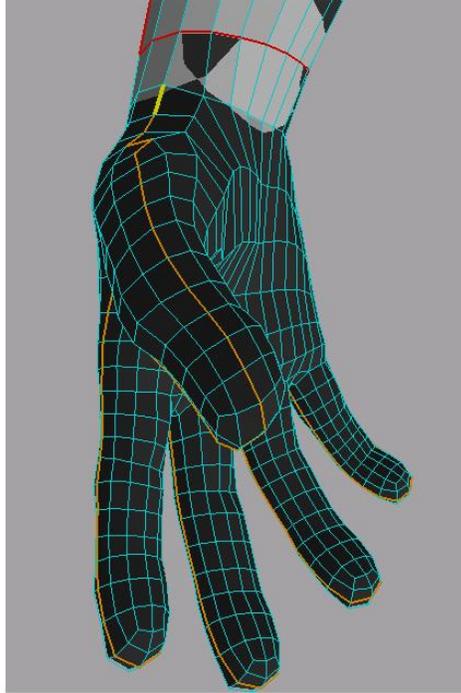
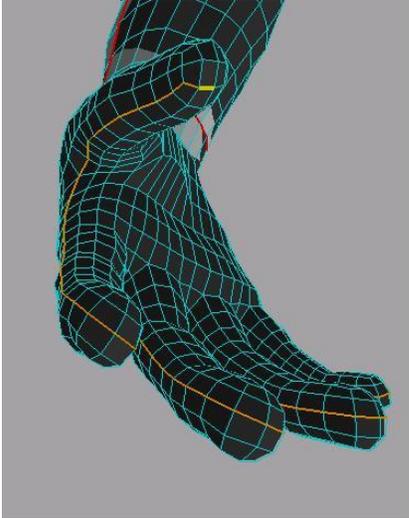
The topological path following isn't good at going around multiple curves. So for working round fingers we have to select topological edges one at a time. After each topological edge selection, the start edge, becomes the last selected edge.

I find it helpful to make the hand the centre of rotation. Select an edge or edges in the hand and hit the 'N' key or Edit -> Centre Around Selected Edges. (Yes I know the mesh moves, I will fix this soon)

Select the start edge



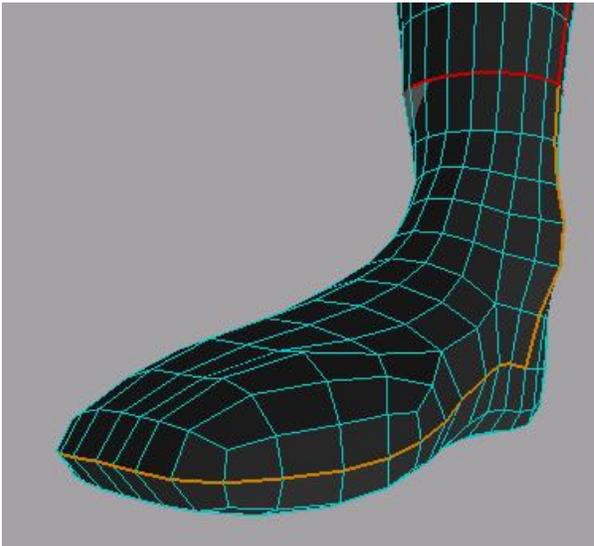
Rotate the mesh. Hold 'T' and work from fingertip to fingertip.



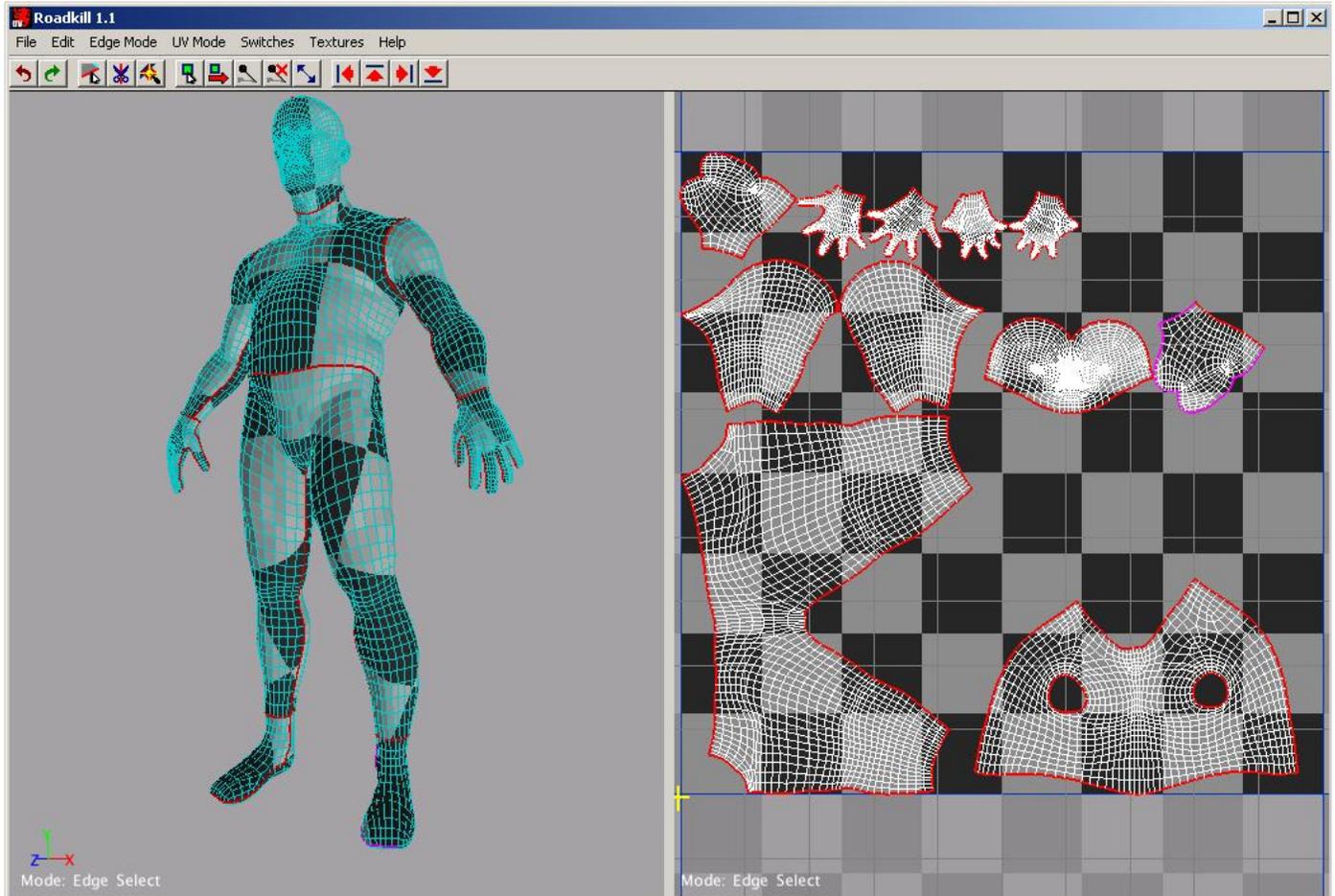
Work around the thumb. Then cut this edge.

Do the same for the other hand.

I cut both feet like this.



This is how Roadkill looks after the continuous topological cuts



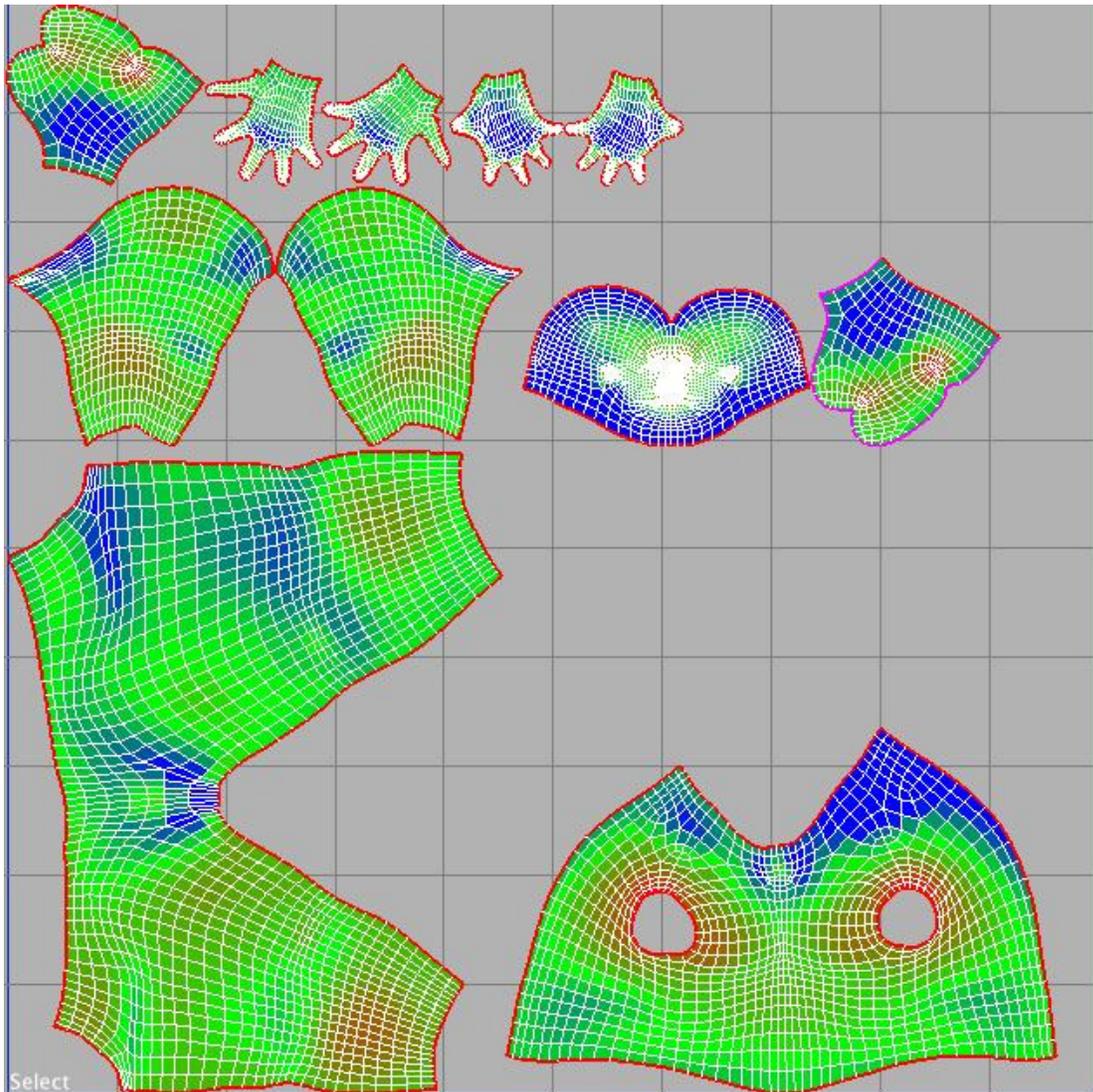
The UV window

Now we've made all our cuts, it's time to do some final tweaks in the UV window.

Either something is obviously very compressed, or a bad unwrap has happened. Or switch to the show stretch mode.

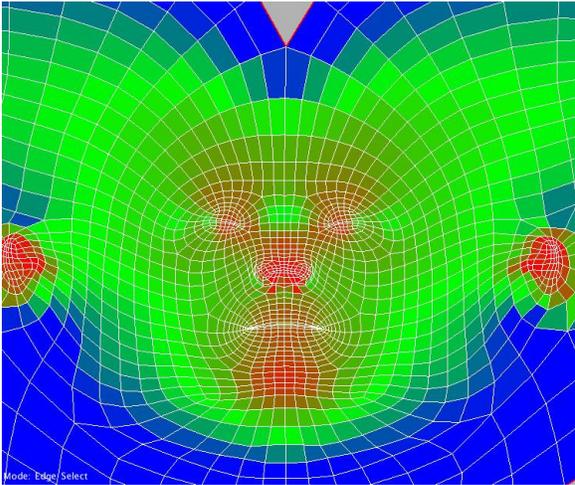
Textures -> Show Stretch.

This is how the UV window looks with show stretch on



Red areas are compressed, blue areas are overstretched. Green areas are good.

The face is the main problem, zoom into it.



Unfortunately the unwrapped head is compressed where we want the detail to be on the texture.

One solution to this problem is to pin the outer vertices and scale up the compressed area.

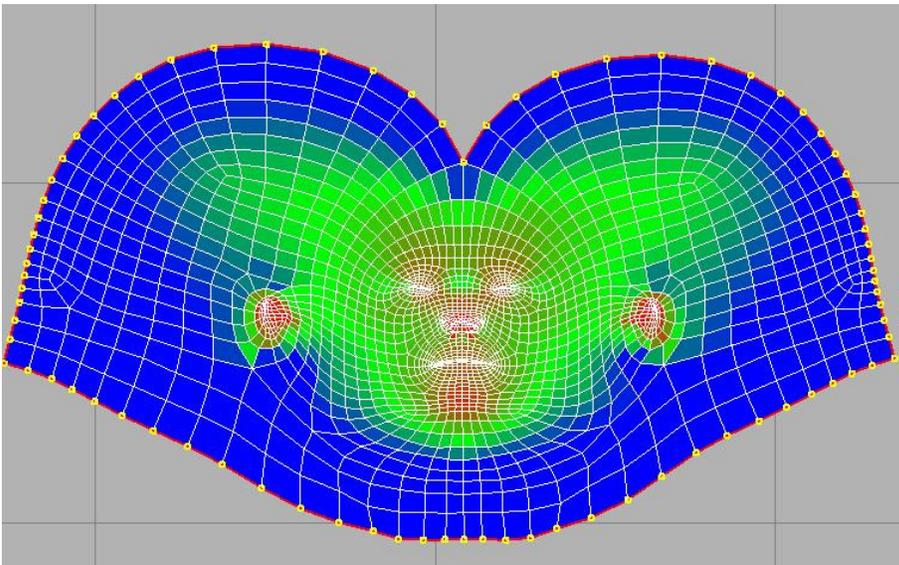
Enter UV Select Mode by either:

Hitting the 'U' Key or

UV Mode -> Select

Or click this icon 

Double click on one of the out vertices of the heads UV Island



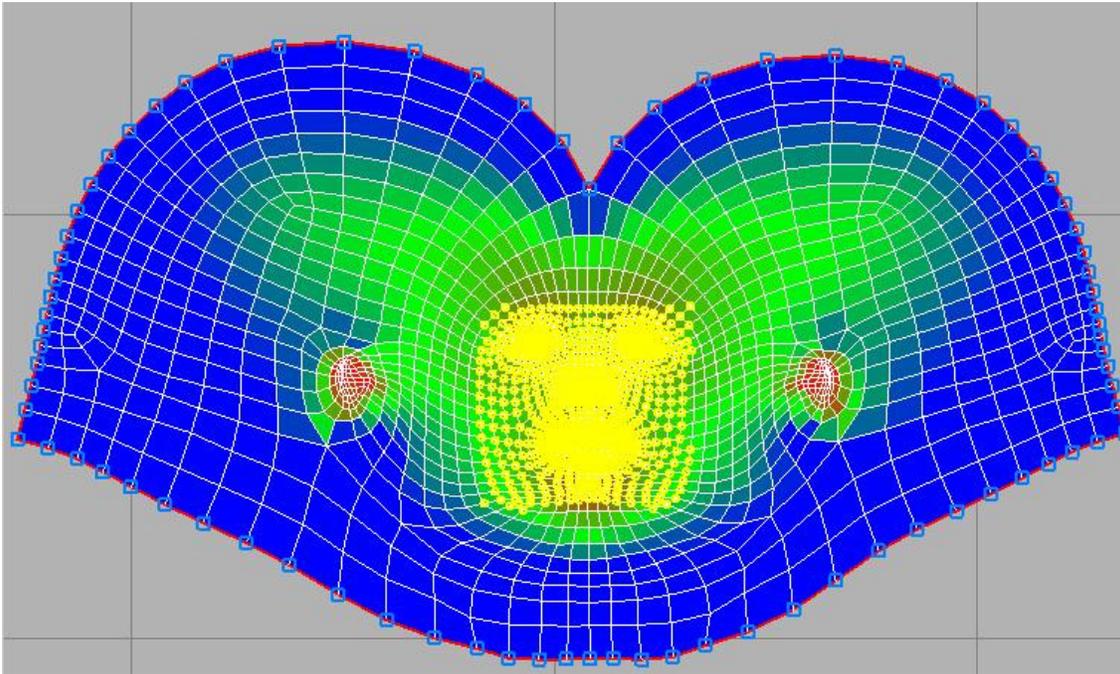
Now, pin down these vertices. Either:

Hit the 'P' key

UV Mode -> Pin Selected

Or click this icon 

Now select the UV's of the face.



Now to scale the selected UV's

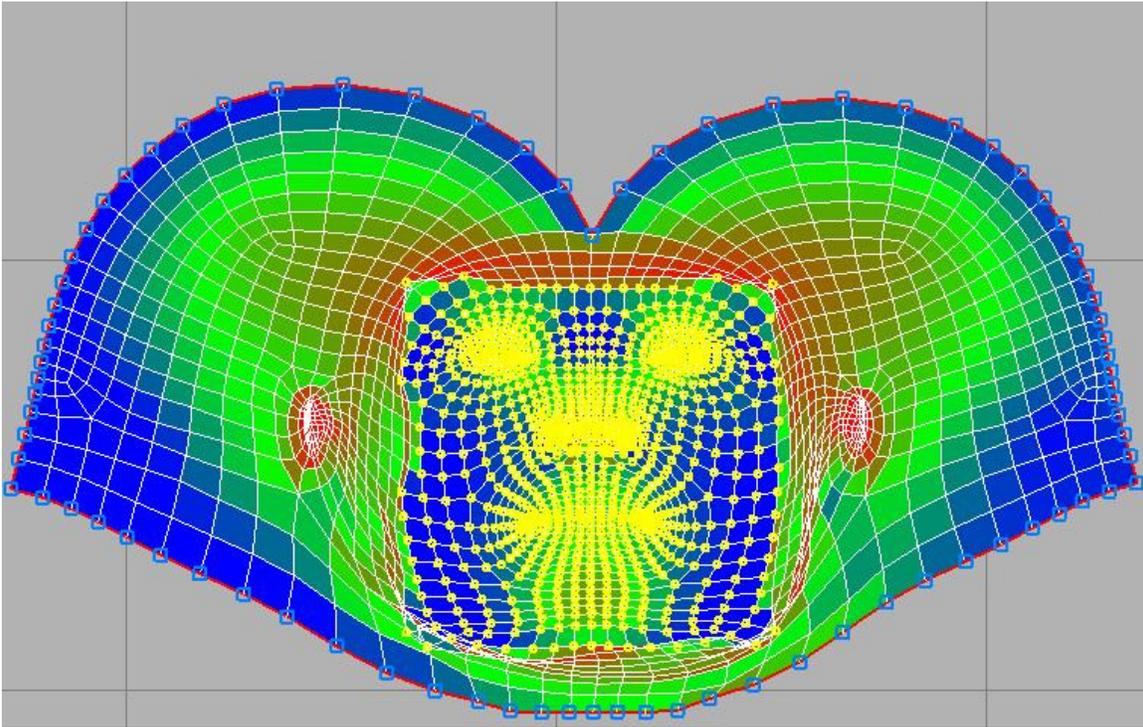
Hit the 'R' key

UV Mode -> Move

Or click this icon 

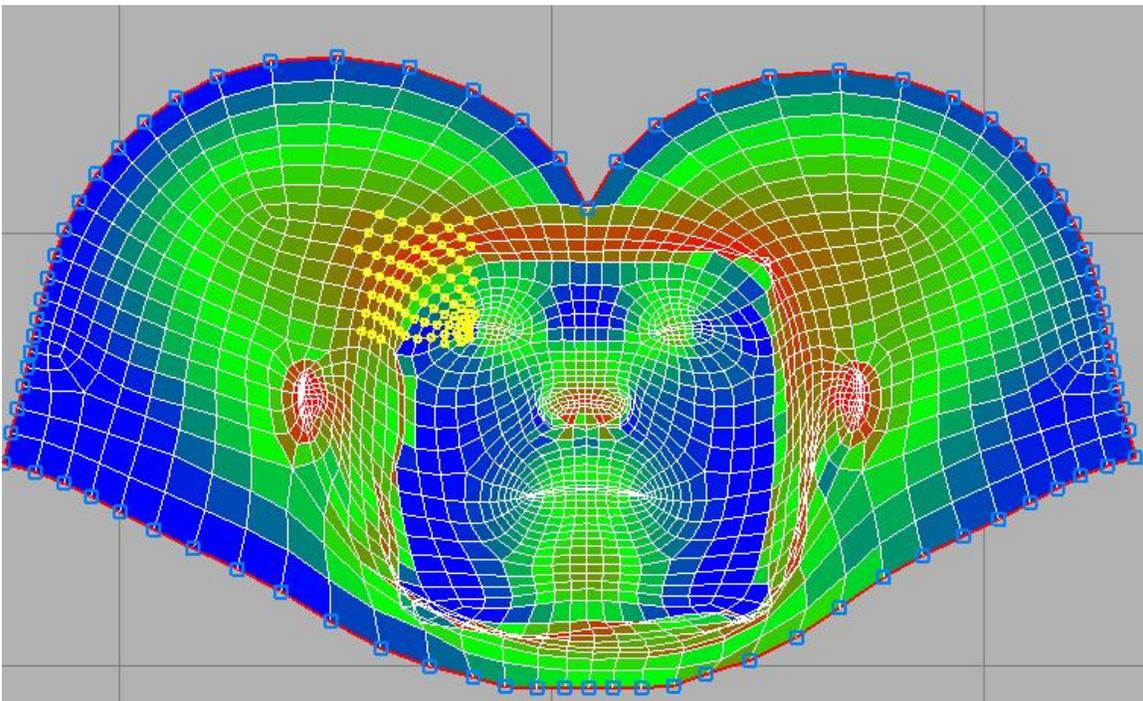
Right click and drag the mouse, the selected UV's should scale up. Please note:
Depending on the polygon count this may take a short while to 'wake up'

After scaling the UU window should look like this.

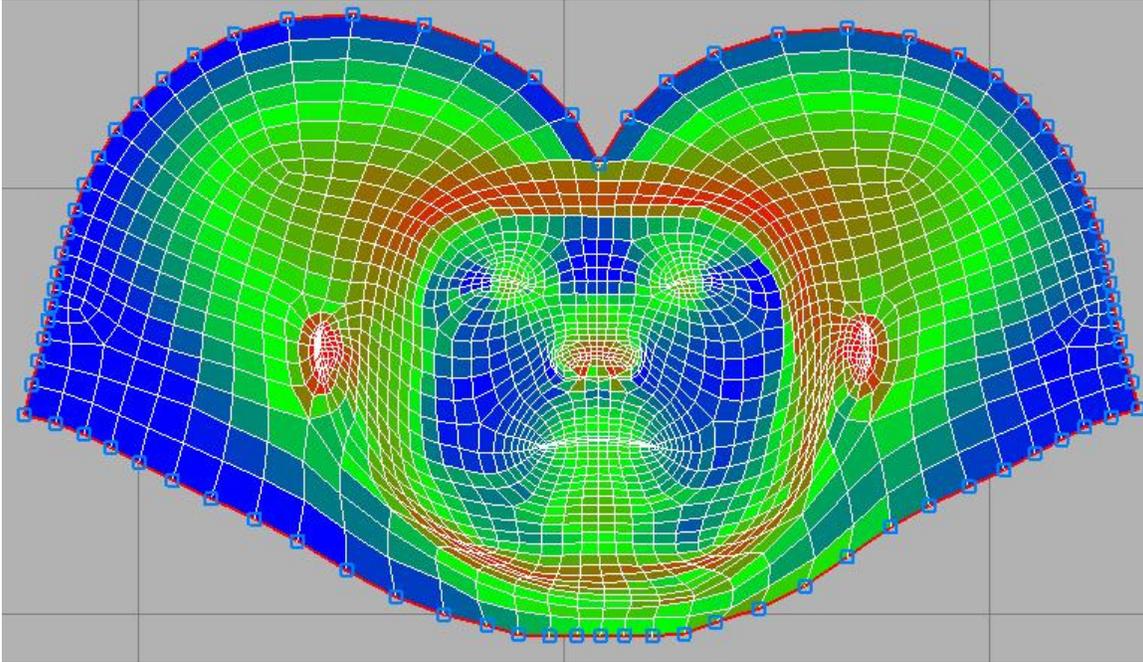


Around the edges of this scaled up area we have an overlap problem.

Select some UV's that have overlapped and hit 'S' several times.



Repeat around all the overlapped areas.



If you need to do similar work on other islands, pin this whole face down by double clicking on any interior UV in UV Select Mode and hitting the pin key / Icon

FAQs

Q: Why can't I adjust individual UV's, it keeps resetting them?

A: Roadkill is not a full UV editor; it's designed to unwrap meshes. Once you're at the point of adjusting individual UV's you should take the mesh back into your art package and continue working there.

Q: Why is it so slow?

A: The ABF / LSCM code taken from Blender uses a very large sparse matrix to flatten the mesh. More polygons = larger matrix = bigger problem being solved. From tests I'd say Roadkill is pretty unusable about 10000 -> 15000 polygons. Split your mesh down into small chunks before using Roadkill.

Q: When's it coming to Mac or Linux?

A: Whenever someone converts it. Firstly I currently don't have the time; secondly if I ever have to touch Linux again I'm going to go Machete Loco! ☺
The source code is on the pullin-shapes site.

Q: Will it work on Windows 64, Maya 2008, Max 2008, Maya from the future, Max from the future, etc...

A: Roadkill is a standalone app, the plug-in for Maya/Max is so tiny I can't imagine them ever not working, but if they do fail please let me know. Currently tested up to Maya/Max 2008
I've not tested it on Windows 64 because I don't have it.

Q: My unwrapped mesh has come out very distorted, half of it is very expanded, half of it very shrunk.

A: Unfortunately there's not much can be done about this. Angle based flattening uses the internal angles of the polygons to do the unwrap. Small errors in the maths can lead to some angles being very slightly wrong and affecting the whole unwrap. Essentially the maths, is trying to keep the interior angles intact, the area of the triangle isn't a factor.
Use the pinning and pulling to straighten your mesh out.

One major bug with the Maya plug-in.

You need to have the 'Default file extensions' tick box checked in 'Export Selection Options'

Thank you to Jen Red for not only finding this problem, but supplying the solution!

SwannOTron@gmail.com

Dec 2007