

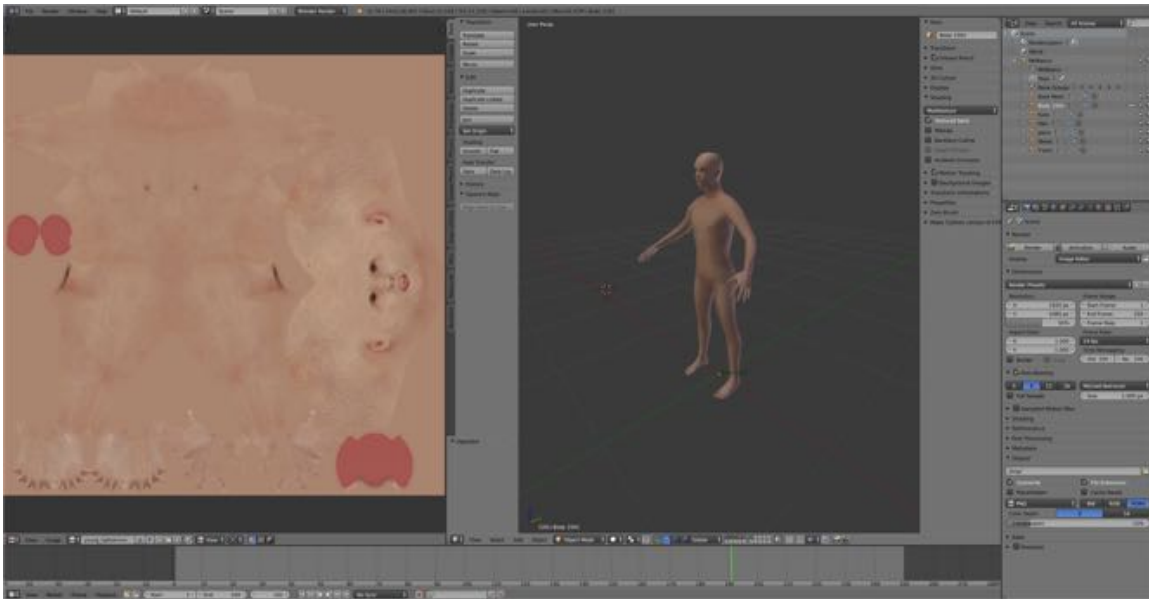
# MakeHuman - Basic Steps

## Step 04:

### Reducing Poly Count

#### Remove Faces Under Clothes

If you hide all of the clothing leaving only the body 1591 object visible in the Outline Editor, you will see that the body is complete, that is, it exist under the clothing.

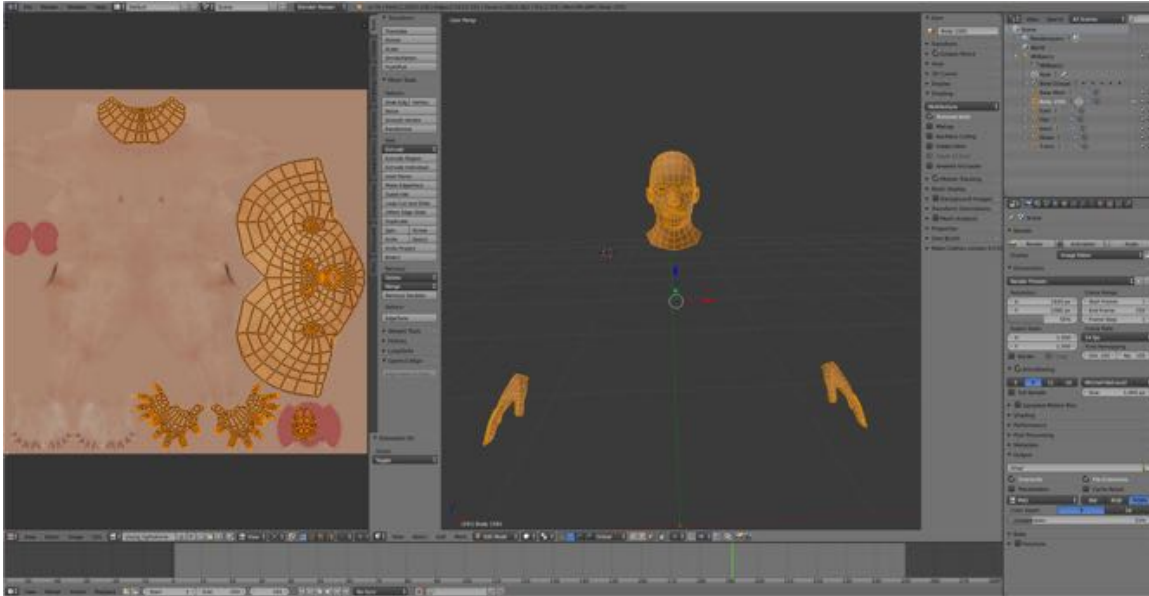


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The first way we can reduce the number of polys is to remove the faces hidden by the clothing.

- Select the Body 1591 and in Edit Mode and Face Selection Mode **remove all but the hands and head and shoulders** being careful not to remove any faces that are not completely hidden by the clothing.

Note: This can be facilitated by switching to Wireframe Viewing Mode and using the Circle Selection Tool.



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## Remove Edge Loops

It is important when reducing poly count to try and retain quads (faces with four vertices and four edges) and to try and minimize stretching. When one gets to really low poly counts, i.e., less than 1,000 triangles, this becomes a challenge and, indeed, an impossibility. However, we can try and one of the best ways is to reduce the poly count by removing edge loops (RMB > ALT/OPT + RMB [or SHIFT + ALT/OPT + RMB] > Delete [X-KEY] > Dissolve Edges). Click on an edge between the vertices.

Save your work.

- Press **SHIFT + CMD + S-KEY** and **NUMPAD-PLUS-KEY** to **incrementally increase** your file name “**MHBasics02.blend**”.
- **Save** the file to a folder named “**MHBasics Blender Files**”.
- Right after you have saved your Blender file, under the **Information Editor’s Window Menu**, select **Save Screenshot**.

## T-Shirt

We will begin with the t-shirt. We first need to locate the seams which MakeHuman used to UV unwrap.

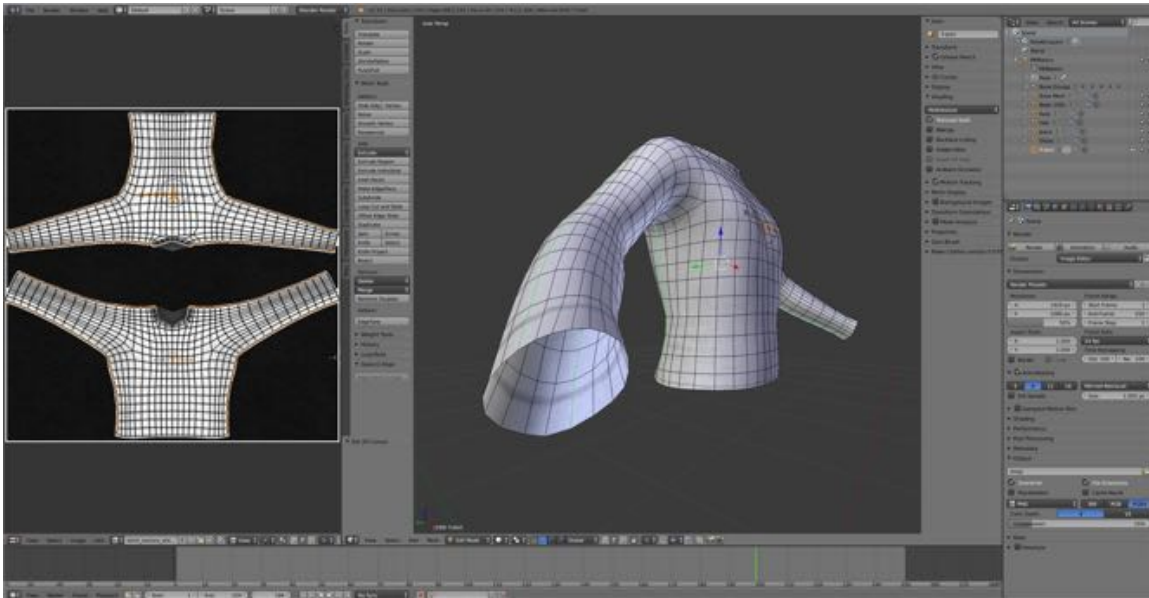
- Select the t-shirt and **switch** to the 3D Editor **Edit Mode** and **Edge Selection Mode**.
- In the Outline Editor, **deselect** all other objects.
- In the 3D Editor, **turn off Texture Solid** (Properties Panel > Shading Pane > Texture Solid) and the **Transform Manipulator Widget** (CTRL + SPACEBAR) to better view the edges. **Close the Tool Shelf** and the **Properties Panel** to increase workspace.
- In the UV/Image Editor, **select Edge Selection Mode** and **turn on “Keep UV and**

**edit mode mesh selection in sync**" (icon should be dark).

- In the UV/Image Editor, **select the edges** (ALT/OPT + RMB) that **MakeHuman used to UV unwrap**.
- In the 3D Editor, **Mark Sharp** (CTRL + E-KEY > Mark Sharp).

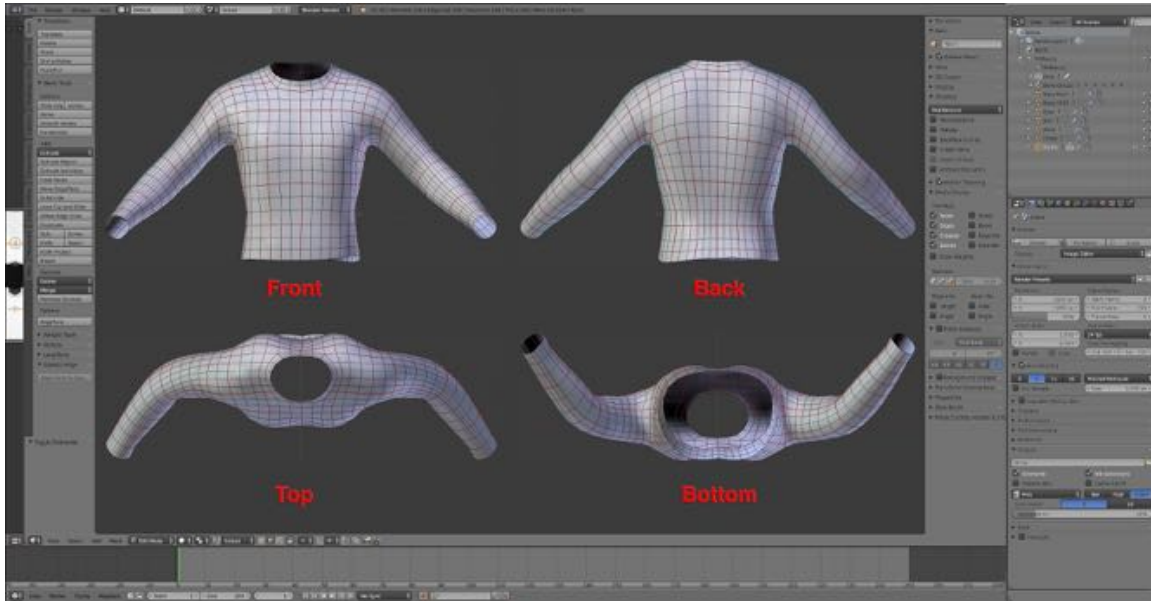
Note: This paring process can be facilitated by using the Mark Seam (red) and Mark Sharp (turquoise) before or during the trimming process to flag edges we want to keep. We'll use Mark Sharp (turquoise) to mark seams that Makehuman used to UV unwrap and Mark Seam (red) to mark the seams we want to remove. The marking are later removed so we don't actually end up with additional edges that will be separated during UV mapping or edges that will be sharp. Also, Ortho View is better than perspective View for selecting edges.

To be able to pose the model it is best to have three edge loops at the joints, e.g., shoulder, elbow, knee, etc. however, we will try to keep just one in these locations to keep poly count low.



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- For the t-shirt, **keep the edges marked in red**.

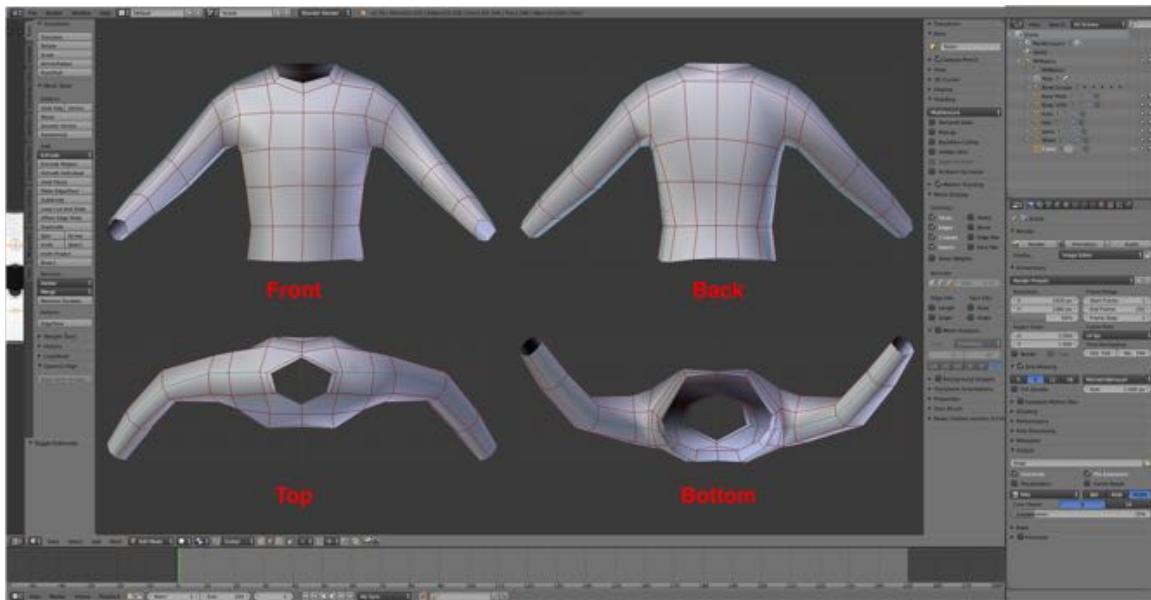


Original t-shirt mesh = 2,208 triangles.

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Save your work.

- Press **SHIFT + CMD + S-KEY** and **NUMPAD-PLUS-KEY** to incrementally increase your file name “MHBasics03.blend”.
- Save the file to a folder named “MHBasics Blender Files”.
- Right after you have saved your Blender file, under the **Information Editor’s Window Menu**, select **Save Screenshot**.



T-shirt mesh reduced = 252 triangles.

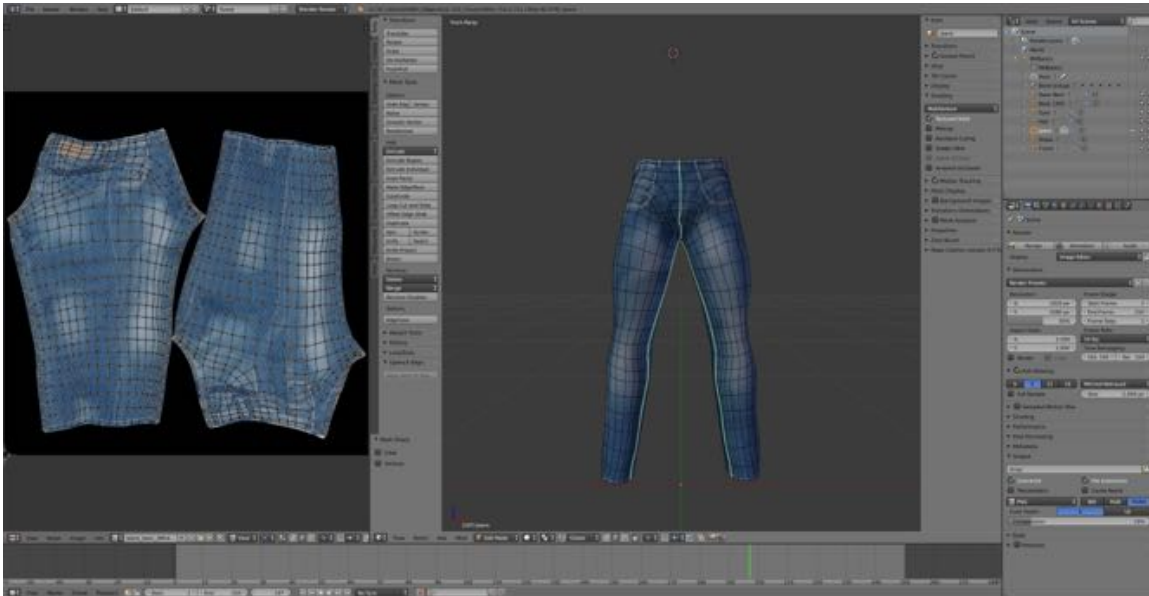
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Save your work.

- Press **SHIFT + CMD + S-KEY** and **NUMPAD-PLUS-KEY** to **incrementally increase** your file name **“MHBasics04.blend”**.
- **Save** the file to a folder named **“MHBasics Blender Files”**.
- Right after you have saved your Blender file, under the **Information Editor’s Window Menu**, select **Save Screenshot**.

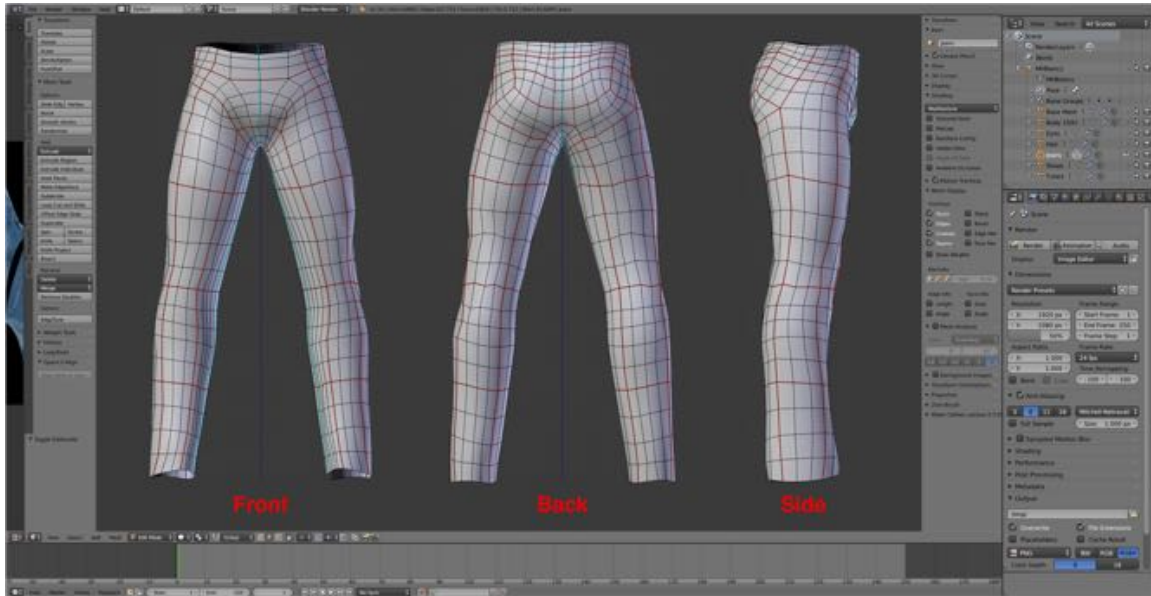
## Jeans

- Select the jeans and in the Outline Editor, deselect the t-shirt.
- In the UV/Image Editor, **select the edges** (ALT/OPT + RMB) that **MakeHuman used to UV unwrap**.
- In the 3D Editor, **Mark Sharp** (CTRL + E-KEY > Mark Sharp).



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- For the jeans, **keep** the **edges** marked in red.



Original jeans mesh = 1,712 triangles.

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Save your work.

- Press **SHIFT + CMD + S-KEY** and **NUMPAD-PLUS-KEY** to incrementally increase your file name “MHBasics05.blend”.
- Save the file to a folder named “MHBasics Blender Files”.
- Right after you have saved your Blender file, under the **Information Editor’s Window Menu**, select **Save Screenshot**.



Jeans mesh reduced = 138 triangles.

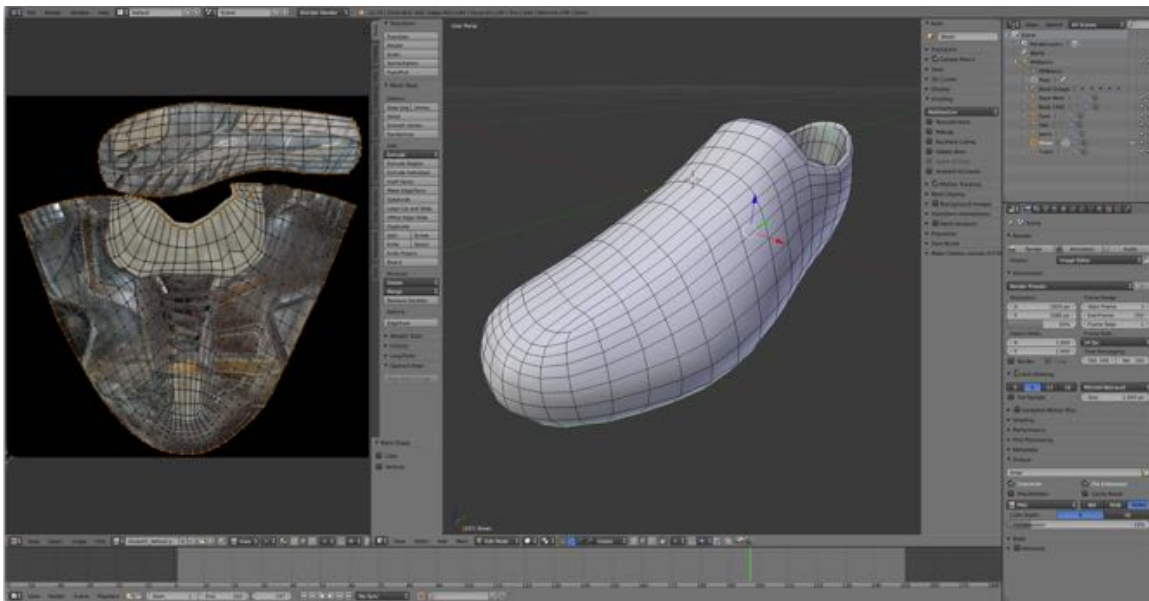
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Save your work.

- Press **SHIFT + CMD + S-KEY** and **NUMPAD-PLUS-KEY** to **incrementally increase** your file name **“MHBasics06.blend”**.
- **Save** the file to a folder named **“MHBasics Blender Files”**.
- Right after you have saved your Blender file, under the **Information Editor’s Window Menu**, select **Save Screenshot**.

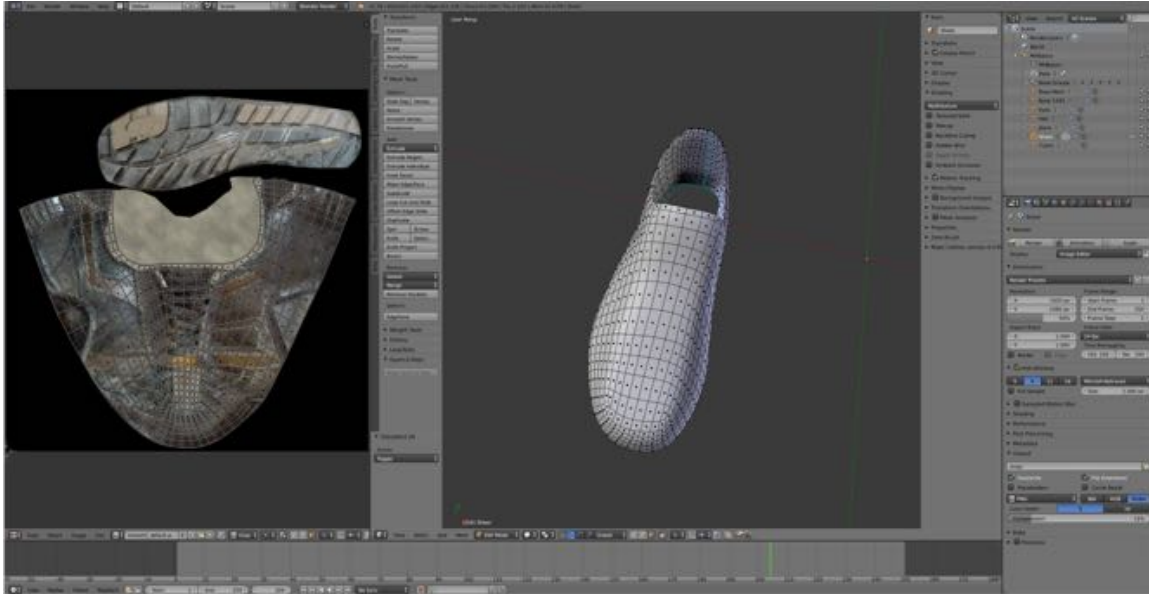
## Shoes

- Select the shoes and in the Outline Editor, deselect the jeans.
- In the 3D Editor, select and hide (H-KEY) one shoe.
- In the UV/Image Editor, **select the edges (ALT/OPT + RMB)** that **MakeHuman used to UV unwrap** the other shoe.
- In the 3D Editor, **Mark Sharp (CTRL + E-KEY > Mark Sharp)**.
- Do the same for the other shoe.



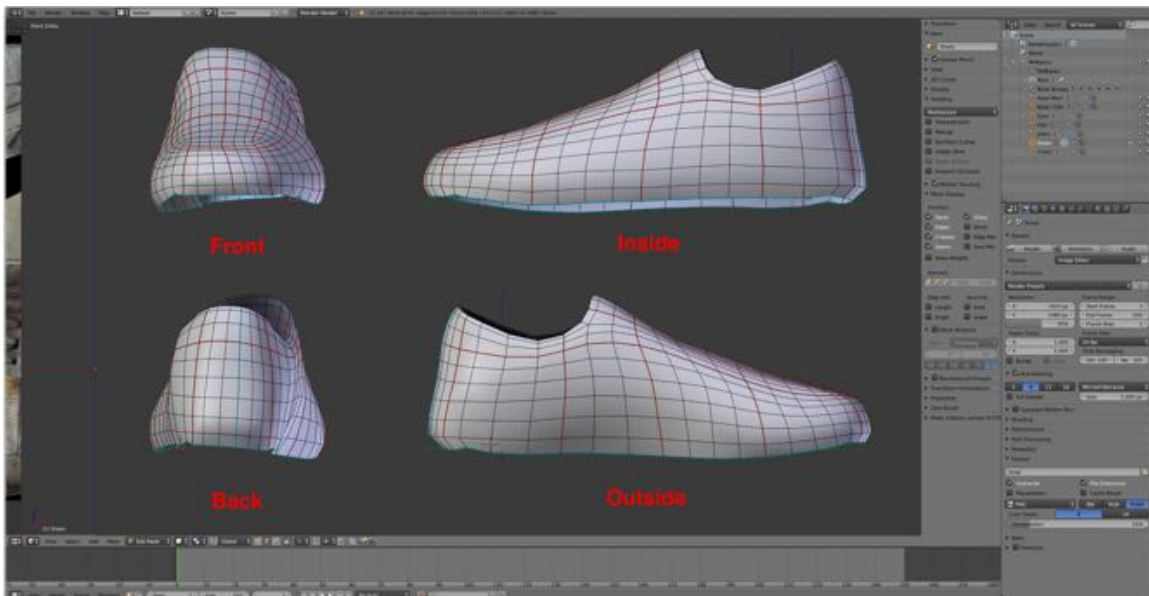
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- Delete the soles and inner surfaces of the shoes.



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- For the shoes, **keep the edges marked in red.**



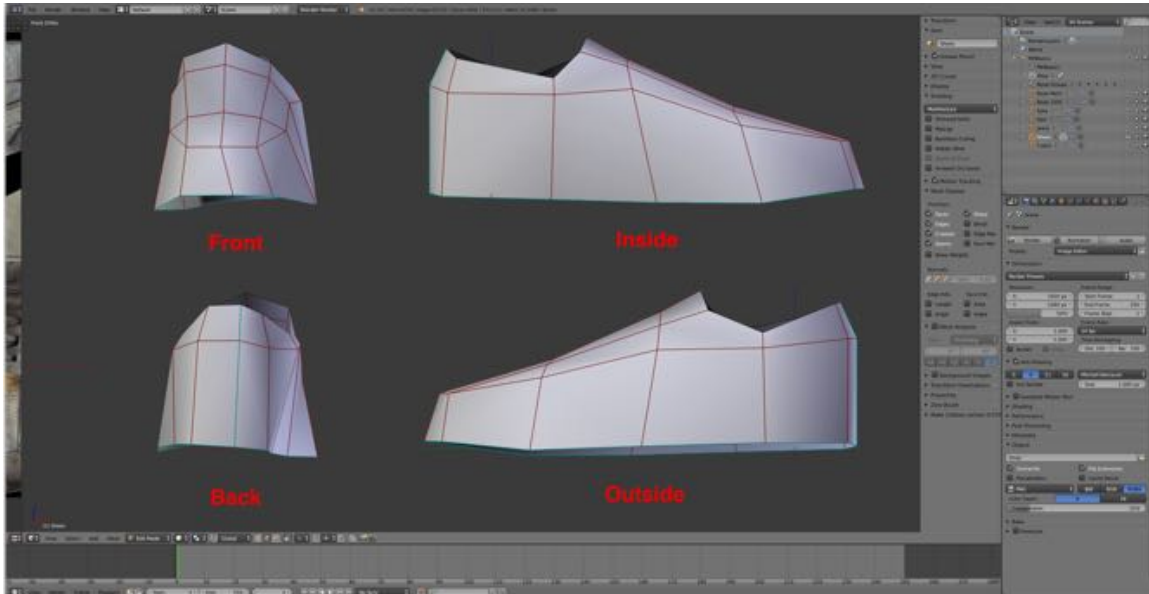
Original shoes mesh = 1,824 triangles.

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Save your work.

- Press **SHIFT + CMD + S-KEY** and **NUMPAD-PLUS-KEY** to **incrementally increase your file name “MHBasics07.blend”**.
- **Save the file to a folder named “MHBasics Blender Files”**.
- Right after you have saved your Blender file, under the **Information Editor’s Window Menu, select Save Screenshot**.





Shoes mesh reduced = 112 triangles.

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Save your work.

- Press **SHIFT + CMD + S-KEY** and **NUMPAD-PLUS-KEY** to **incrementally increase** your file name “**MHBasics08.blend**”.
- **Save** the file to a folder named “**MHBasics Blender Files**”.
- Right after you have saved your Blender file, under the **Information Editor’s Window Menu**, select **Save Screenshot**.