

Creating the Ferrari 458 Italia in Blender

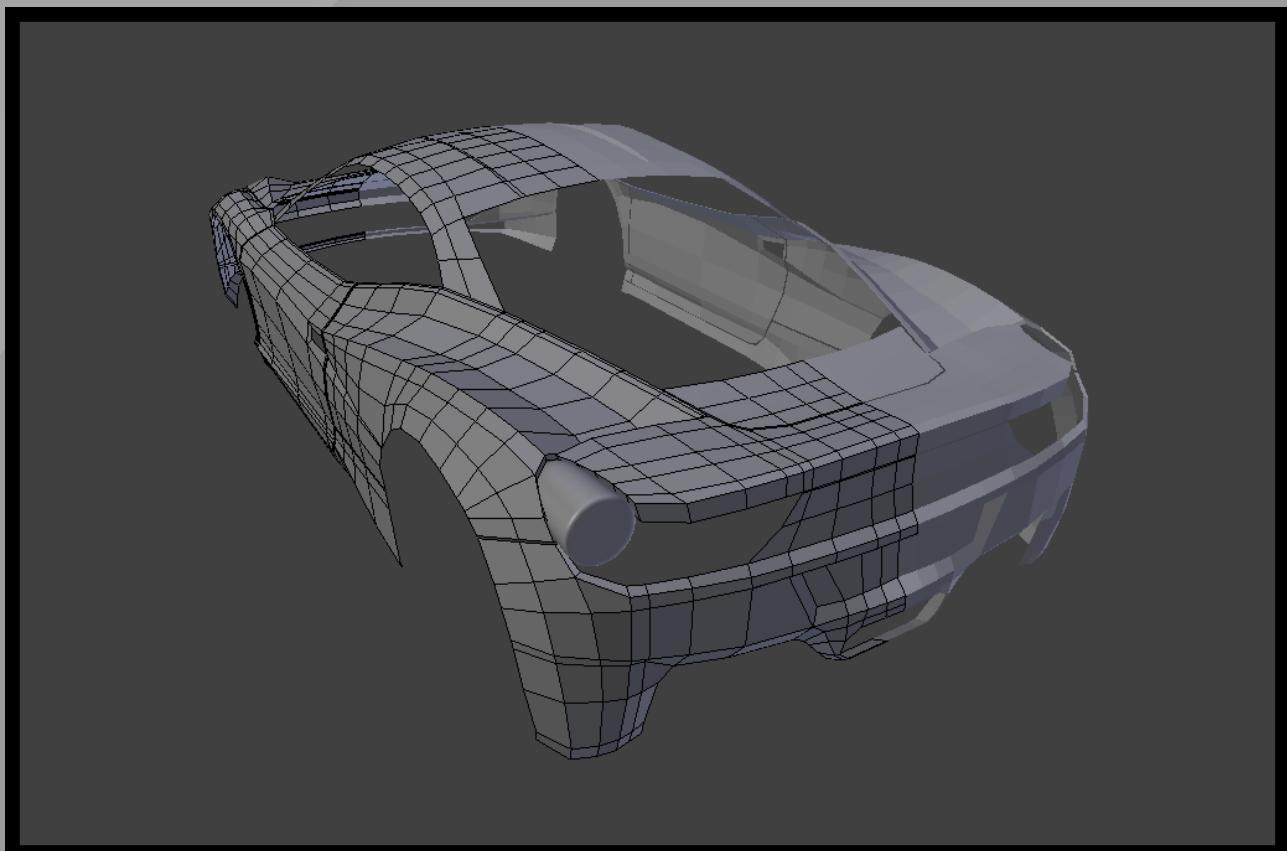
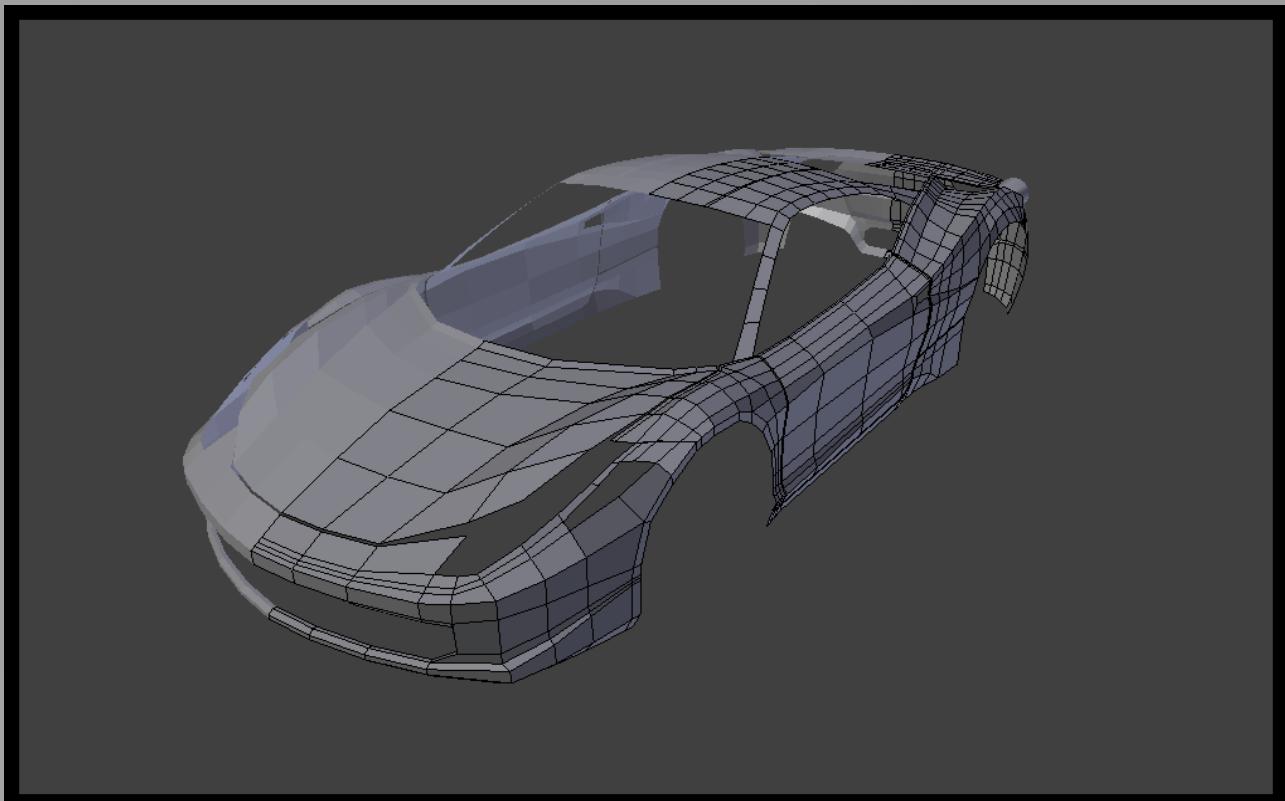
by Rainer Selvet

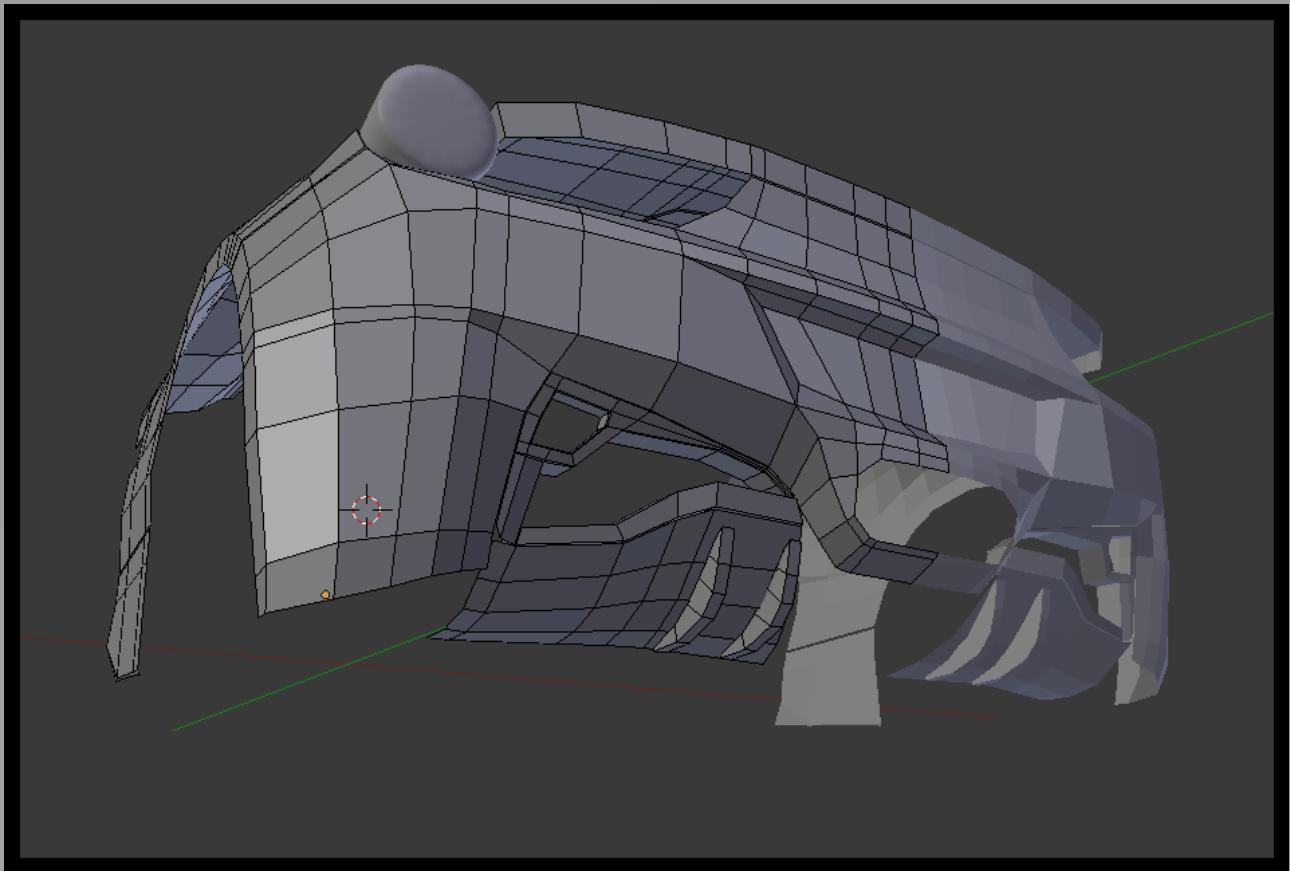
It all started with choosing the right car. The Ferrari 458 Italia is an incredibly gorgeous car. It is said to be one of the all time grates so I took the challenge to capture that beauty.

From the beginning my approach was- focus 100% on modeling first and only then when I've completed the model I will go into lighting, shaders, materials etc. I would highly recommend that kind of approach to anyone planning to create a car in CG. If one applies a crappy car paint made in 2 minutes, the chances are that that one drops the project. In reality, the car can't look right even with the best shaders when the modeling is not complete.

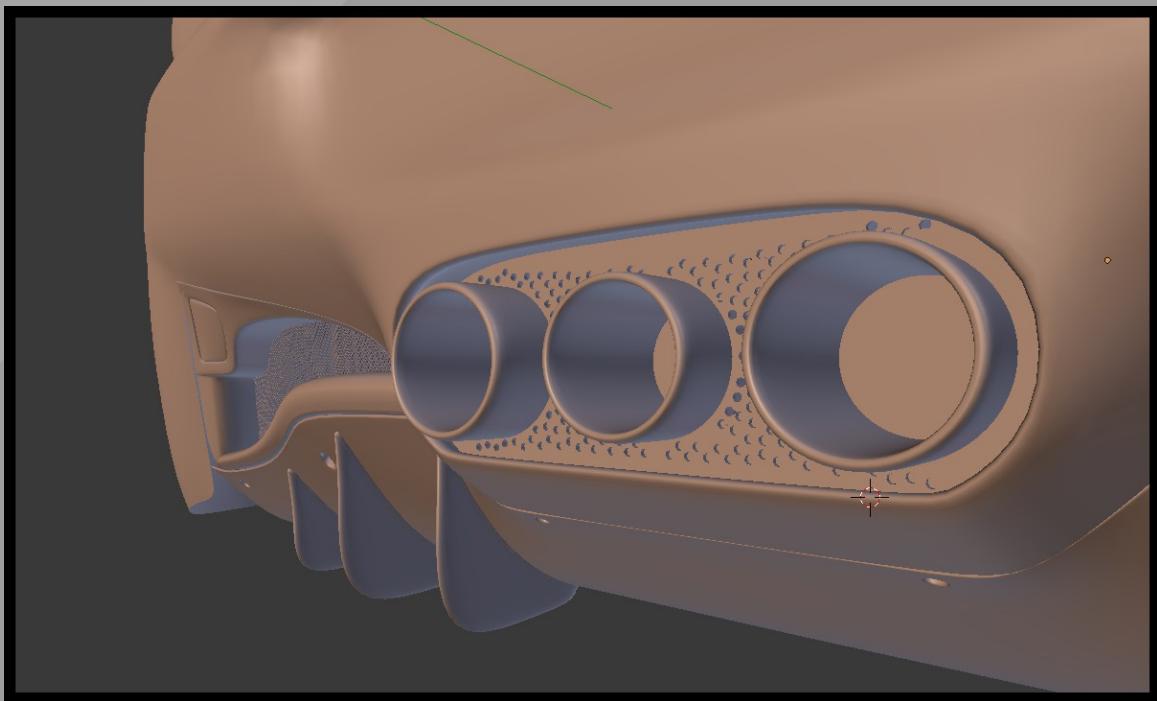
Please enjoy this brief explanation how I created this beast.

I knew that I needed loads of reference images. So I googled a bunch of high-res ones, grabbed blueprints from the-blueprints.com and got crackin'. Some hours put into modeling, I opened a WIP thread on blenderartists. I always like to have some progress done before I post a WIP.



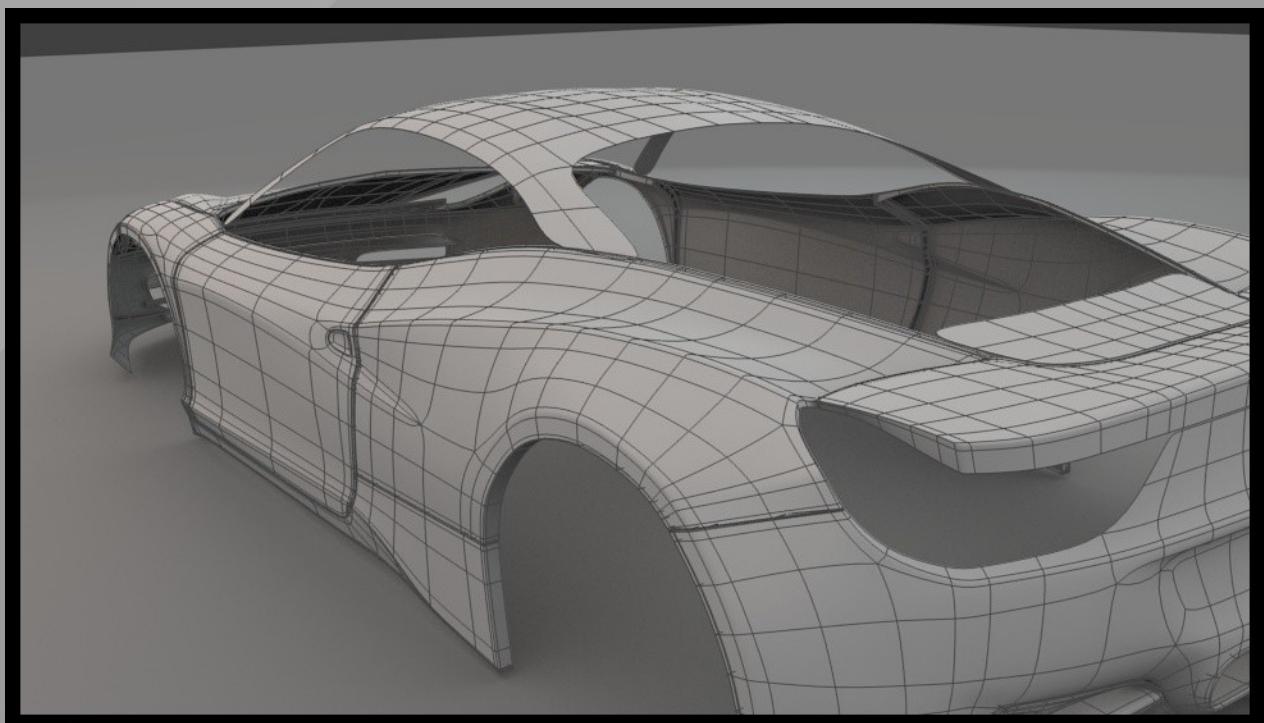
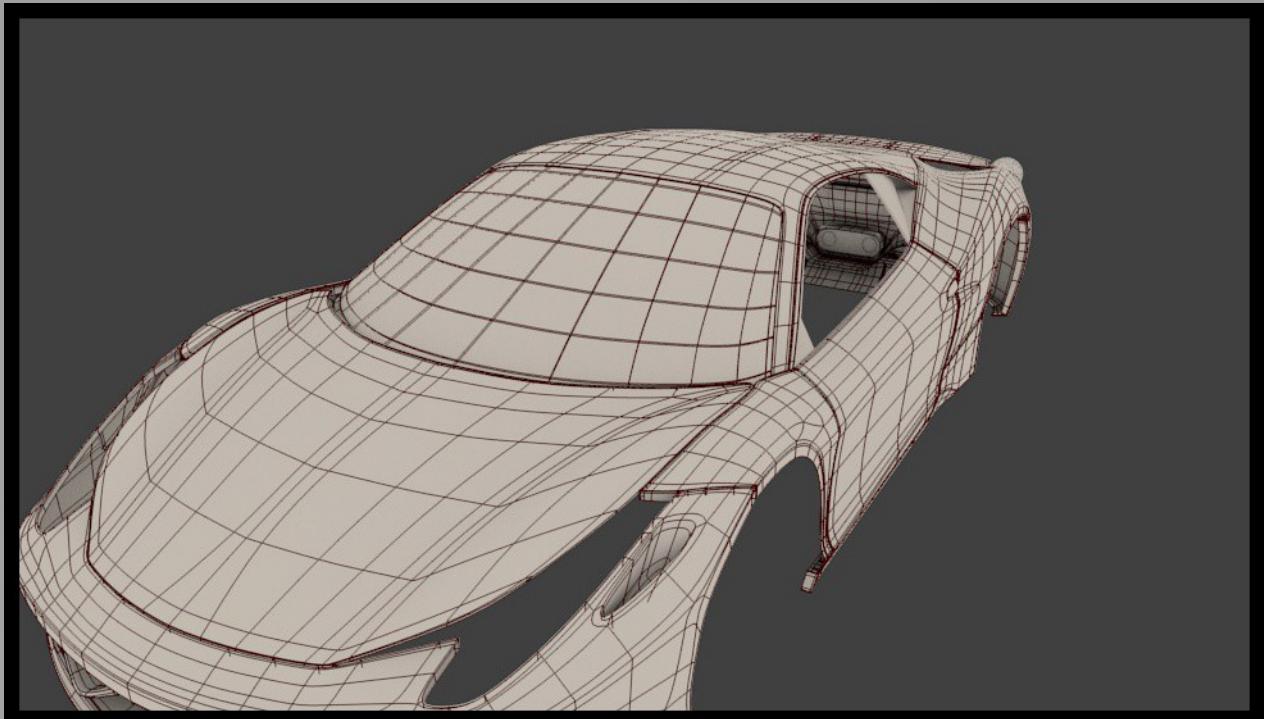


With every part of the car, I first started blocking out major parts and kept adding details.

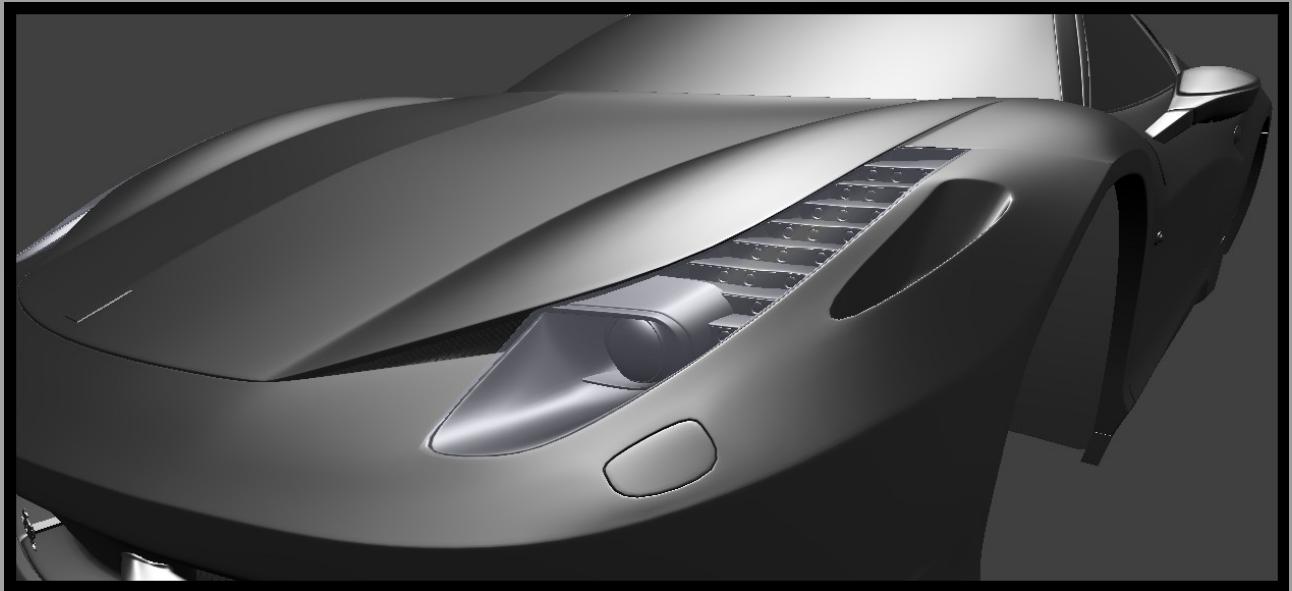


After adding subsurf, things started to look a lot nicer. The exhaust area with holes in the back were done using a boolean modifier. My advice would be to avoid booleans whenever you can because they can cause very sloppy topology. In this case, the surface is flat and it didn't cause me any problems using a boolean.

Main body was near completion. Modeling the car is not rocket science- its just patience that pays off in the end. This car is far from being perfect topology wise, but when it looked good, I went for it.

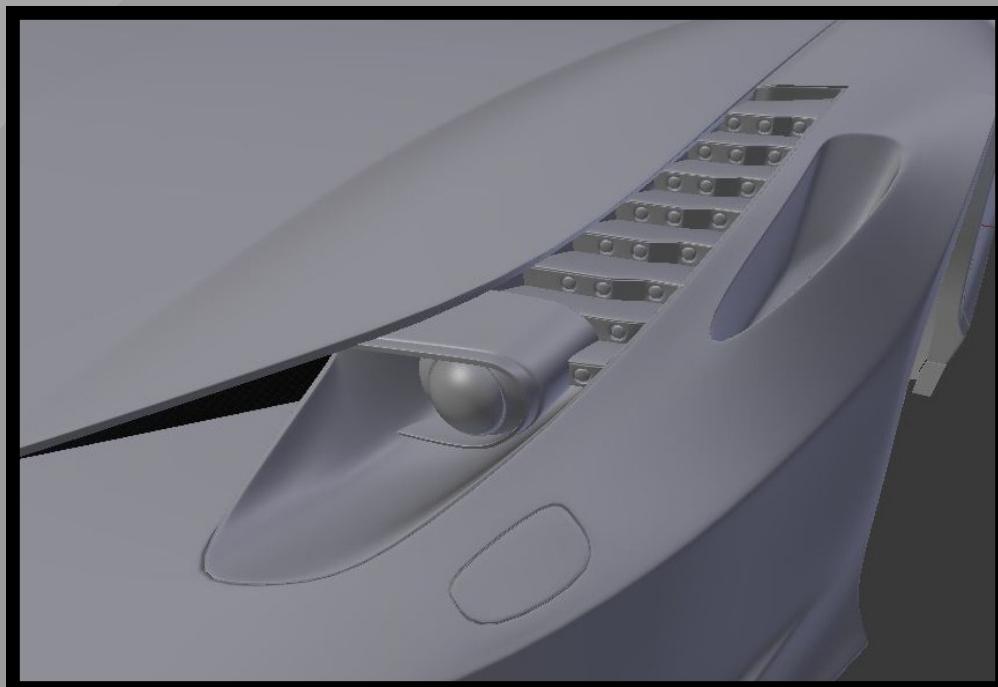


Of course edgeflow matters, but what matters the most is that the reflections in the final render are sharp, flow nicely and bring out the body of the car. I had to retouch a couple of reflections due to incorrect topology later in gimp. One trick for checking if you have solid foundation for the car is to give it temporary materials with high specular values, turn on GLSL shaded mode, add a couple of lights and move them around. That creates specular highlights on the car and you can immediately spot bumps on the surface.

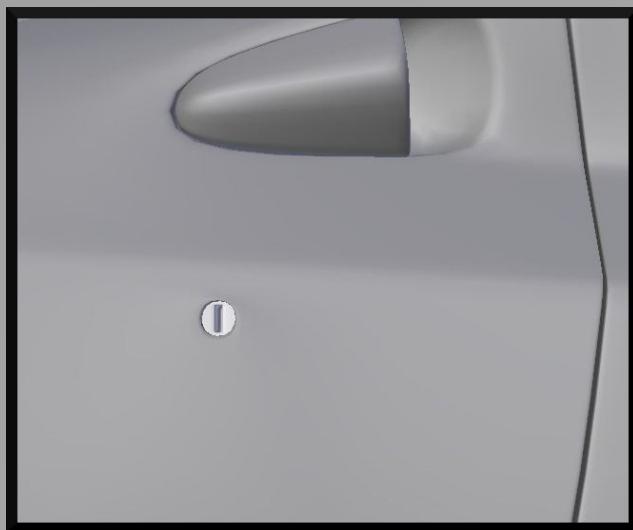


I gained a lot of useful comments like using Alt+D for duplicating the wheels in order to save memory. Or suggestion that rear and front wheels should be different in width as they tend to be for sports cars.

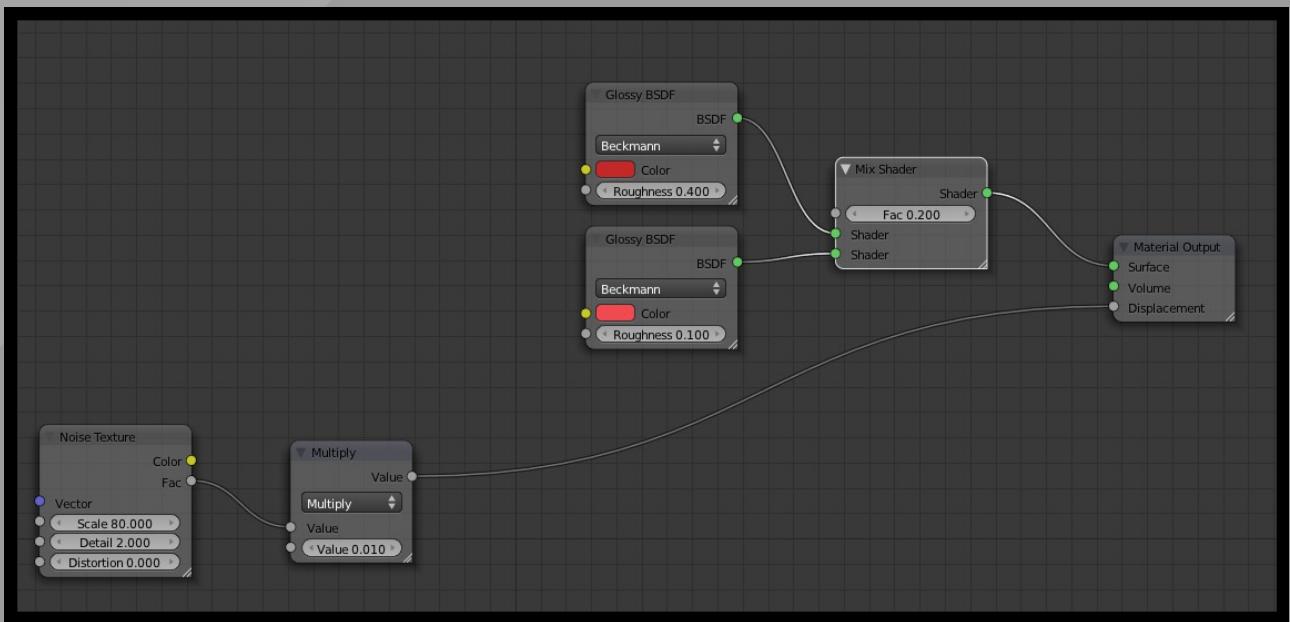
There were some tricky parts in modeling such as the grills. These were done using array modifiers and lattices. Headlights, which need to be perfect to bring out the personality of the car, needed quite a lot of re-doing.



Another rule I set myself was that if I see a detail on a real photo of the car, I will make that detail on the 3D replica. For instance, I wasn't very modest with the windscreens wipers.



Without the engine, it would be quite impossible to get a decent rear view render. Modeling the engine is nothing special, just basic polygonal modeling. The Ferrari text on the motor and also near the back window is a mix of using fontmeshes and modeling. The new Remesh Modifier was a great help to repair the broken topology fontmeshes tend to create.

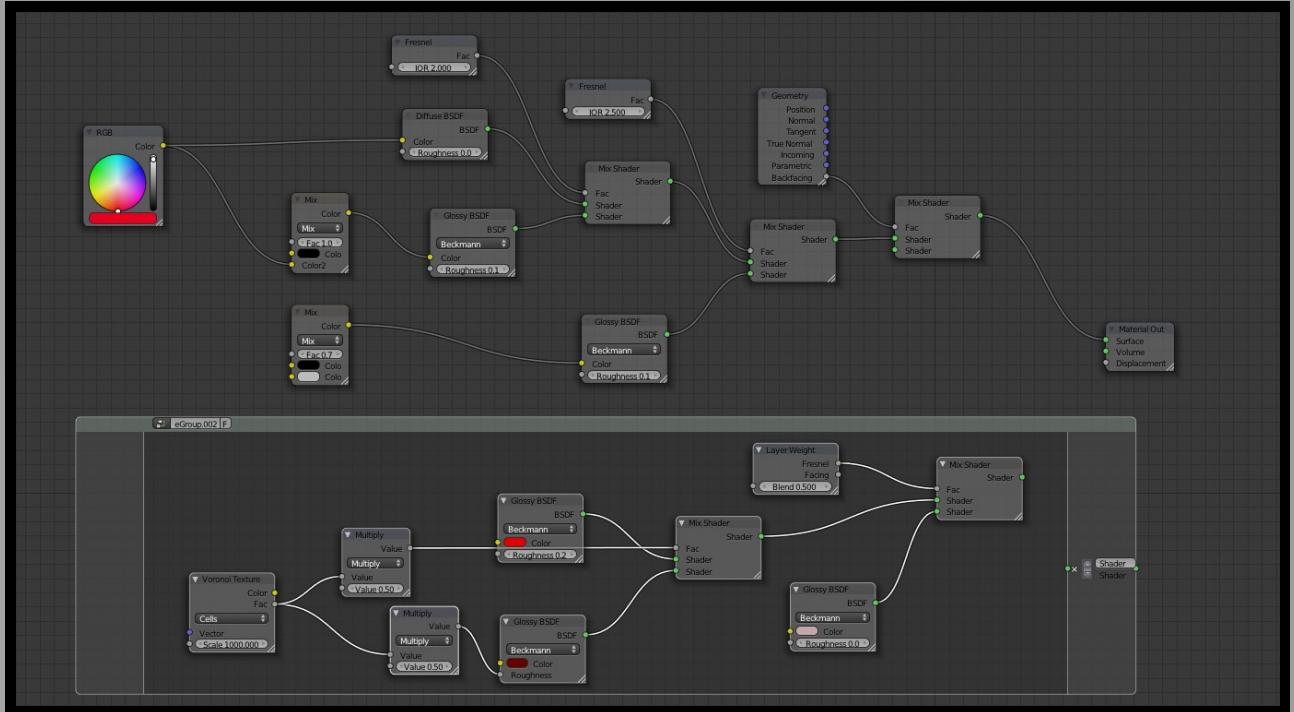


The red metallic parts have a noise texture feeded into the displacement input of the material output to create some bumpiness on the surface.

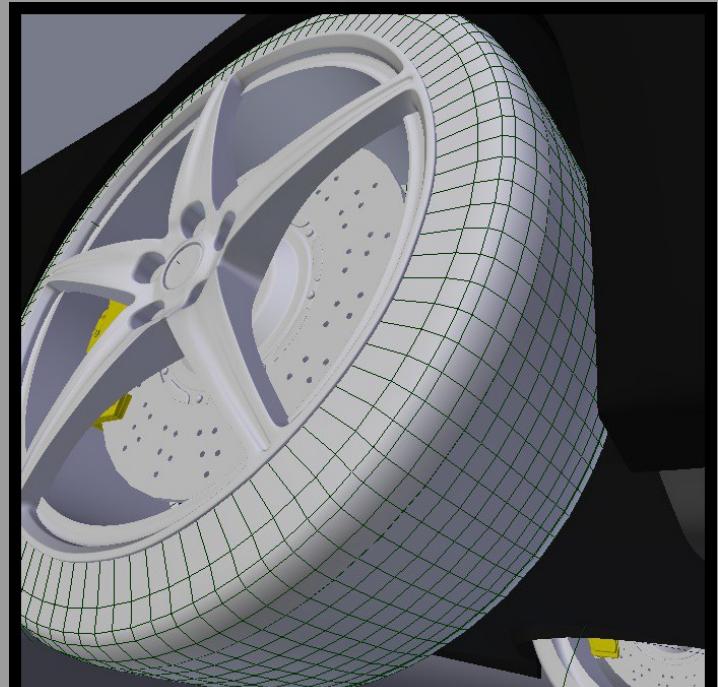
Having completed the car modeling, I continued with the materials of the car. I tried a couple of car paint materials floating around the forums, but for the final renders, here is the node setup I have used. Make sure to visit this thread, that's where this awesome material is from:

<http://blenderartists.org/forum/showthread.php?241752-Porsche-Carrera-GT-Short-Action-Car-Chase-Scene-Blazraids/page4>

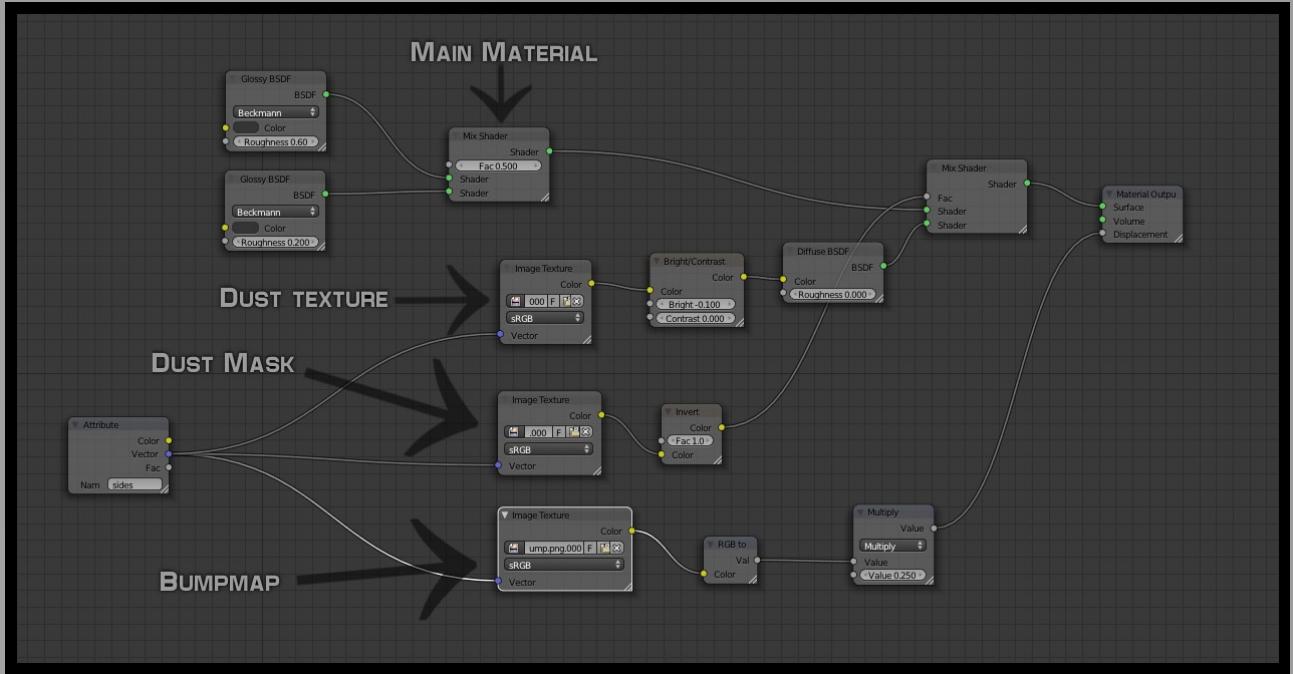
Below in the nodegroup is the material I used before, but I liked how easy it was to change just 1 colour with the setup above.



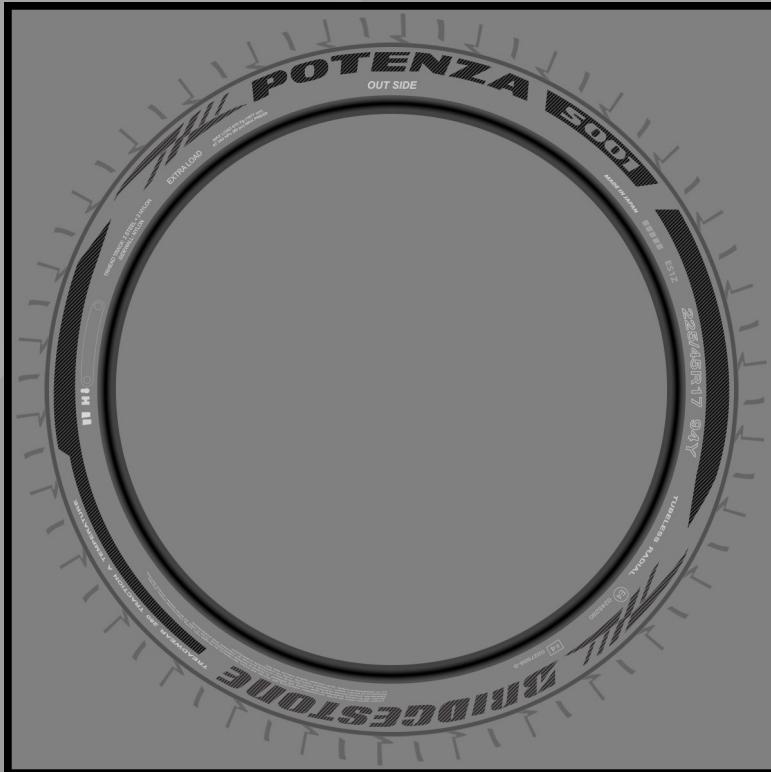
I've been asked several times, how I created the tire materials. Here you can see one of the final detail renders of the wheel. The tire is a rather lowpoly model, which uses a bumpmap. It also has a subtle dust texture over it to bring up realism.



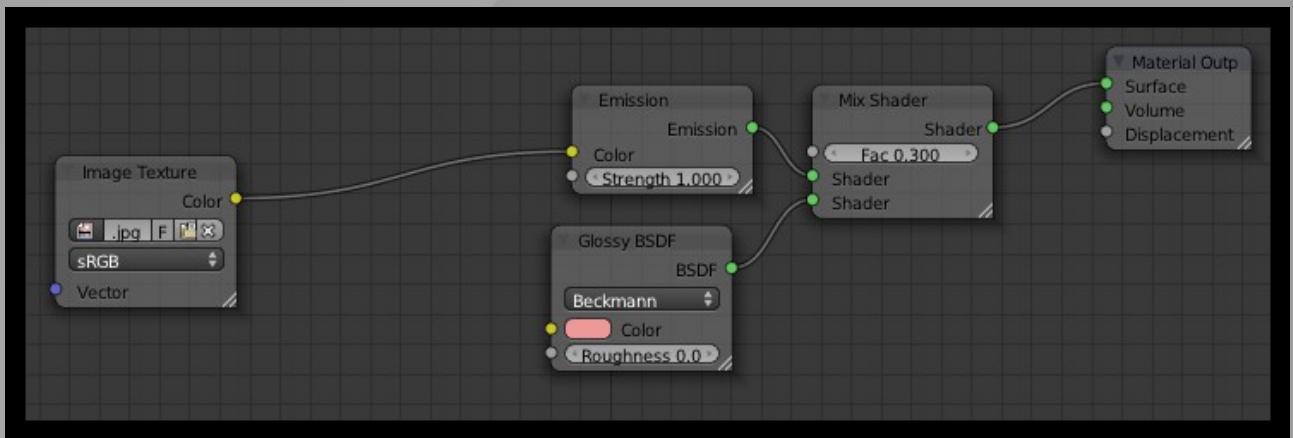
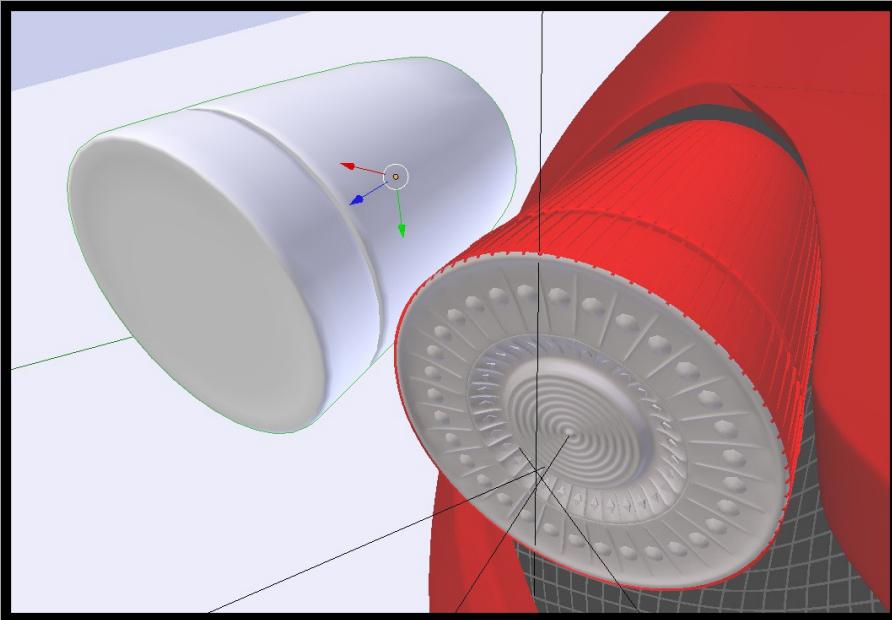
This is the material setup for the tire. The main material is composed of 2 glossy shaders mixed together and then mixed with a diffuse dust texture factored by a black and white mask texture.



Bumpmap used for the tire was kindly offered by MaxE. You can download it from rainerselvet.wordpress.com along with other resources from this project.

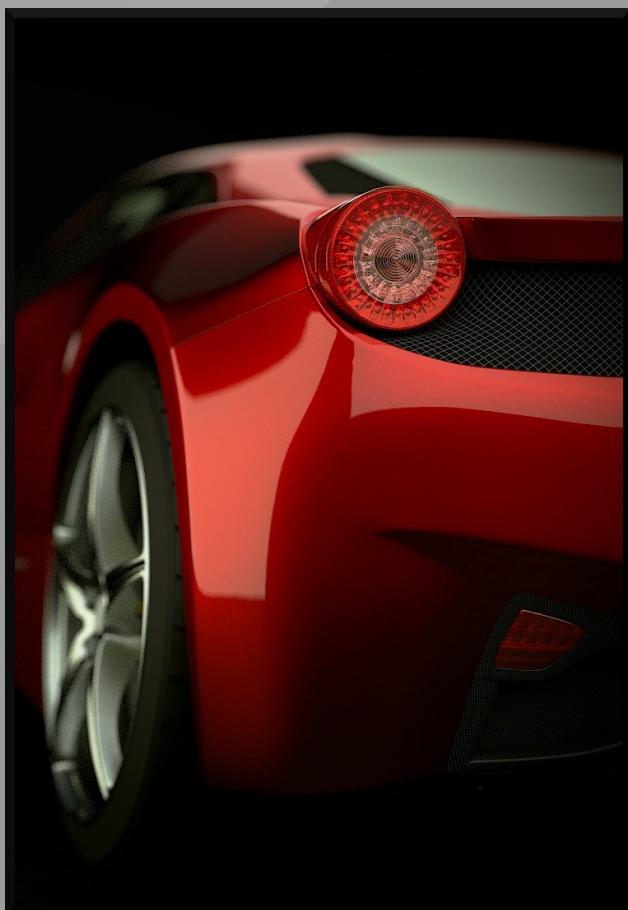
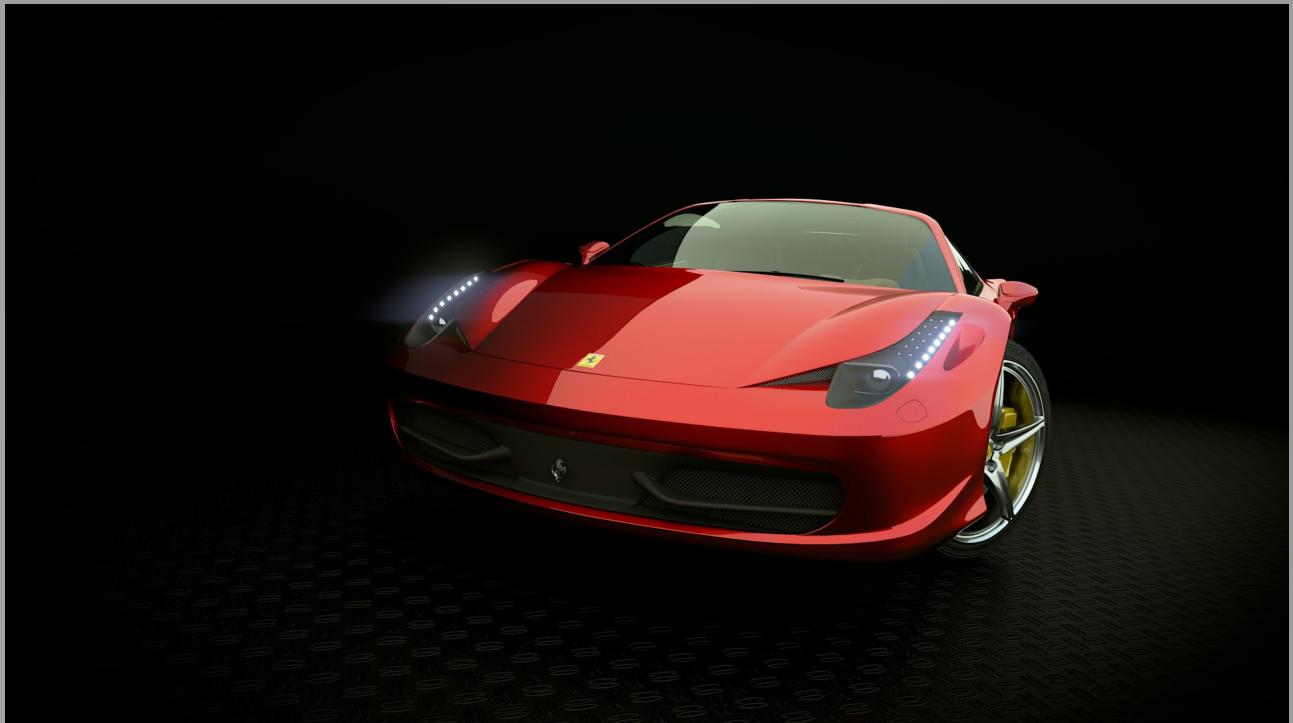


At first I was a bit scared of doing the rear lights, but they turned out better than I had expected. They are a mix between modeling and texturing. There is also a physical cover with the default glass shader.



The shader of the LED ring mixes emission (colour affected by the texture) and glossy materials.

First renders were promising, but I was not even close to completing the project. The lighting in this is pretty simple- a couple of mesh lights with power of 1-2. Also a bit of compositing for colour correction and lens flares was used.



I also experimented with backplate + hdri rendering, but it didn't work out well. Mainly because using a backplate forced me to use this one certain camera angle and I had almost no control over the tonality of the car as it needs to match the cars in the background. Also, it was incredibly difficult to find good hdri+backplate combinations. Better ones cost 100€ per image. Definitely not the price I'm willing to pay.



HDRI and backplate by Alec Moody

In order to composite the car into the background I delivered a shadow and ambient occlusion pass from blender internal. For that, I duplicated the scene, changed the render engine to blender internal(BI). From the render panel I enabled shadows and ambient occlusion passes, also turned all the car materials into mask materials. Its amazing that blender can seamlessly join two render engines- cycles and internal in the compositor. Just add a new renderlayer node in the original scene, change the scene parametre and you get the BI render.

I wanted to create new studio images and then try exterior rendering in a new environment. So I completed these new studio renders. Didn't get much of a response though.



I spent some time creating the exterior renders, but I called them finished too early. I received somewhat controversial response- many liked the new shots, but there were a lot of people, who stated that the studio renders were better at displaying the car in its full glory.



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I can see it now- the studio renders were indeed more appealing because they had better contrast and composition. But I wasn't too happy with the old studio shots so I went back to the drawing board and came out with the renders which I now call- *final*.





The images however needed a bit of retouching in post production. For that I used gimp and here are a few corrections apart from curves/levels/saturation adjustments that I made to the raw images.

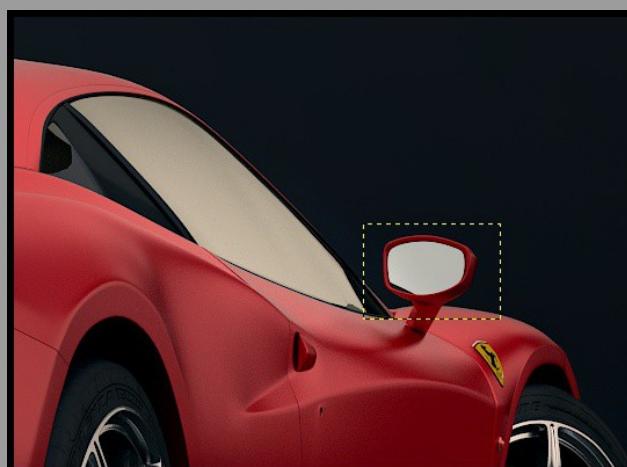
The left image clearly shows that the model itself is not absolutely perfect on the back area. Notice the wiggled reflection? No need to panic and remodel/rerender though. A couple of minutes in Gimp and its fixed :)



Similar issue near the breaklight



I also didn't like how the reflections in the rear view mirrors were almost 100% white. It would be a pain to start moving the lights around or change the environment in 3D to get rid of it. Instead I added a slight gradient on the mirror.



2 months of work finally paid off and I achieved what I had in mind from the beginning- create appealing automotive renders.

Thanks everyone for reading, make sure to visit my site rainerselvet.wordpress.com to download the final studio setup scenes along with some texture resources from this project.

Have a happy day,

Rainer Selvet

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