Полигональный моделинг в 3dsMax

Моделинг

Hi Ploly

Концептуальный

Классический

Low Poly

Начинаем
с полигона

Начинаем с
примитива

Hi Ploly

Концептуальный путь

1. Концепт + Анализ
2. Скульпт
3. Ретопология
4. UW Mapping
5. Трансфер (перенос данных на Low-Poly)
6. Текстуринг и настройка материалов (визуализация)
7. Постобработка.

Классический путь

1. Концепт
2. Сбор информации
3. Определение стиля
4. Анализ самого объекта
5. Упрощение

Этапы классического пути

Создание базовой упрощённой модели (болванки).

Первичная детализация

Крупные детали. (Базовые элементы).

Обработка финальной формы.

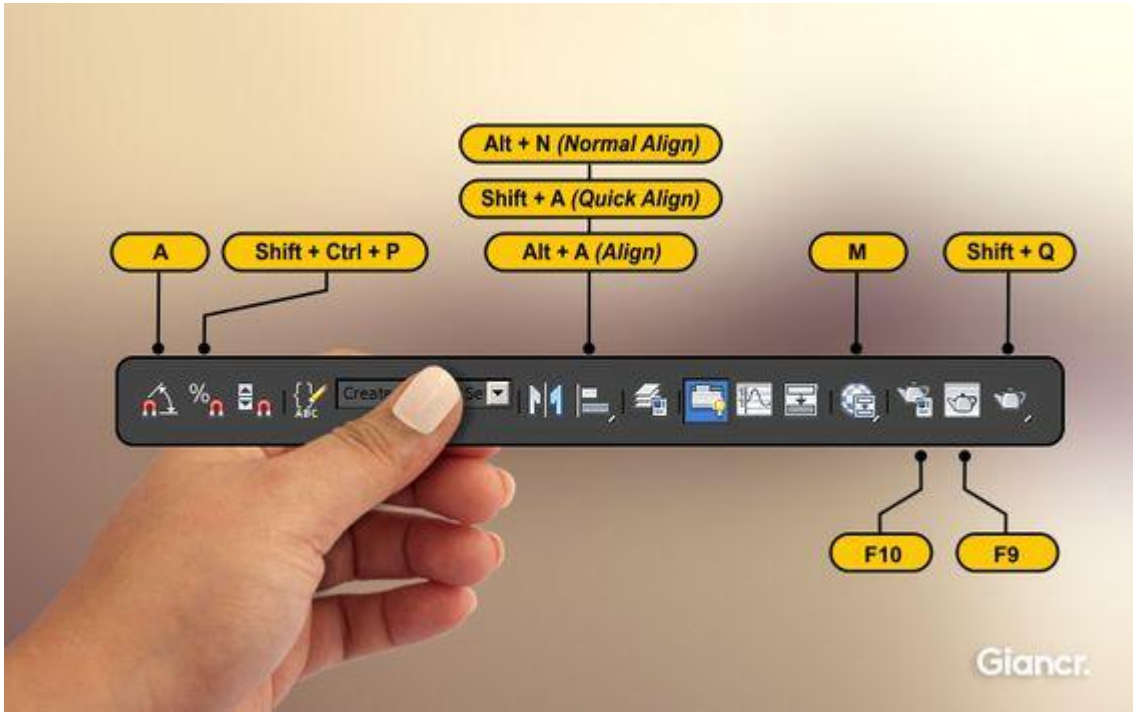
Финальная детализация:

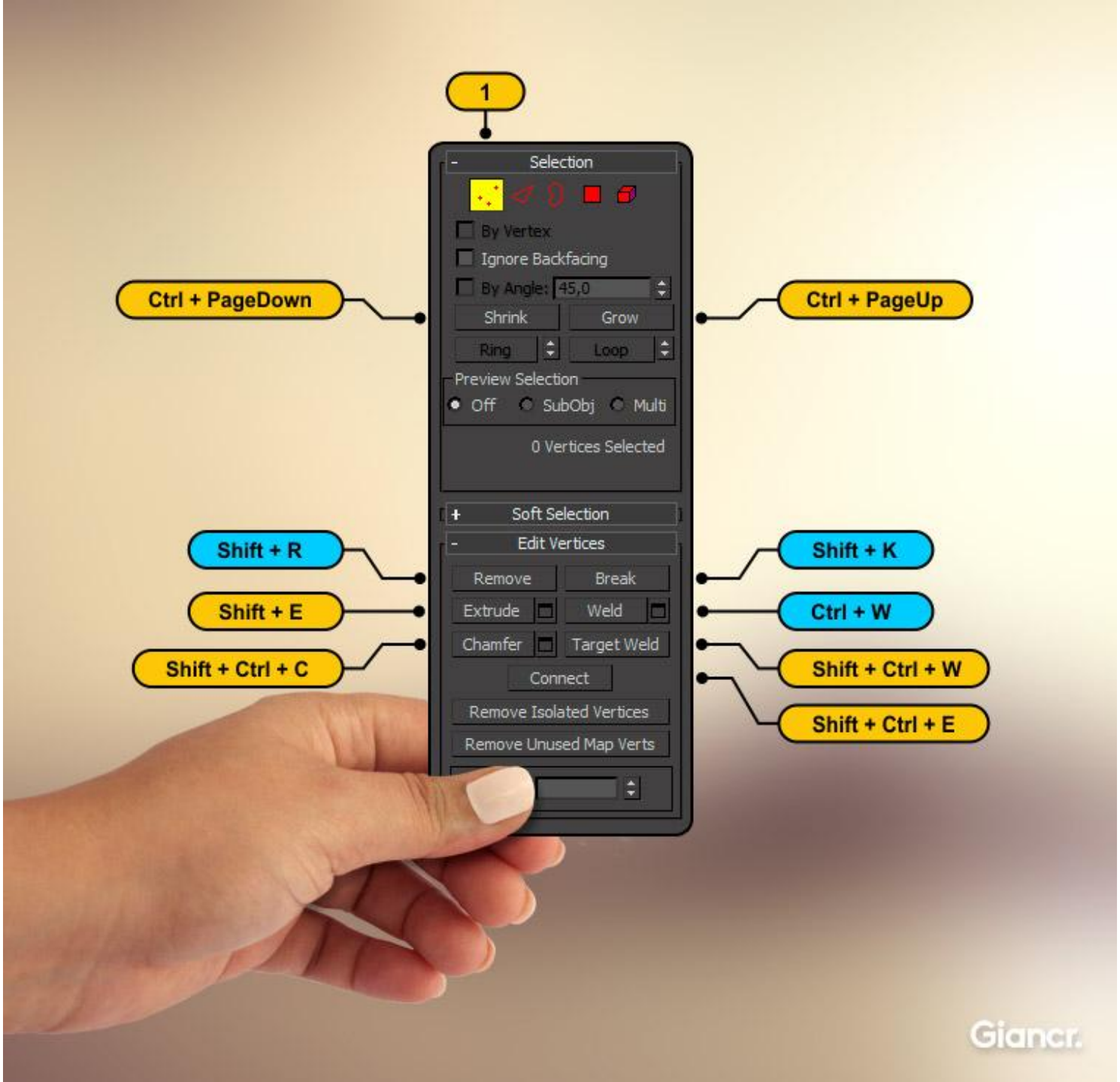
1)1я итерация сглаживание (4х)

2)Мелкие детали

3)Финальное сглаживание

HotKeys


Alt + N (Normal Align)
Shift + A (Quick Align)
A
Shift + Ctrl + P
Alt + A (Align)
M
Shift + Q
F10
F9
Giancr.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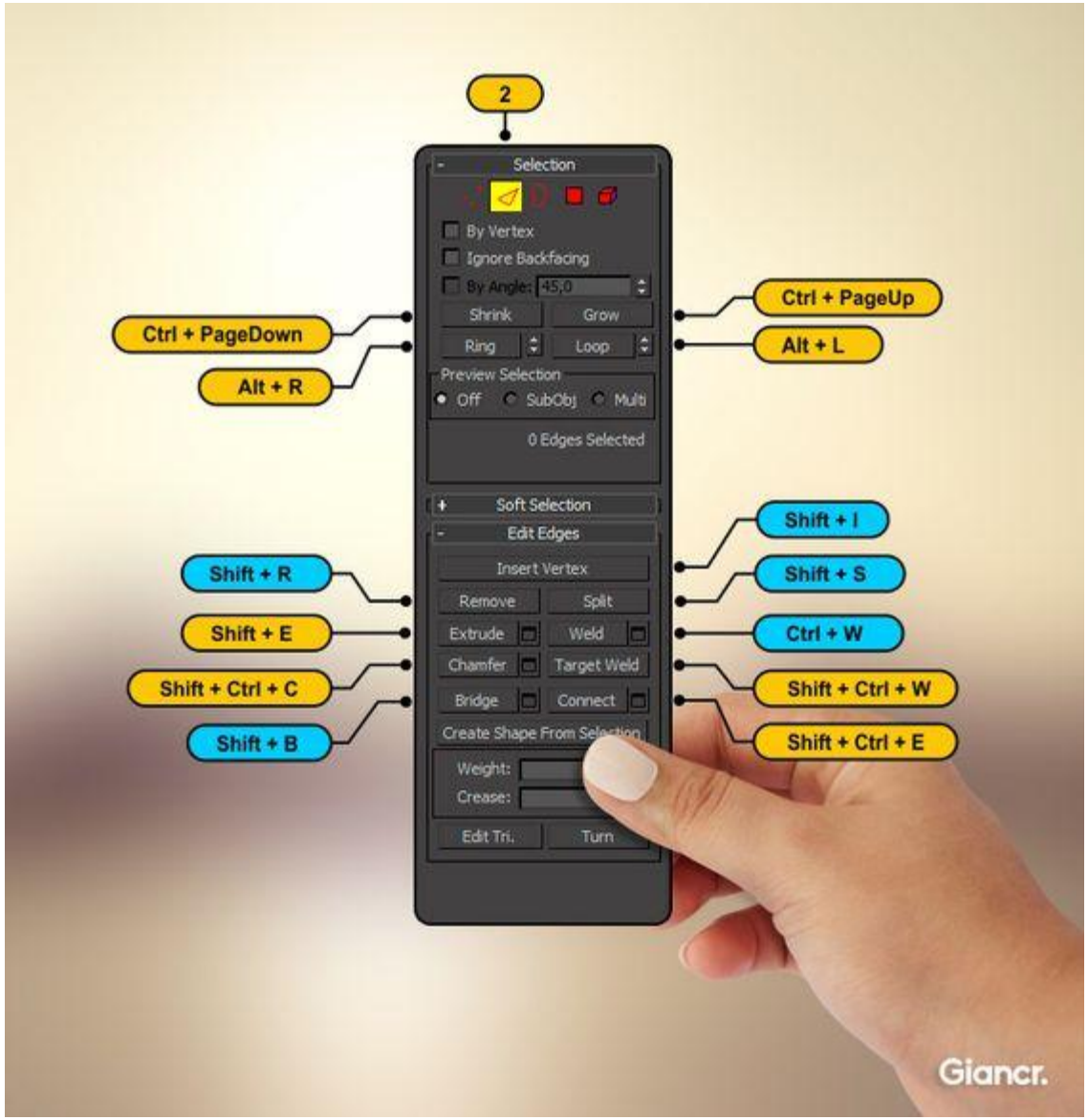
By Vertex
Ignore Backfacing
By Angle: 45,0
Shrink
Grow
Ring
Loop
Preview Selection
Off
SubObj
Multi
0 Vertices Selected
Soft Selection
Edit Vertices
Remove
Break
Extrude
Weld
Chamfer
Target Weld
Connect
Remove Isolated Vertices
Remove Unused Map Verts
Ctrl + PageDown
Ctrl + PageUp
Shift + R
Shift + E
Shift + Ctrl + C
Shift + K
Ctrl + W
Shift + Ctrl + W
Shift + Ctrl + E
Giancr.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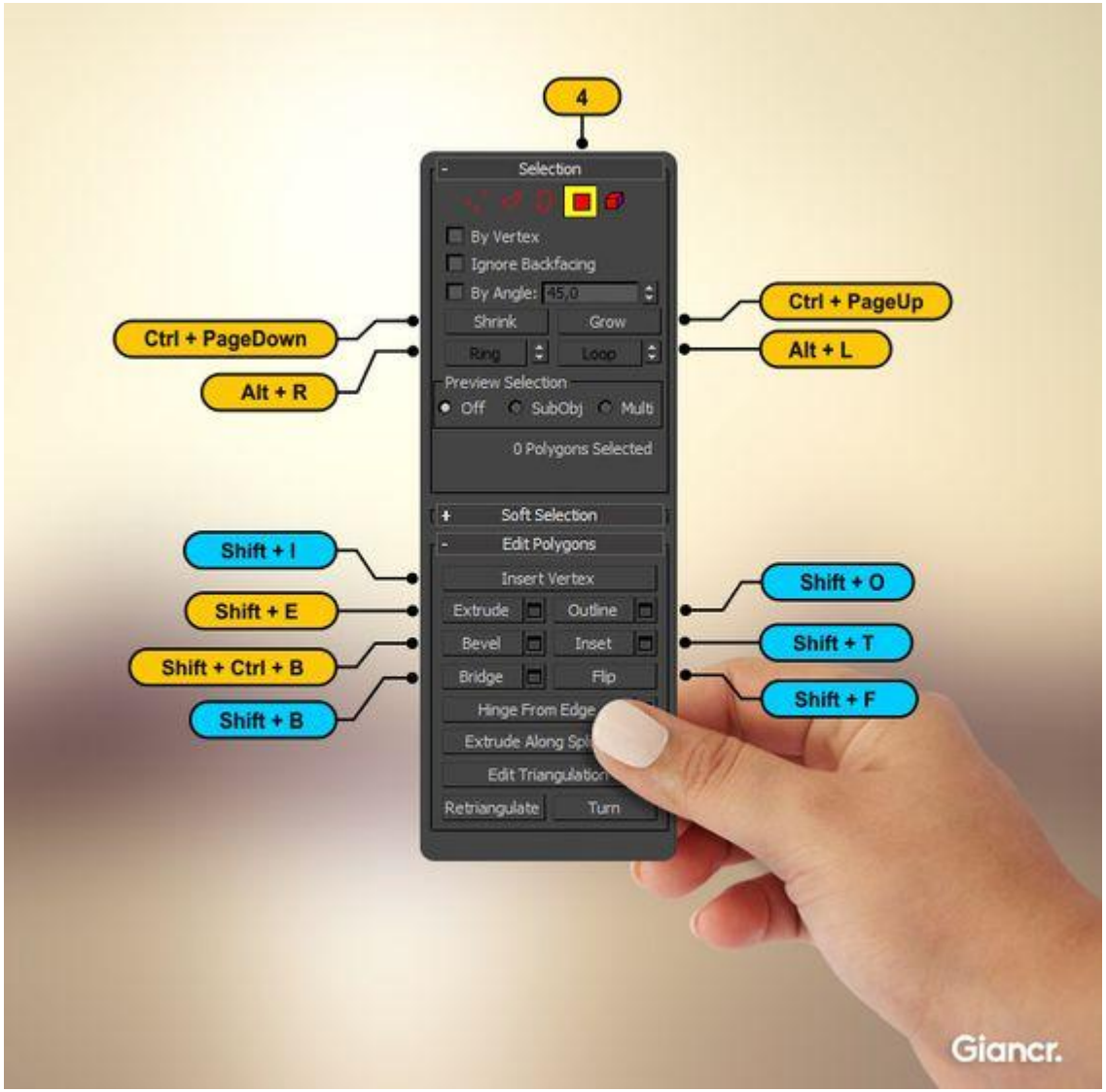
Grow
Ring
Loop
Preview Selection
Off
SubObj
Multi
0 Edges Selected
Soft Selection
Edit Edges
Insert Vertex
Remove
Split
Extrude
Weld
Chamfer
Target Weld
Bridge
Connect
Create Shape From Selection
Weight:
Crease:
Edit Tri.
Turn
Ctrl + PageDown
Alt + R
Ctrl + PageUp
Alt + L
Shift + R
Shift + E
Shift + Ctrl + C
Shift + B
Shift + I
Shift + S
Ctrl + W
Shift + Ctrl + W
Shift + Ctrl + E
Giancr.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Grow
Ring
Loop
Preview Selection
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SubObj
Multi
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Soft Selection
Edit Polygons
Insert Vertex
Extrude
Outline
Bevel
Inset
Bridge
Flip
Hinge From Edge
Extrude Along Spl
Edit Triangulation
Retriangulate
Turn
Ctrl + PageDown
Alt + R
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Shift + E
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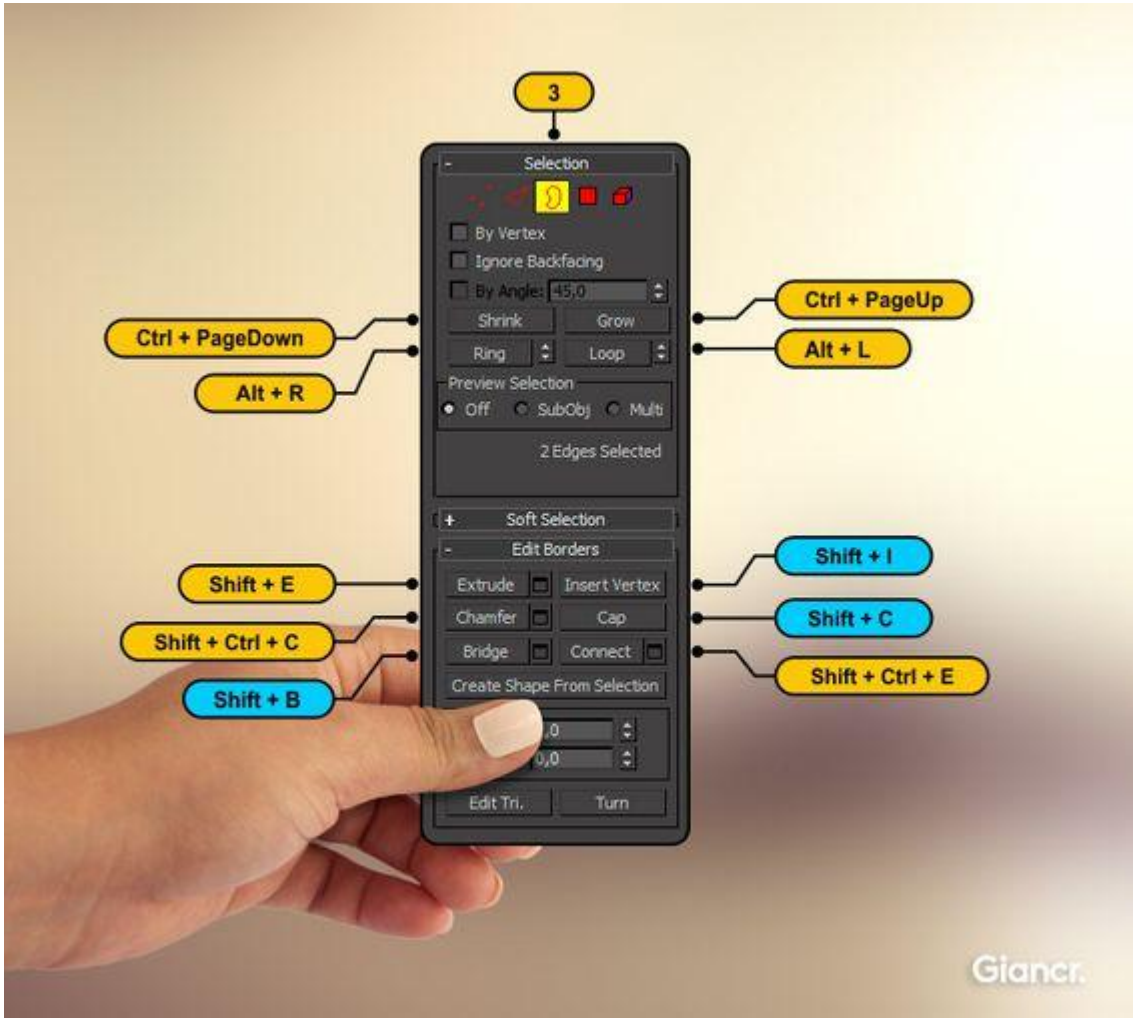
Shift + B
Shift + O
Shift + T
Shift + F
Giancr.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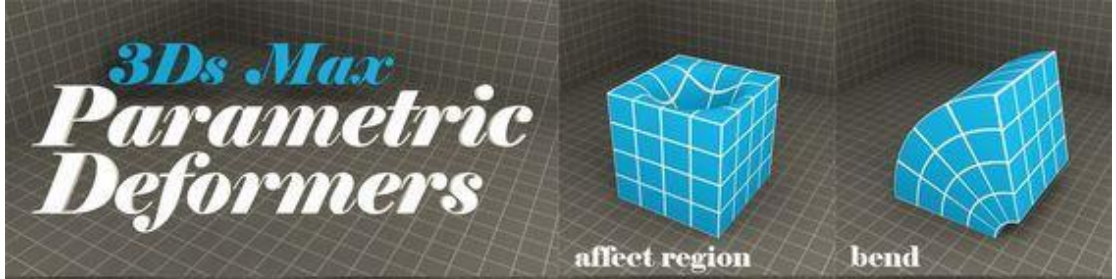
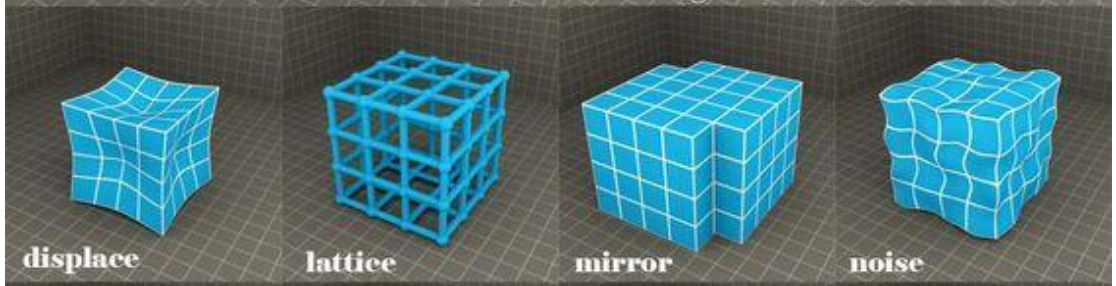
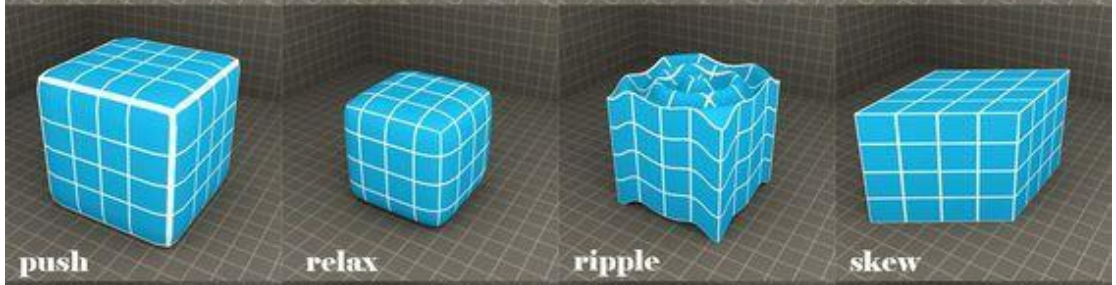
Grow
Ring
Loop
Preview Selection
Off
SubObj
Multi
2 Edges Selected
Soft Selection
Edit Borders
Extrude
Insert Vertex
Chamfer
Cap
Bridge
Connect
Create Shape From Selection
Edit Tri.
Turn
Ctrl + PageDown
Alt + R
Ctrl + PageUp
Alt + L
Shift + E
Shift + Ctrl + C
Shift + B
Shift + I
Shift + C
Shift + Ctrl + E
Giancr.

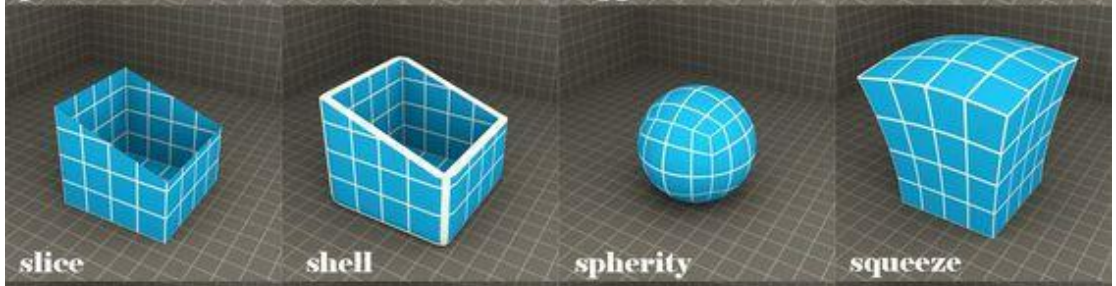
Модификаторы

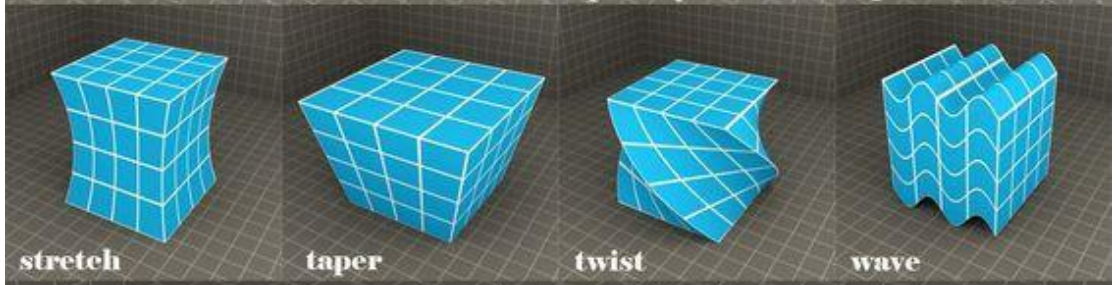
3Ds Max Parametric Deformers





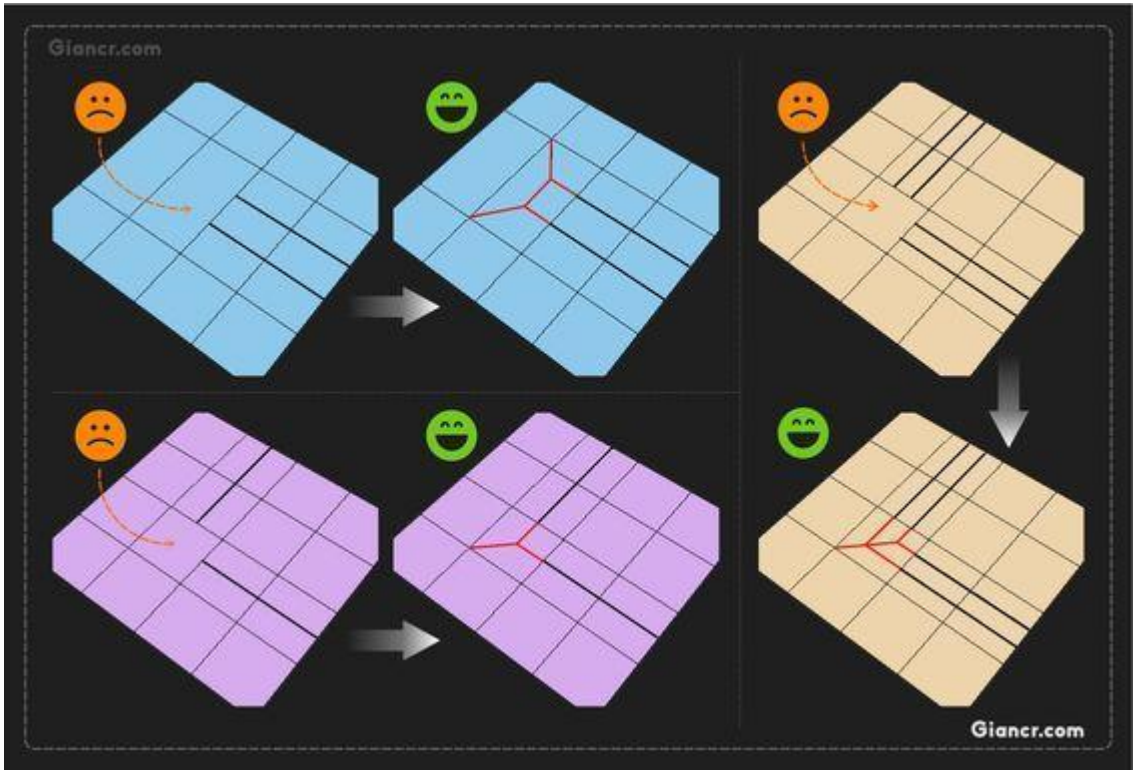






www.fernandezjuanpablo.blogspot.com

Полигональный моделинг


Giancr.com
Giancr.com

Polygon Table for 3D Modeling v0.4

Different mesh configurations within the same boundary

Boundary's Vertex Number	4	5	6	8	10	12	n (Extrapolation)
Central Division	5	6	7	9	11	16	Subpatch Sharp Edges Calculation Each Subpatched Edge needs more two hold edges to be sharp. So its a total of three edges per edge. $n = 3 \times$ Enclosed Polygon Vertices No.
Parallel Division	4	5	6	8	10	12	Result in a Triangle $n = 2z+1$ Result in Odd Quads $n = 4z$ Result in Even Quads $n = 4z+2$
Grid Division	7	7	8	11	12	15	Result in a Triangle $n = 2z+1$ Result in Even Quads $n = 2z$
	Central: Two Quads sharing two edges. Two FourpointTris. Grid: Four FourPointTris.	Odd Boundary's Vertex numbers result in a triangle.	Central: The Edge Pole.	Central: Mirrored Flow. Lowest number for round meshes.	Central: The Edge Pole.	Central: Enclosed Square with mirrored flow.	

- Quads
- Squares
- Triangles
- Standing on Element
- No. Vertices
- No. Polygons

n = Boundary's Vertex Number
$2z$ = Multiple of 2
$4z$ = Multiple of 4
e = Edge Number

Linear Stepping

A small example of flows resulting of adding different Edge Loops to simple Stepping Elements.

Boundary's Vertex Number	4	5	6	8	10	12	e (Extrapolation)
Odd Step Amounts		$\frac{2}{1}$, $\frac{2}{1}$	Odd Step Amounts result in a triangle inside the margins. This is something to take in account in the whole process of stepping, since a bad connection or division may lead to this.				$\frac{e}{e}$, $\frac{e}{1}$ Solutions: Find a triangle in a margin to merge with or, add an Edge Loop to one of the margins.
FourPointTriangle Adding Link Loops only for Constant Step Amount of 2	$\frac{2}{0}$	Best method for straight flat steps. All other methods create vertices between margins.	$\frac{3}{1}$	$\frac{4}{2}$	$\frac{5}{3}$	$\frac{6}{4}$	$\frac{e}{e-2}$ No vertices causing pinching between margins. Tough, there will be pinching on the margin. If it troubles, add an Edge Loop between the margin and the stepping to hold the mesh.
Trapezium (works in pairs) Adding Link Loops only for Constant Step Amount of 2	$\frac{1}{0}$	Stable flow, with vertices between margins to shape the mesh.	$\frac{3}{1}$	$\frac{4}{2}$	$\frac{5}{3}$	$\frac{6}{4}$	$\frac{e}{e-2}$ The placing of Link Edge Loops in or out of the pair of Trapeziums, control the amount of vertices between margins.
		For modeling between margins there are many solutions, depending of the desired flow. Here are some examples but the possibilities are infinite.	$\frac{4}{0}$	$\frac{4}{2}$	$\frac{5}{3}$	$\frac{7}{3}$	$\frac{e}{e}$ Link and Close Edge Loops
				$\frac{6}{0}$	$\frac{7}{1}$	$\frac{9}{1}$	$\frac{e}{e}$ Link and Close Edge Loops.
			$\frac{2}{2}$	$\frac{4}{2}$	$\frac{6}{2}$	$\frac{8}{2}$	$\frac{e}{2}$ Close Edge Loops increase the Step Amount and Factor.

Stepping Structure

Stepping Elements: FourPointTriangle, Trapezium

More Edges Margin (M)

Less Edges Margin (L)

M - L = Step Amount

$\frac{M}{L}$ = Step Factor

Edge Loop Types: Close Loop, Link Loop

Basic Flow. Plus Edge Loops to control Stepping's Amount and Factor.

$\frac{3}{1}$

$\frac{4}{2}$ $\frac{e}{e-2}$ Link Edge Loop

$\frac{5}{1}$ $\frac{e}{1}$ Close Edge Loop

Random Example of Combining Steps

$\frac{14}{6} = \frac{4}{2} + \frac{3}{1} + \frac{1}{1} + \frac{6}{2}$

14

6

Many times it's easier and better to divide the stepping operation in small ones. So there is more control of each area's shape and the math gets easier. Divisions might create two Odd Step Amounts from one Even Step Amount, so they have to be well placed.

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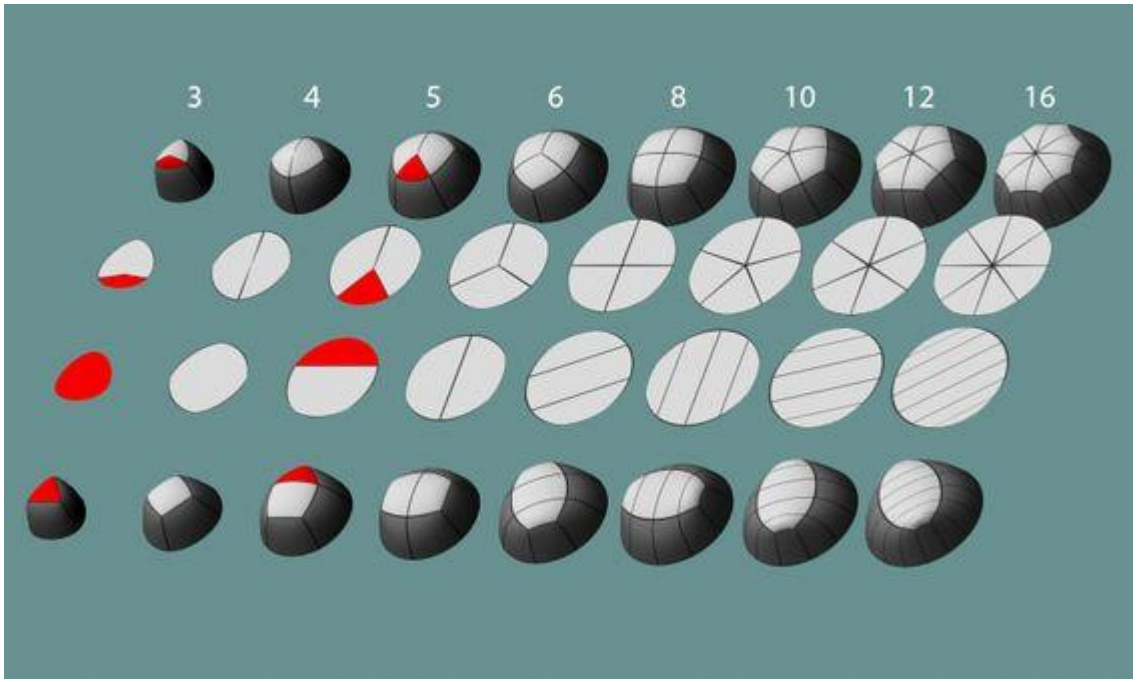
3
4
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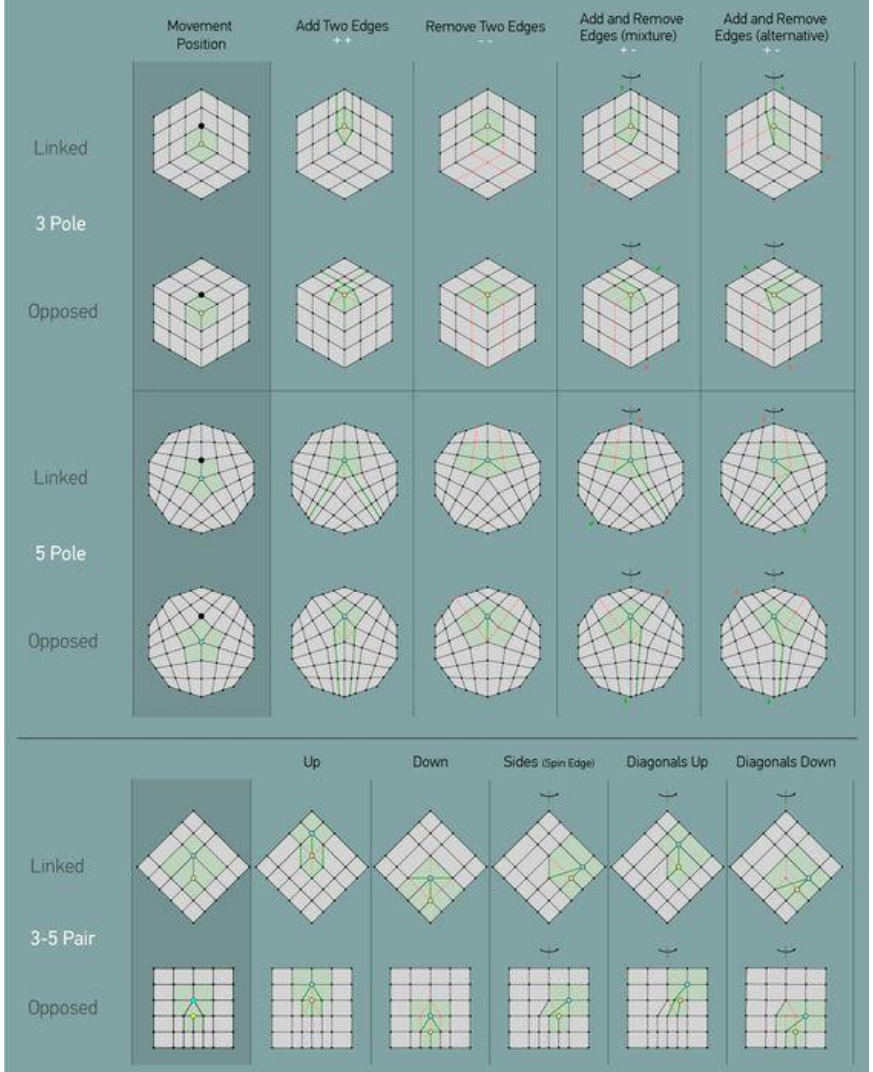
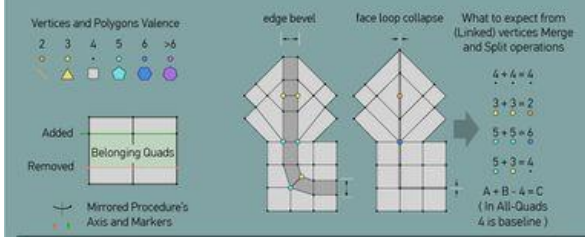
Moving Poles v0.2

Examples of modeling procedures to change Poles' location





For single Poles the procedure requires global changes in topology by adding and/or removing edge loops.
To diminish that effect one can try to operate across symmetry lines or dump the changes to ocluded areas, holes or N-Gons.

For pairs of 3-5 Poles the procedure is quite easy and changes are only local.

Some procedures can be also applied across the Mirror Axis, which is always vertical here for easy display purposes.

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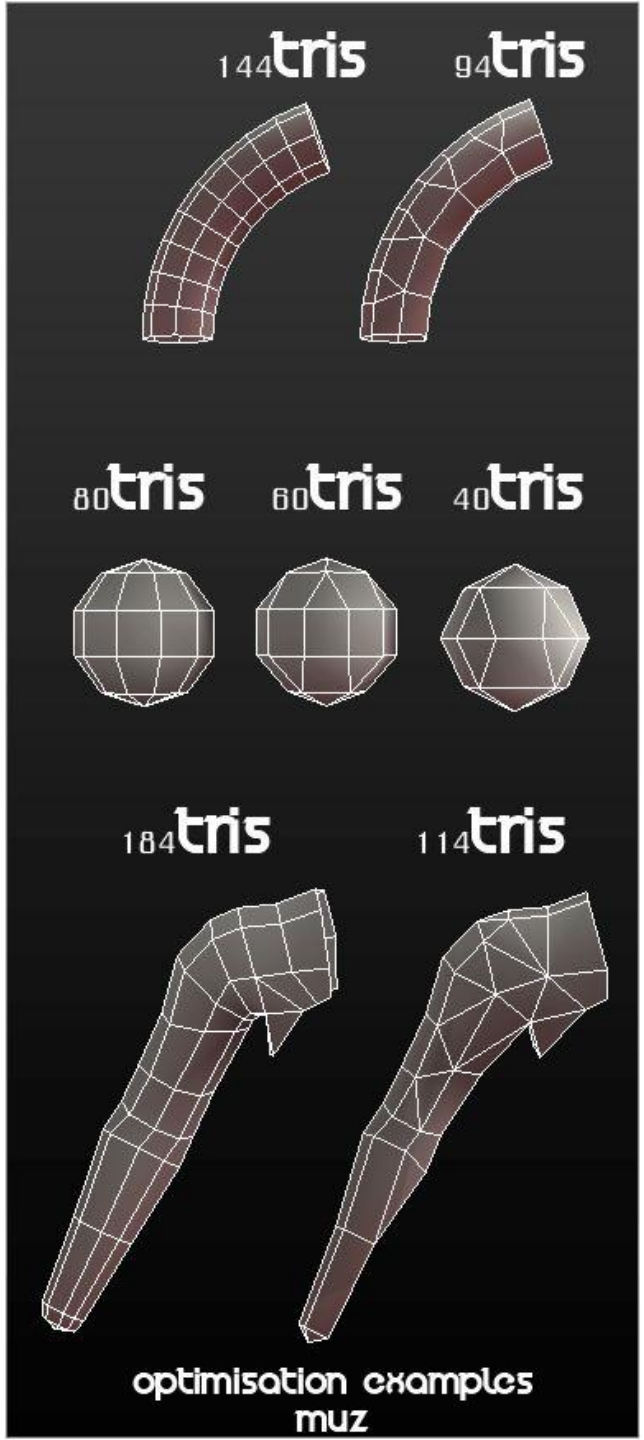
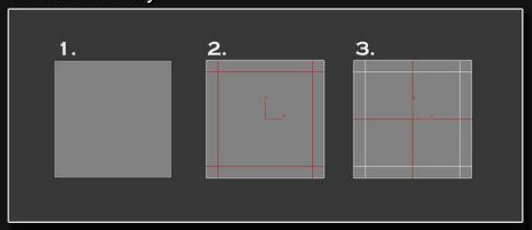


Cutting Holes Into Meshes

seanvangorder.wordpress.com

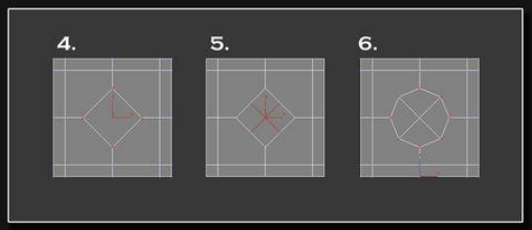
Flat Geometry



1. For the sake of demonstration I will be using a simple plane. This method can be applied to any flat surface on objects of any complexity.

2. Begin by adding supporting edges in which the hole will be created. This step is not absolutely necessary, but it will help avoid subdivision problems later on by keeping inset edges away from the borders of the flat surface.

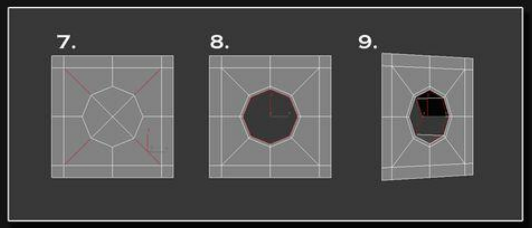
3. Use "Connect" to add two perpendicular edges crossing through the center of where you want the hole to be.



4. Select the center vertex created in the last step and use "Chamfer" to create a square.

5. Use "Connect" to create perpendicular edges in the square.

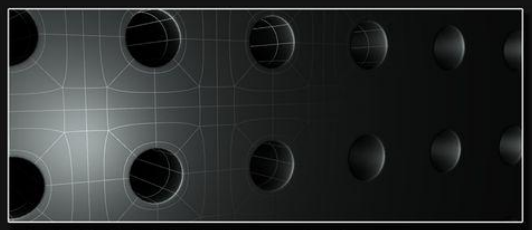
6. Select the eight vertices on the border of the square and apply a "Spherify" modifier to round the edges. Collapse the modifier.



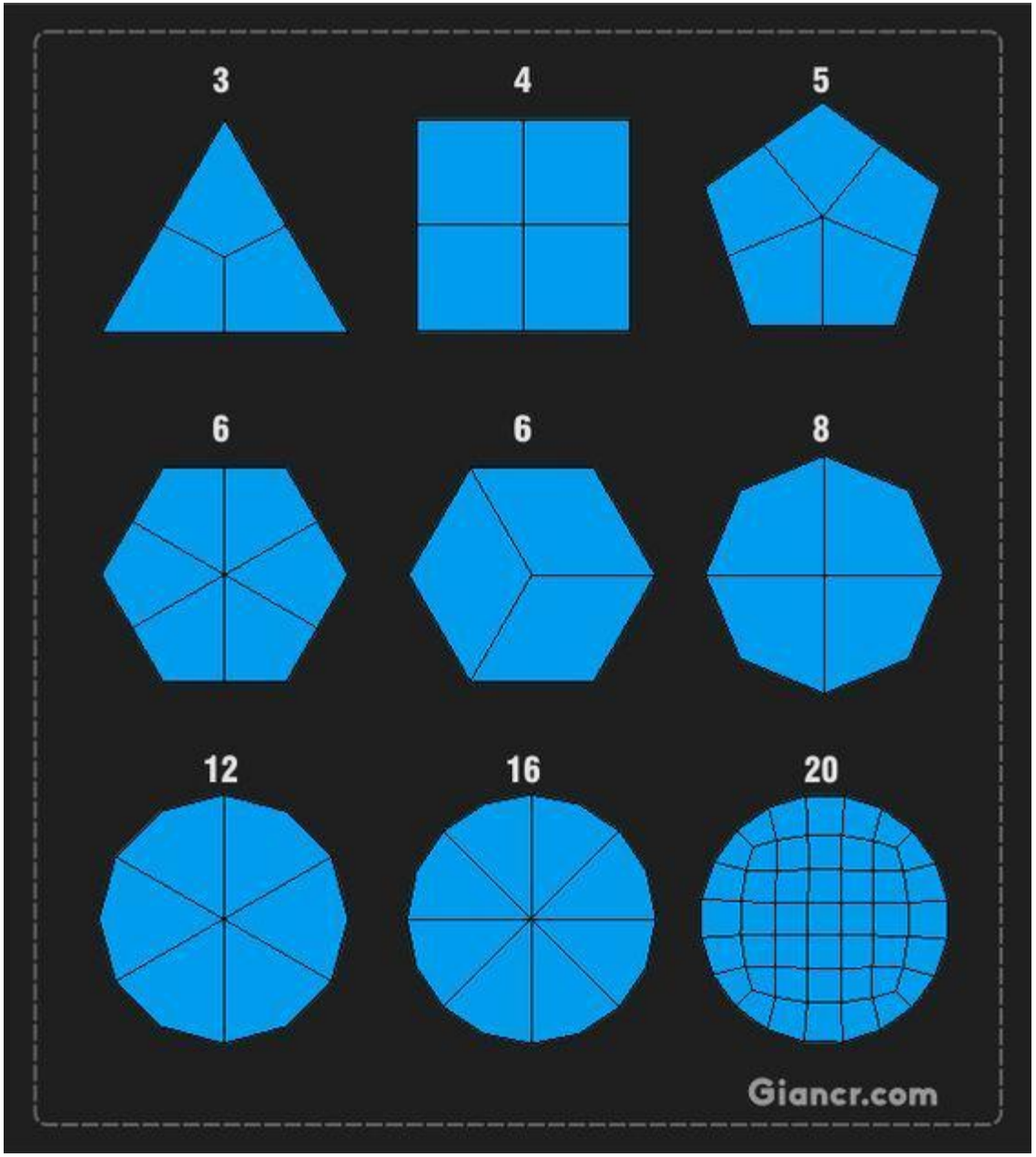
7. Use "Connect" to create edges between to preserve quads around the hole.

8. Select the four inner faces and use "Inset". Then delete the faces. This creates a supporting edge for subdivision.

9. Select the center border, hold shift, and drag out another edge. Do this twice to create a supporting edge for subdivision. Add a "Turbosmooth" modifier.



Final result, duplicated and welded together with a turbosmooth modifier applied.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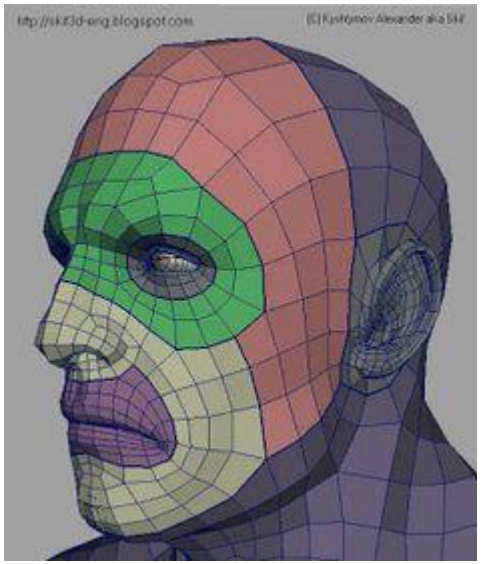
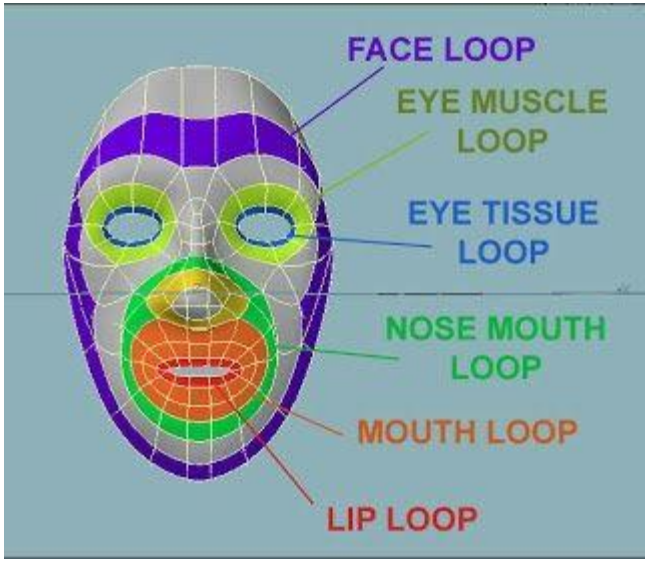
Giancr.com


http://skit3d-eng.blogspot.com
(C) Kushnirov Alexander aka SKF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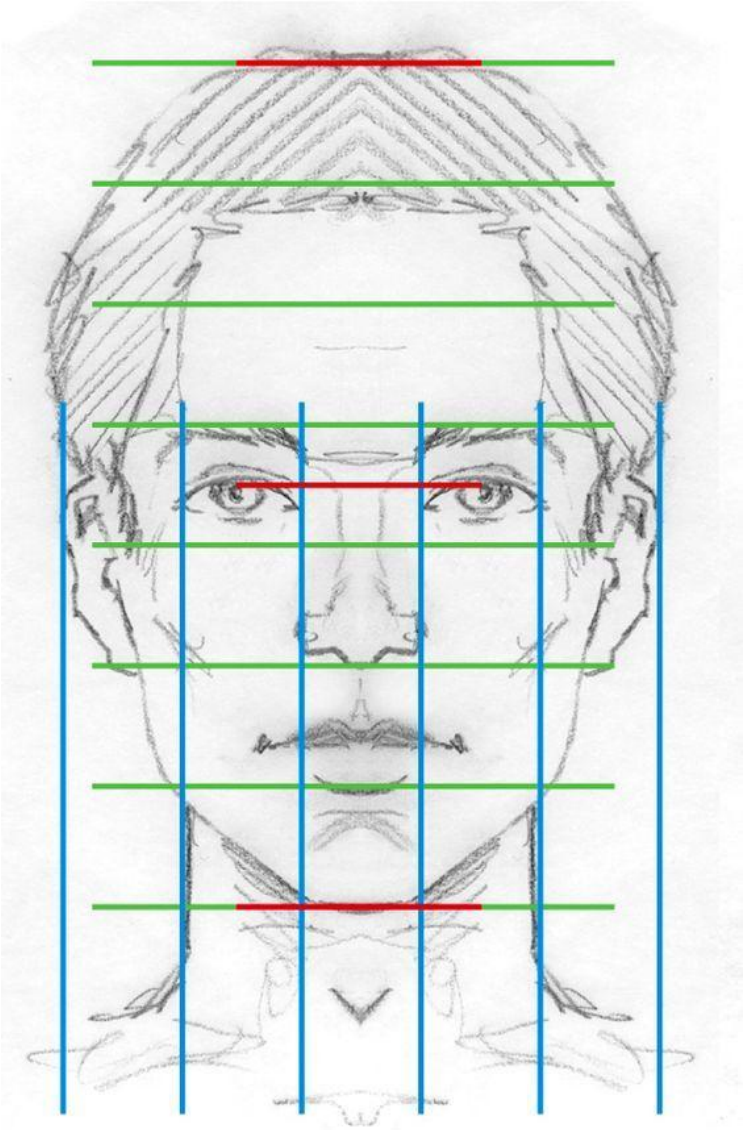
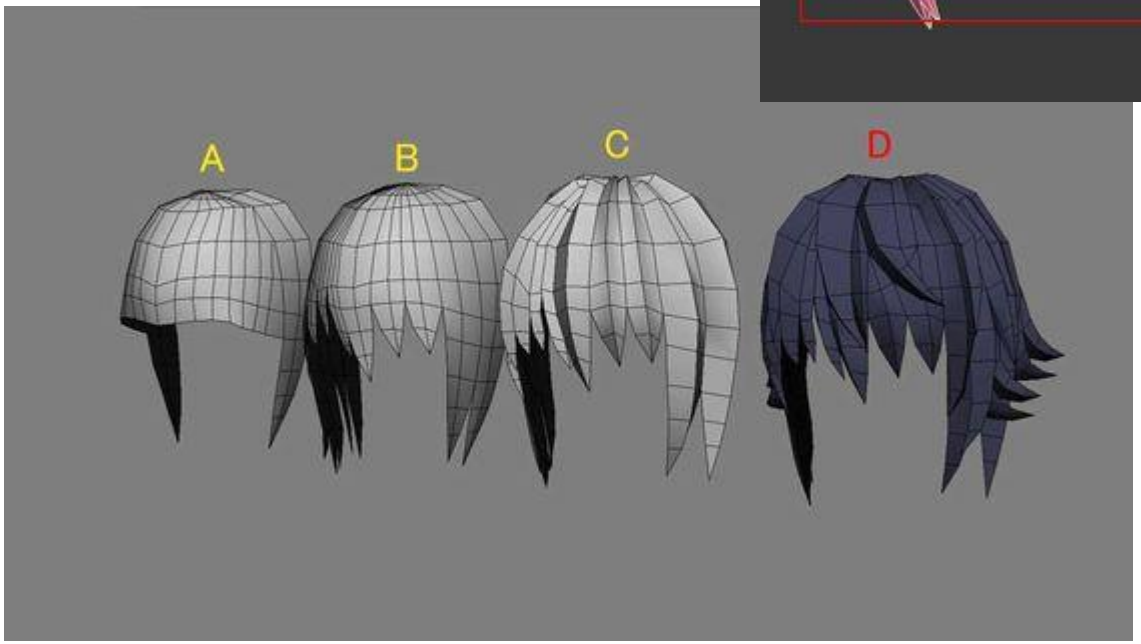
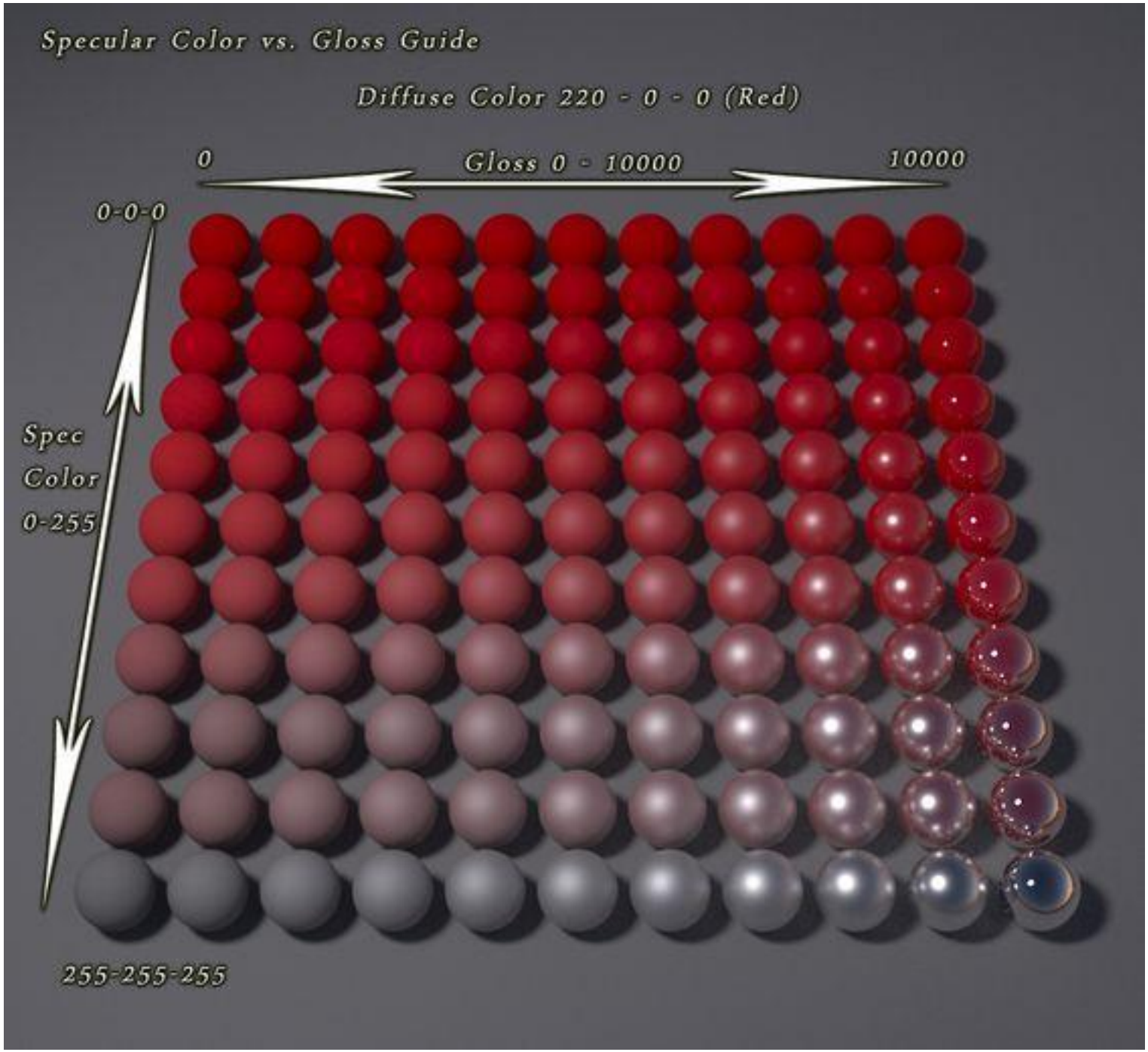
EYE MUSCLE LOOP
EYE TISSUE LOOP
NOSE MOUTH LOOP
MOUTH LOOP
LIP LOOP




A
B
C
D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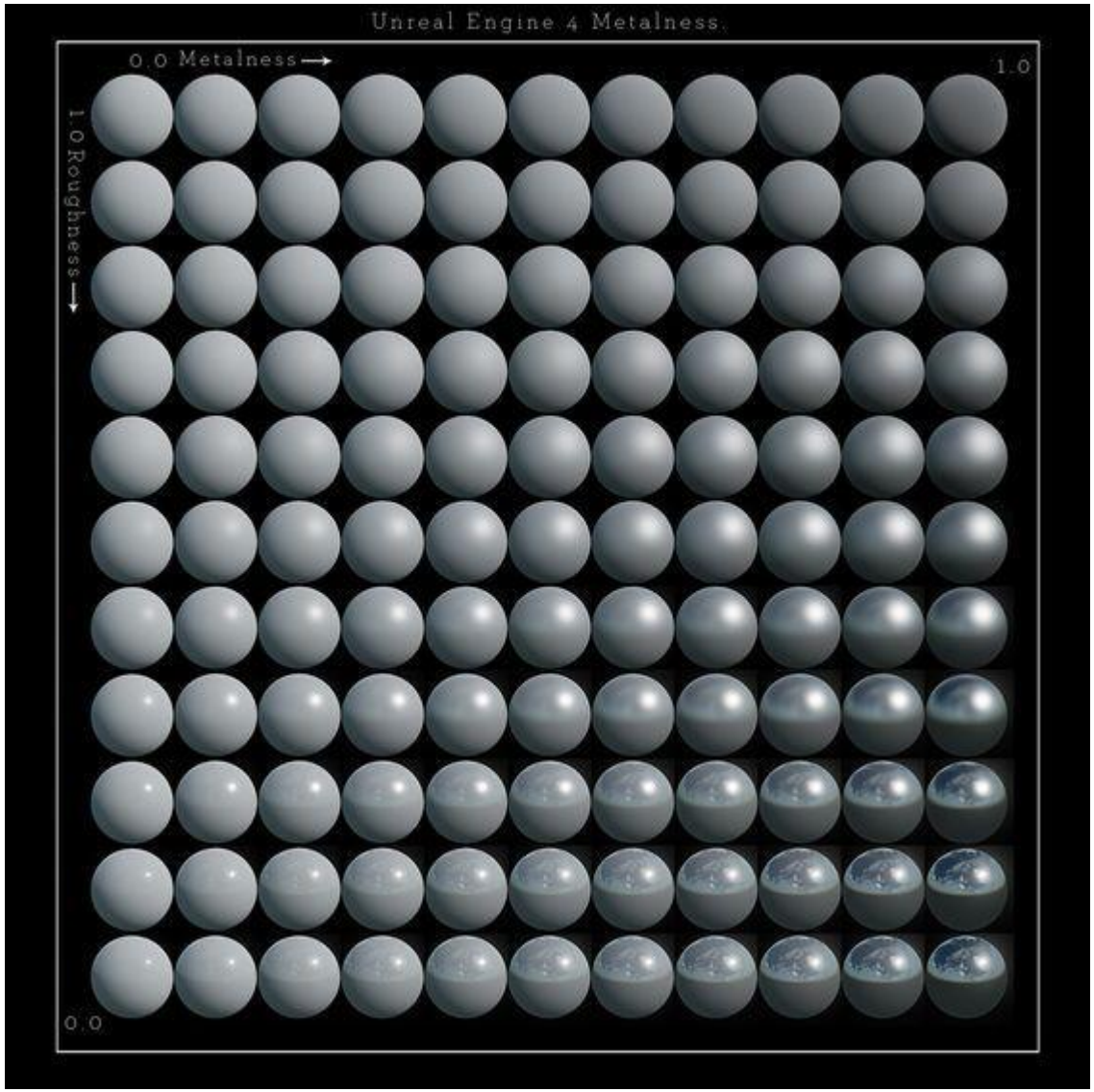
Gloss 0 - 10000
10000
0-0-0
Spec
Color
0-255
255-255-255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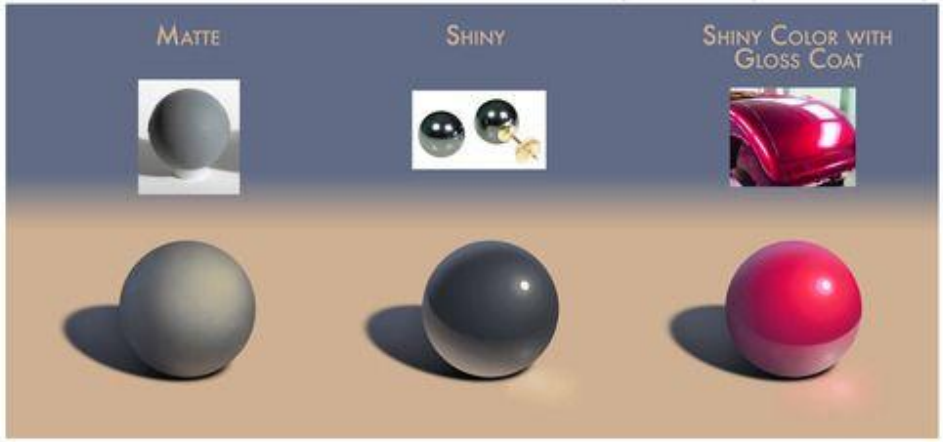
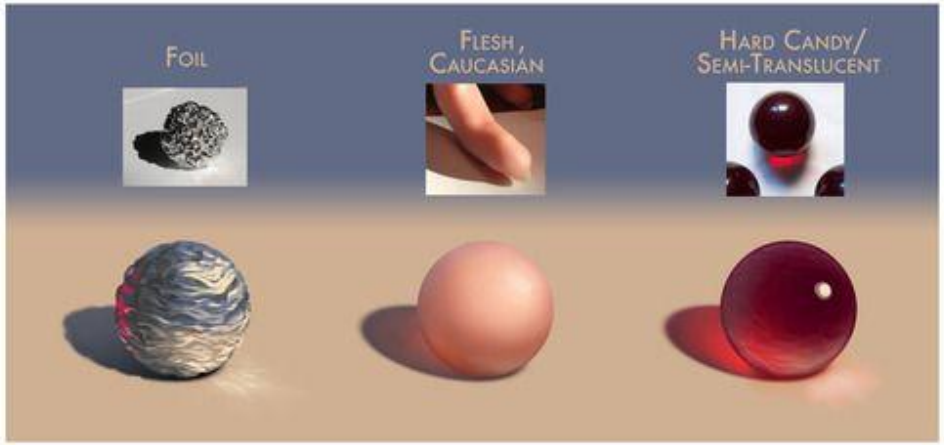
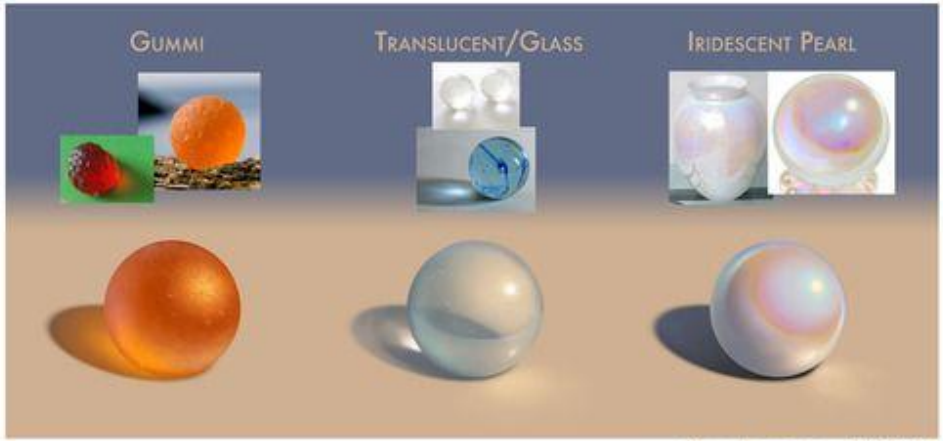
1.0
1.0 Roughness
0.0

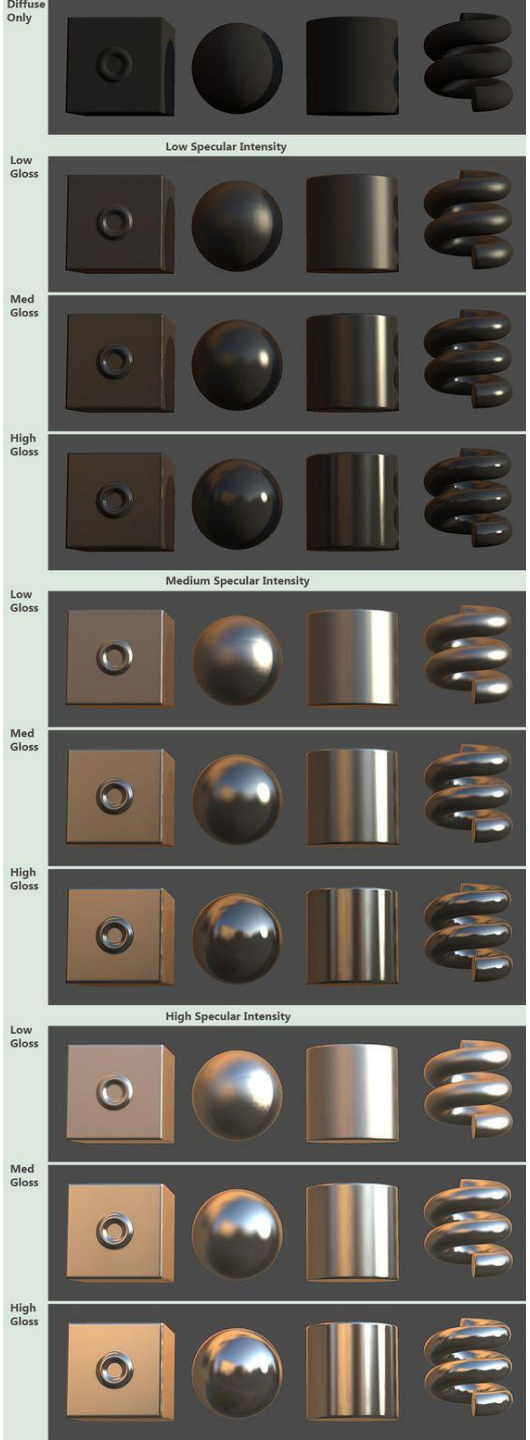






Cami Sanders - 2/17/14

GOLD
MATERIAL STUDY
GOLD
GOLD ROUGH
GOLD PAINT
GOLD PAINT CRACKED
GOLD FOIL ROUGH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Low Specular Intensity
Low Gloss
Med Gloss
High Gloss
Medium Specular Intensity
Low Gloss
Med Gloss
High Gloss
High Specular Intensity
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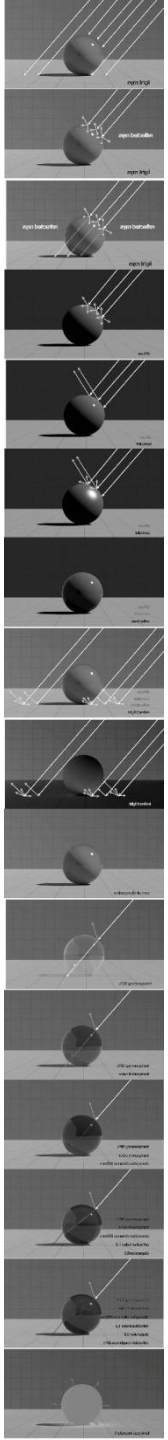
Med Gloss
High Gloss


zwei trägt
zwei betreffen
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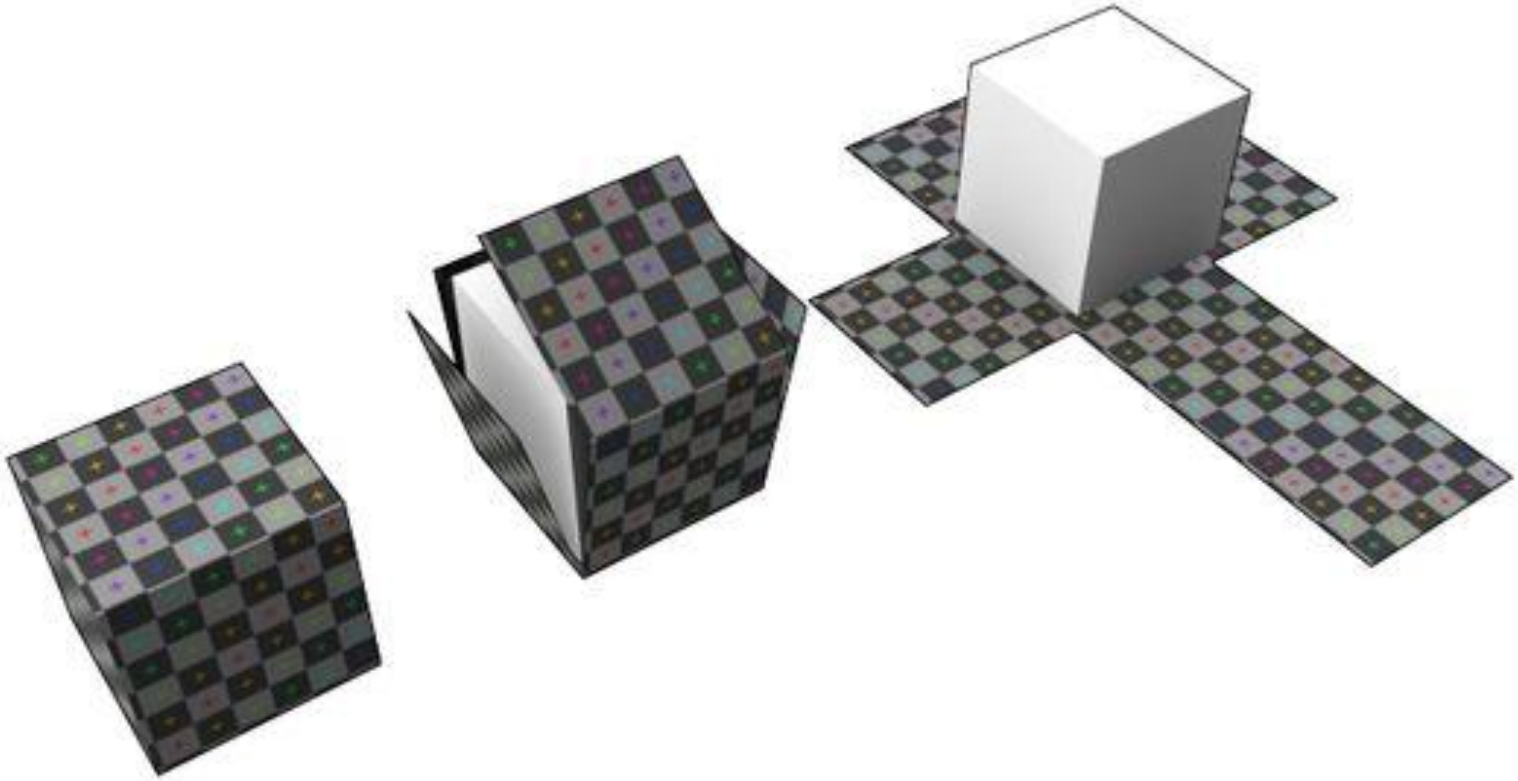
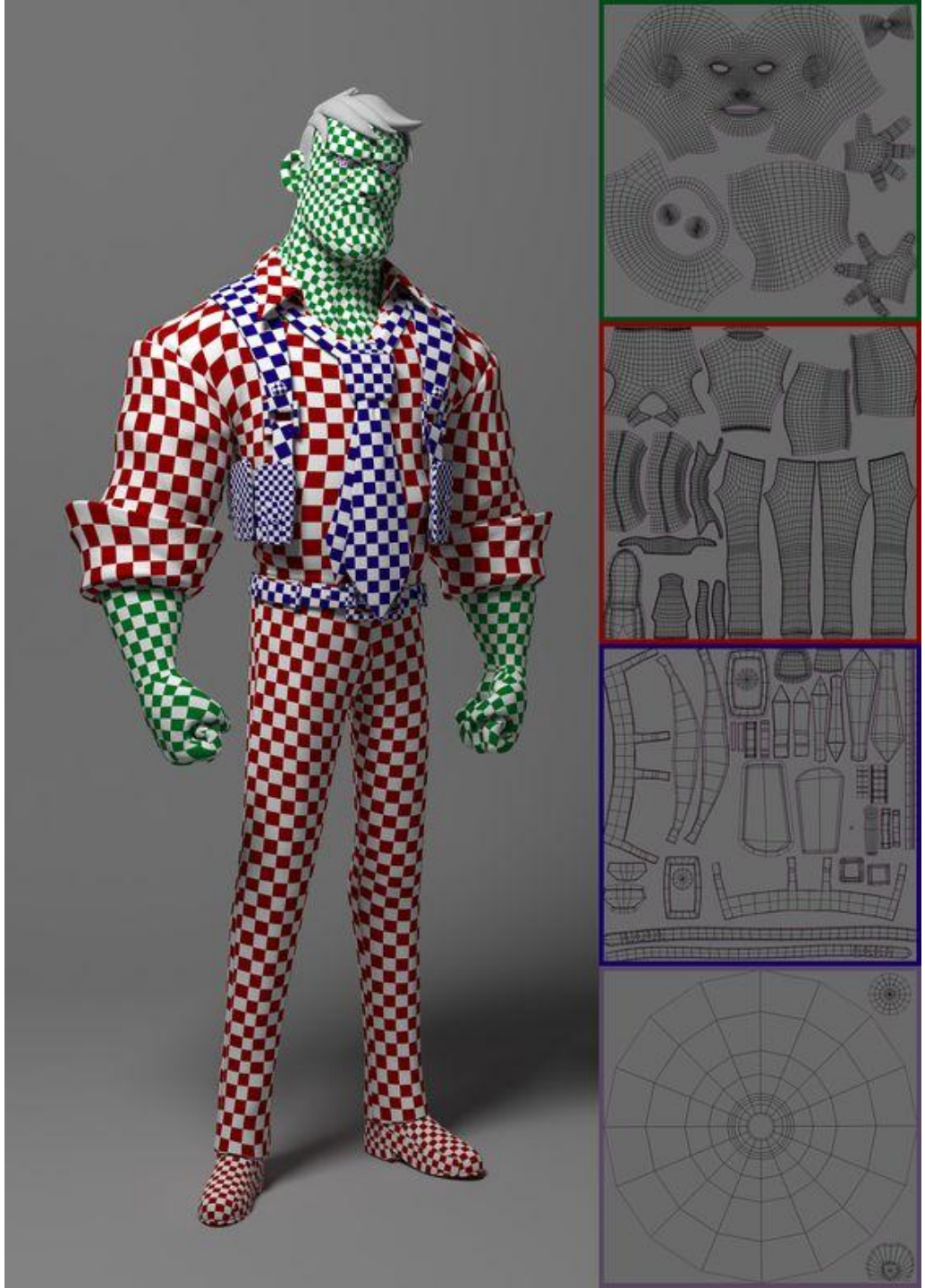
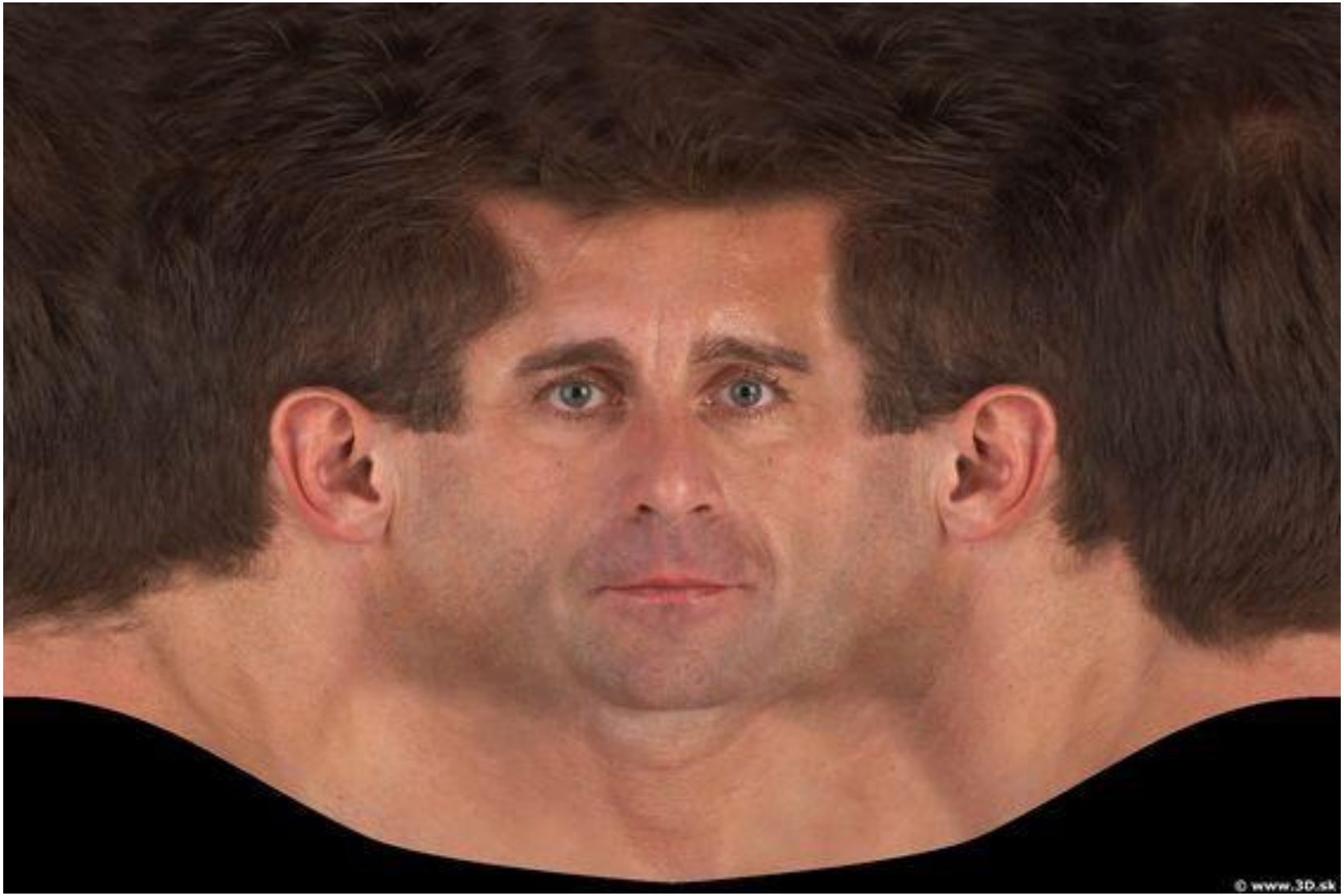
UV Mapping & Texturing



Wireframe and Textures
Showing the diffuse textures only

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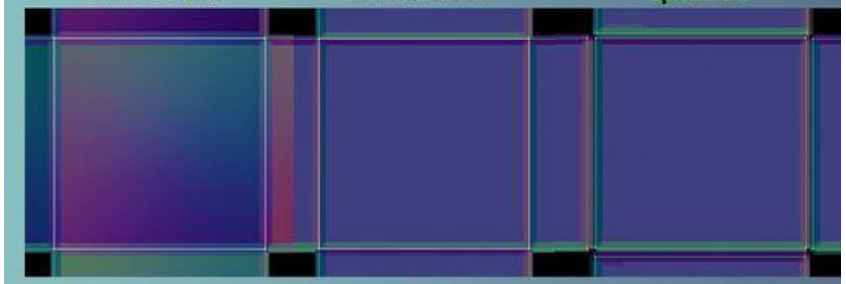
www.simont.de

The Shading

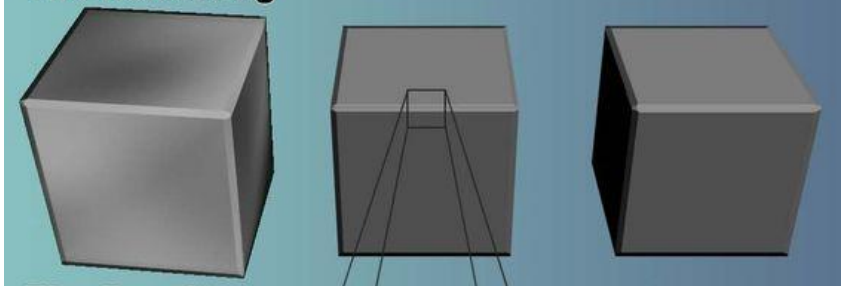
smooth | hard | hard

The UV/Normal

stiched UVs | stiched UVs | split UVs

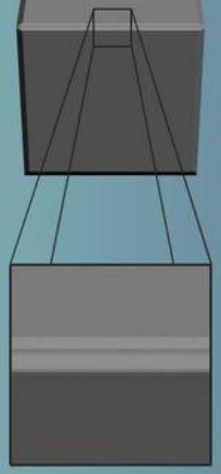


The Rendering



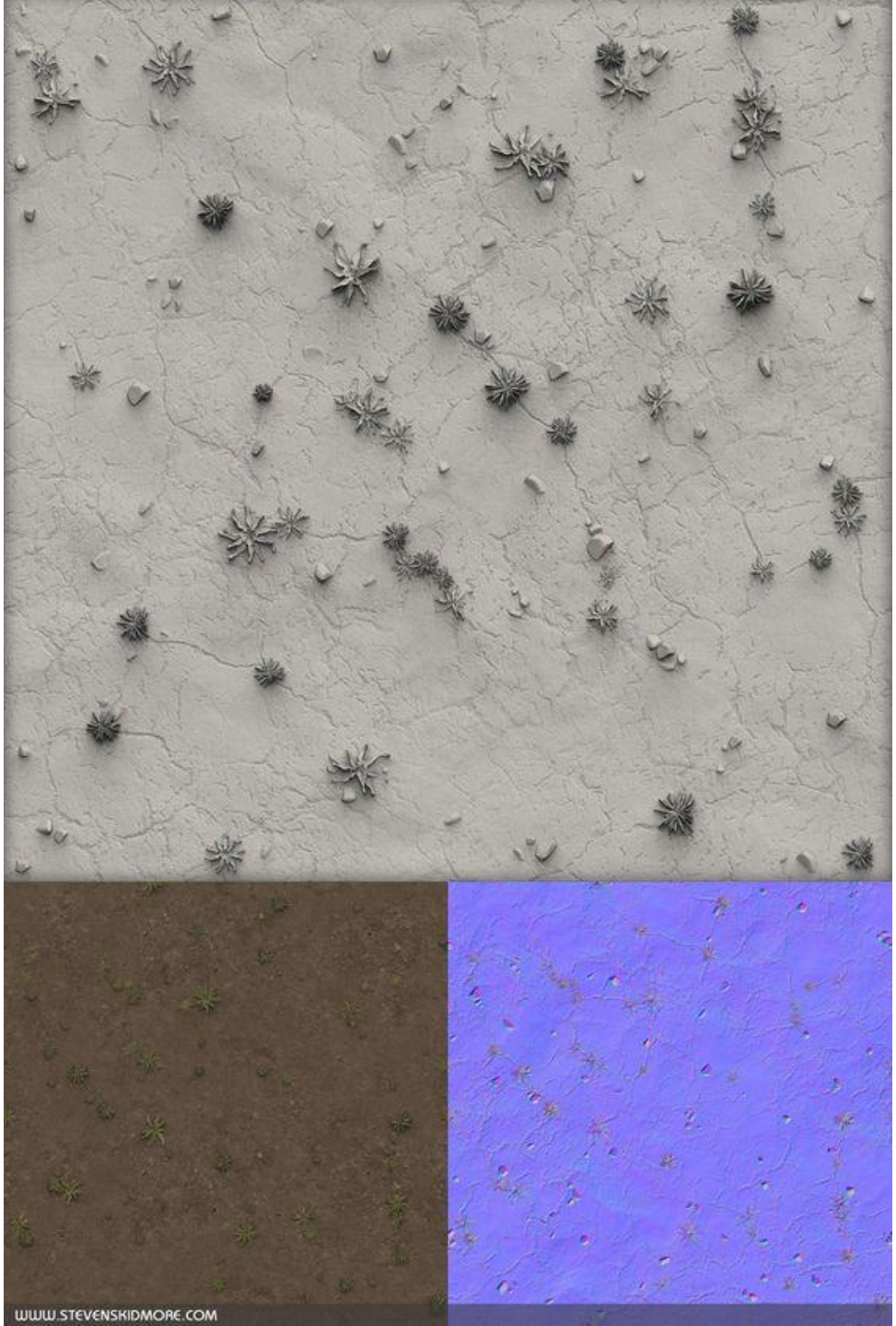
The Result

In some game engines you get this. You can see this ugly gradients on the model.



If you just activate hard shading, you will get this annoyning edge.

In my opinion the best result: hard shading, no normalmap gradients but a clear defined normal edge.
The only problem: the upper part of the lightedge is also visible at the end of the box.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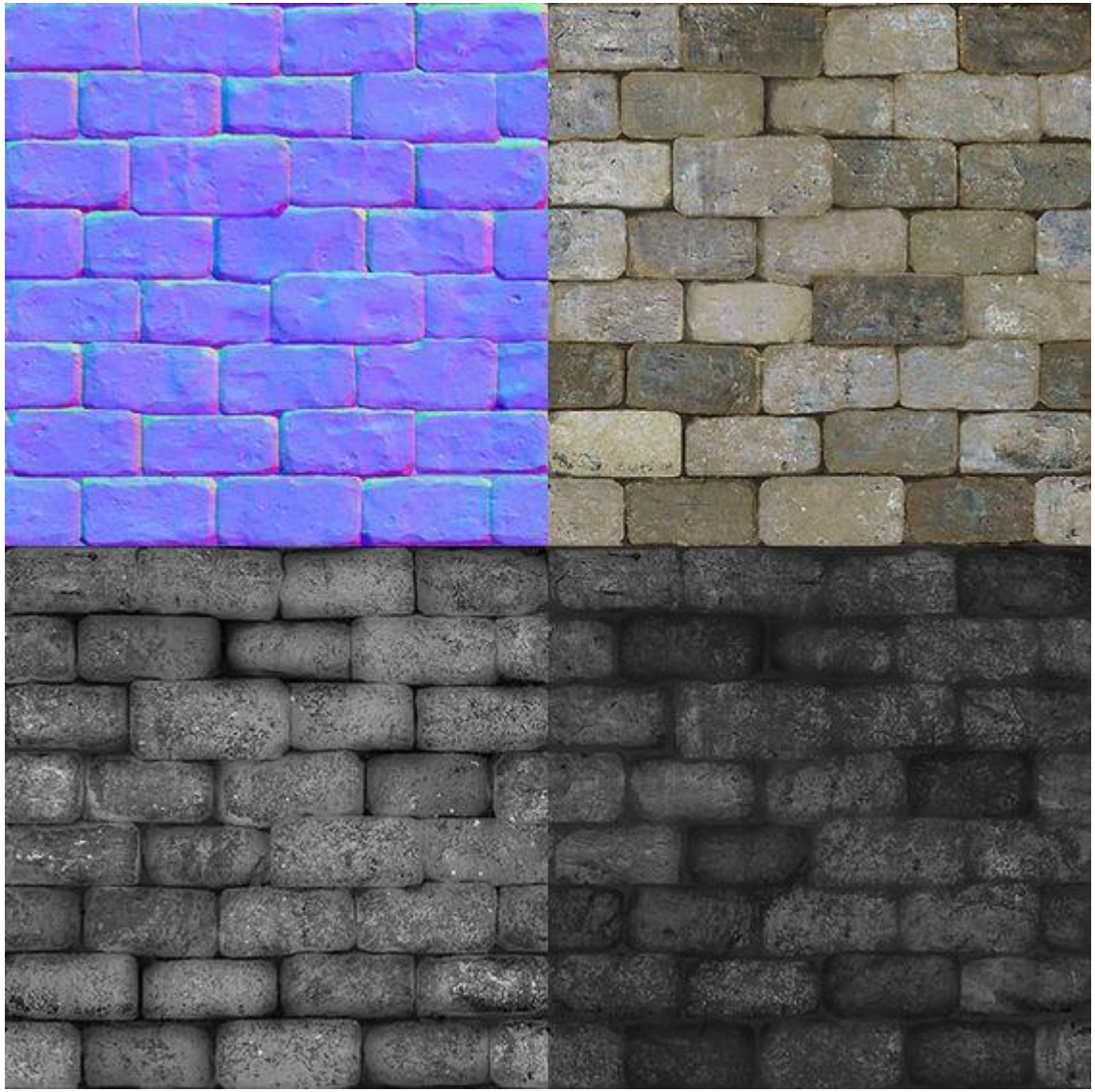

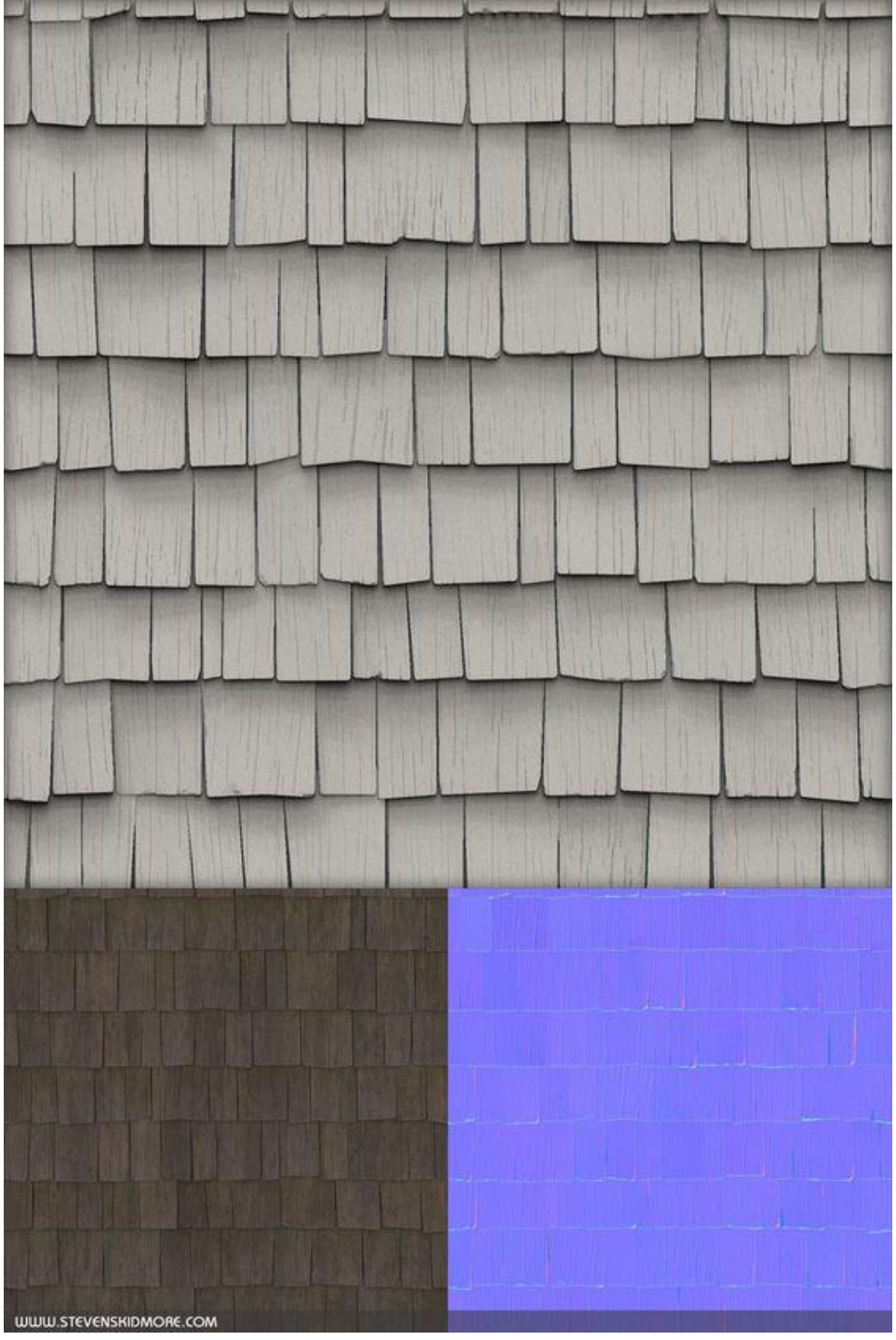
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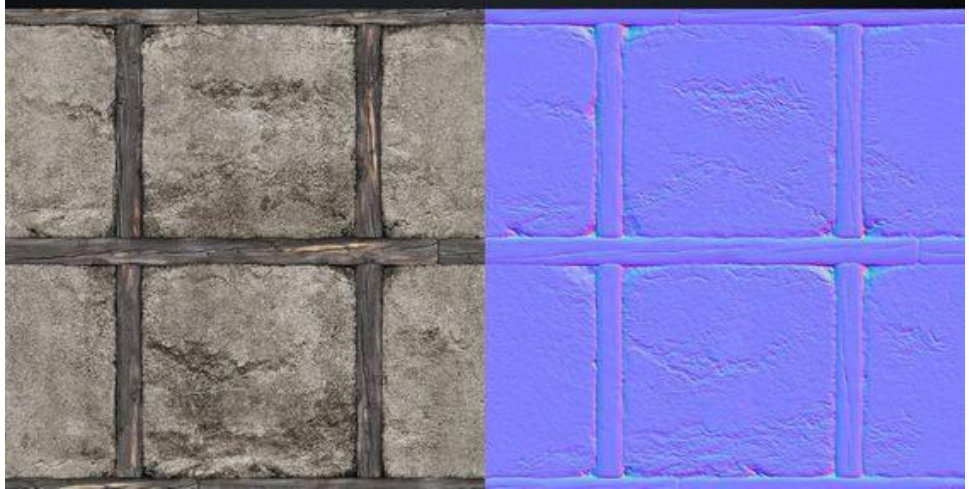
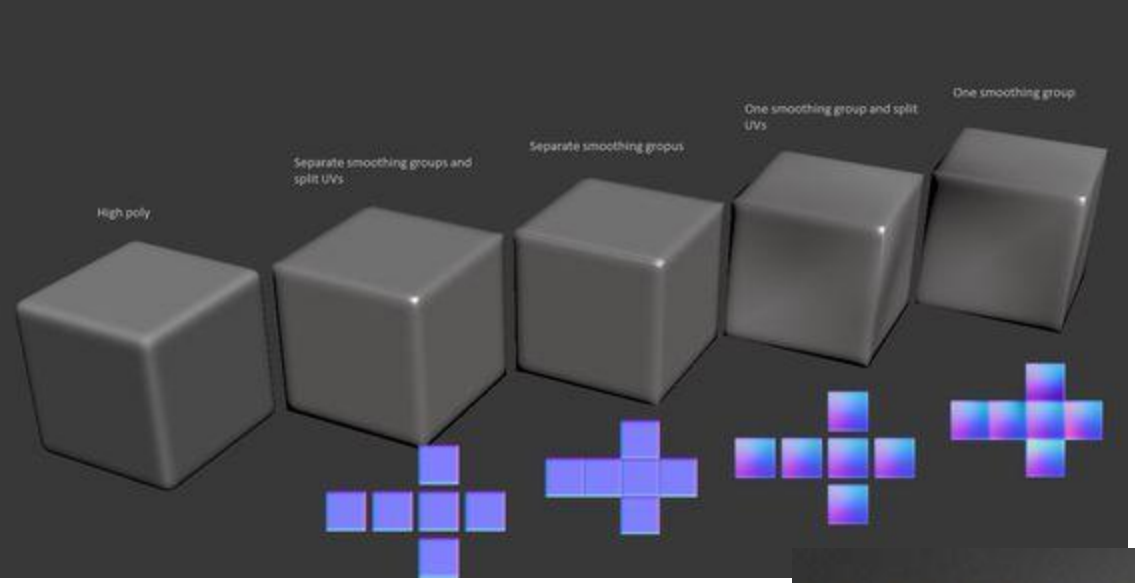
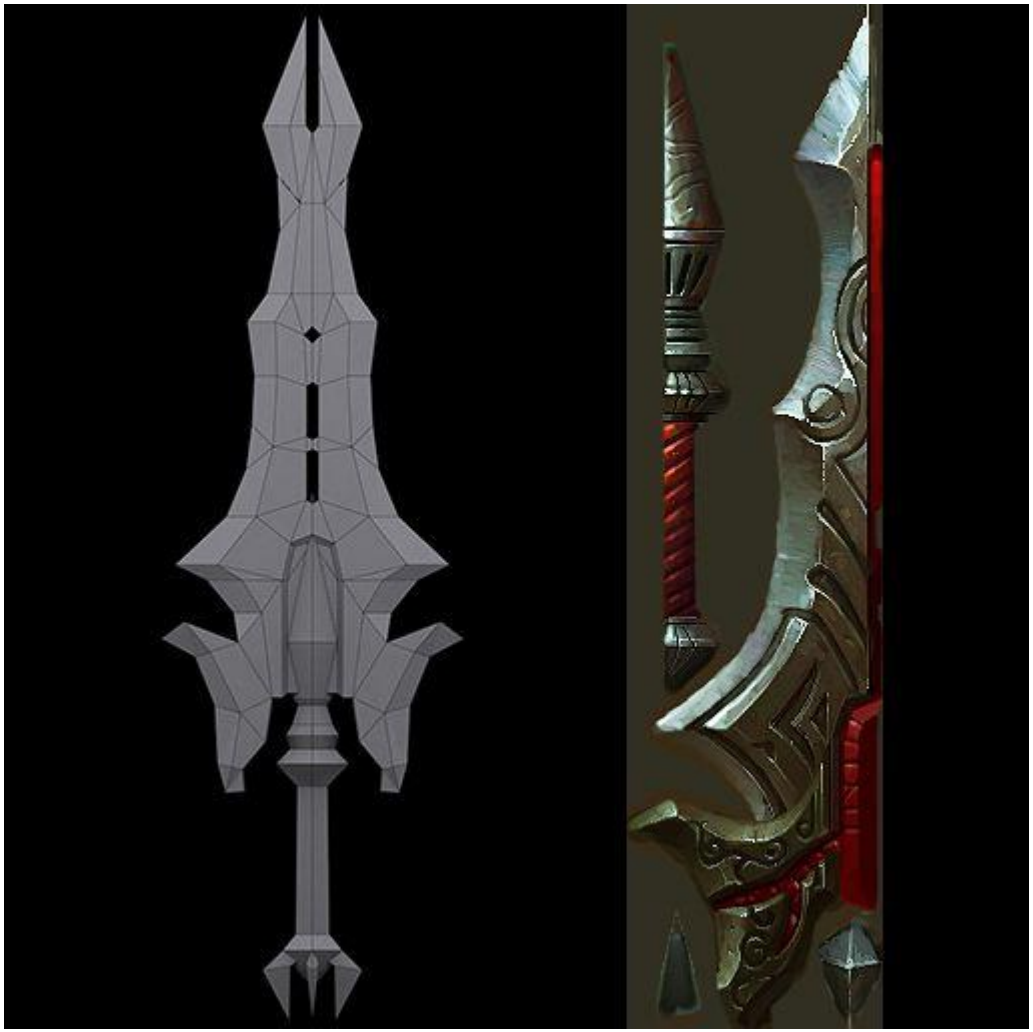
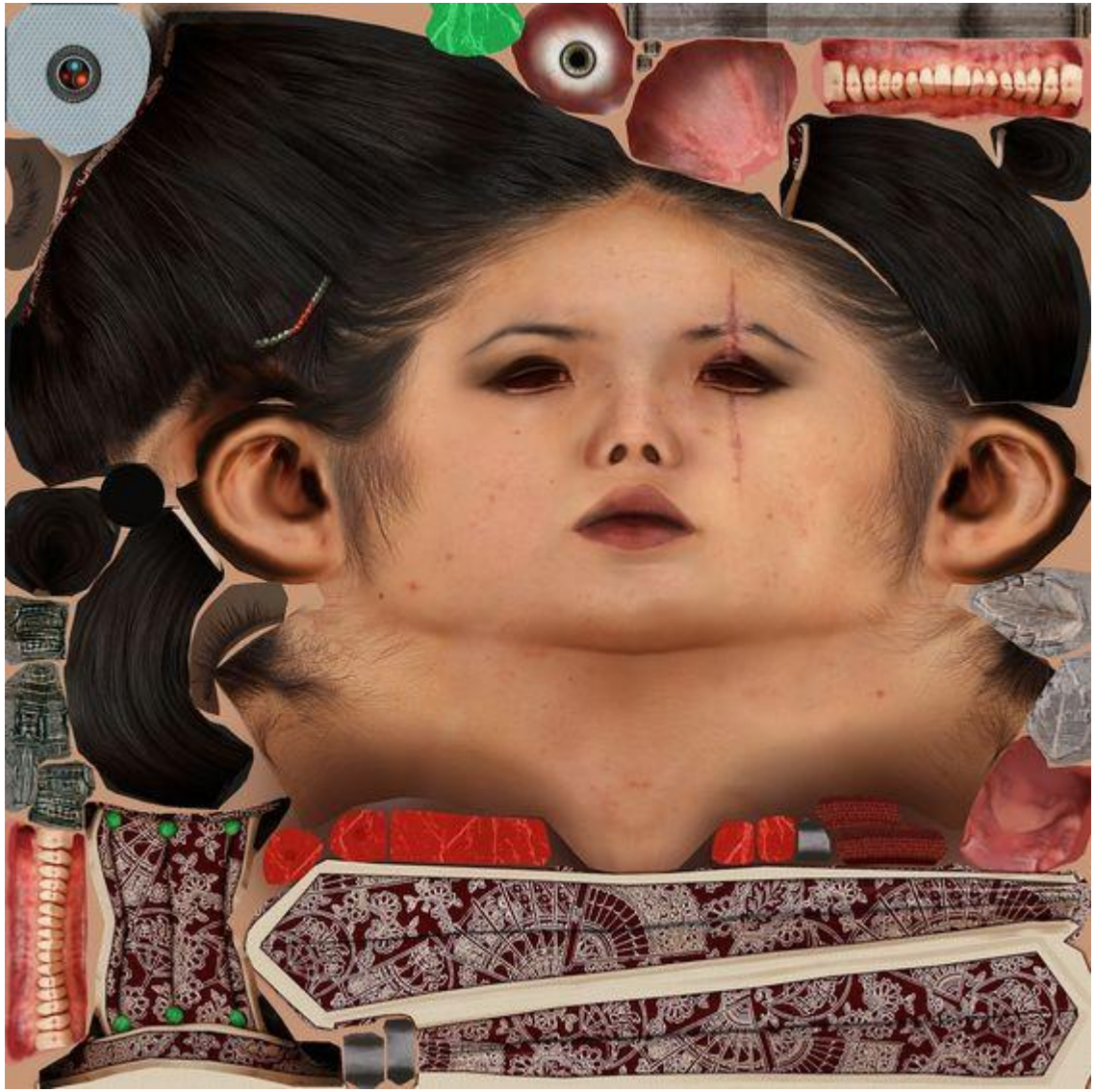
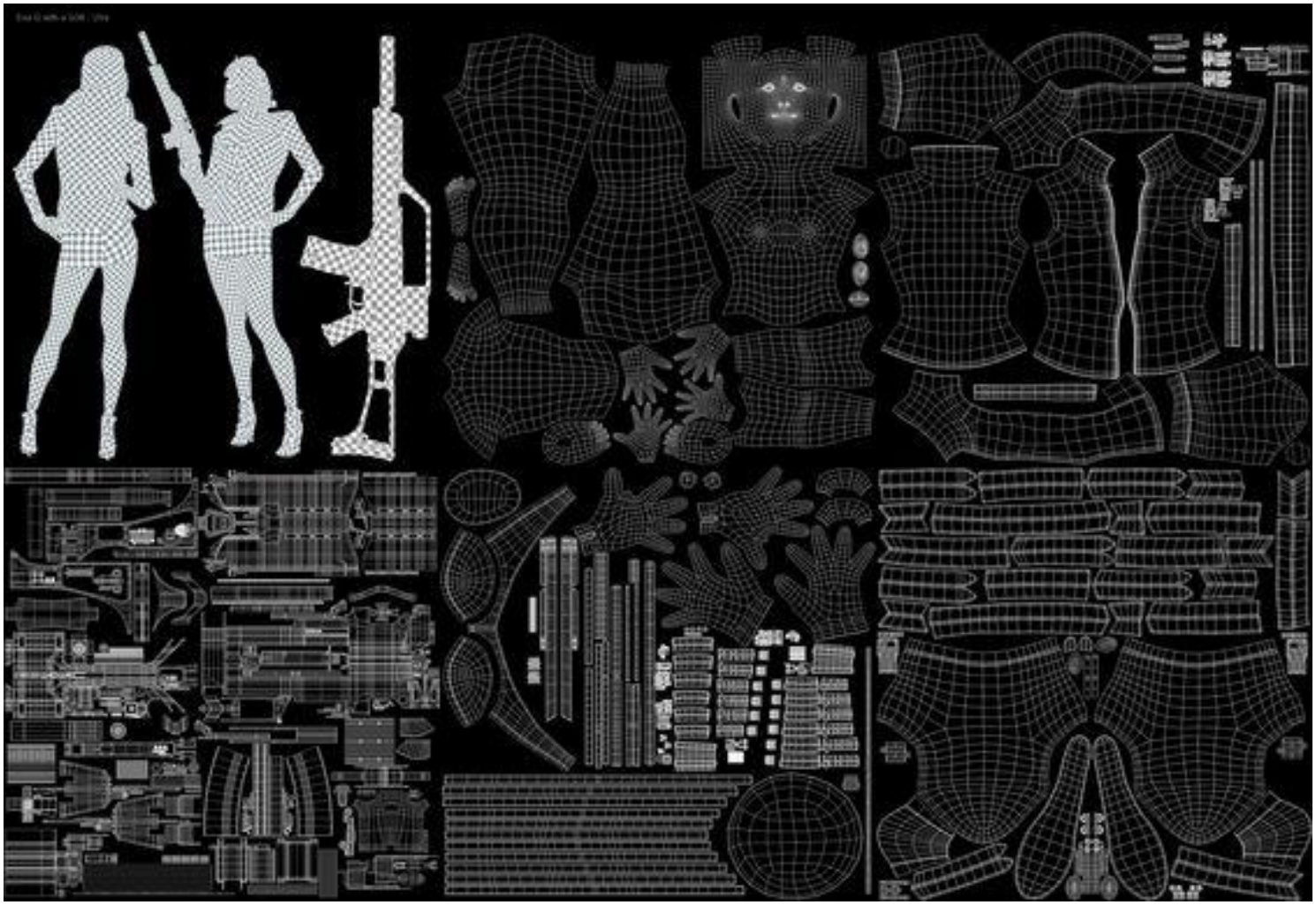
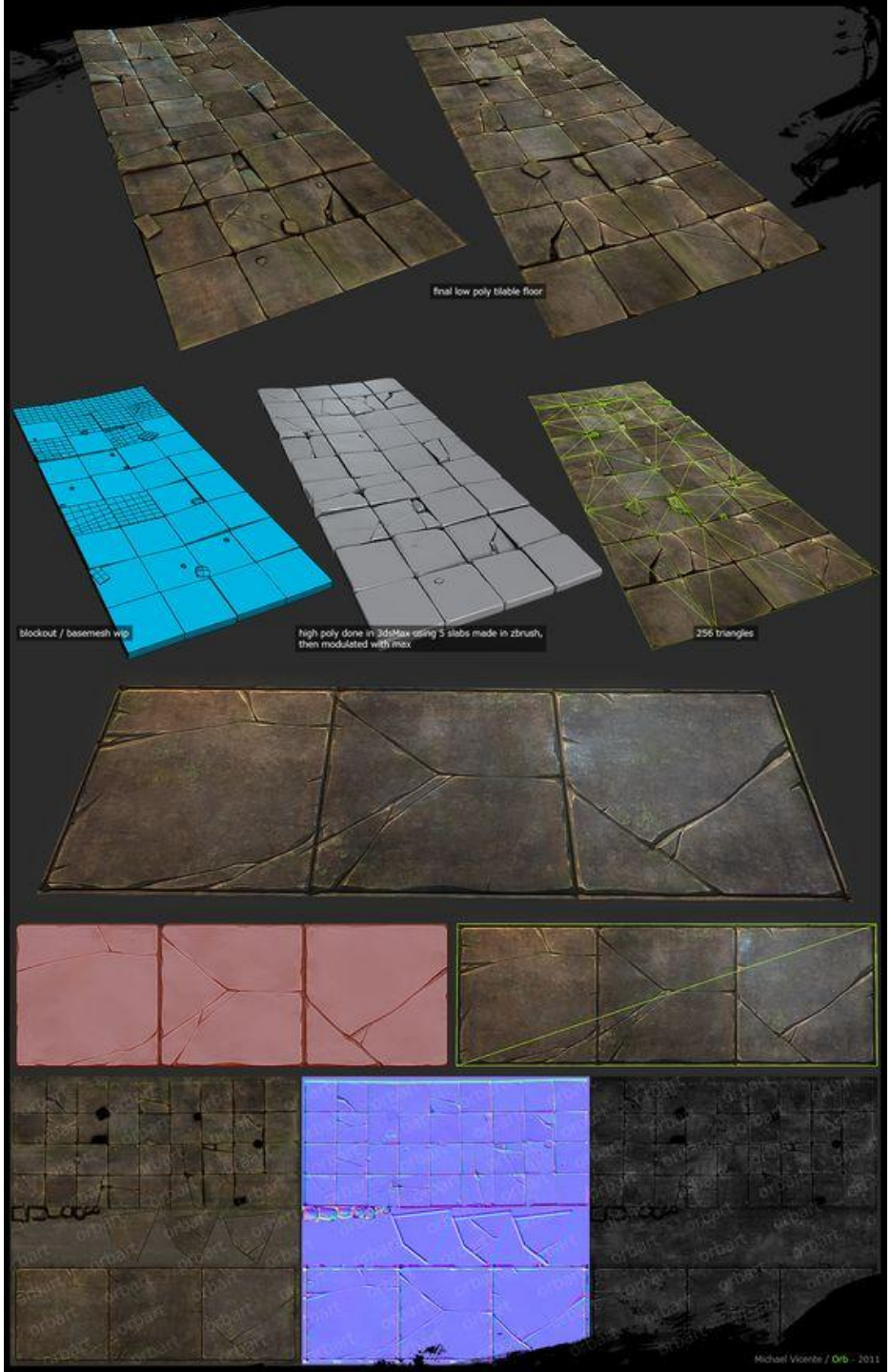



High poly
Separate smoothing groups and split UVs
Separate smoothing gropus
One smoothing group and split UVs
One smoothing group

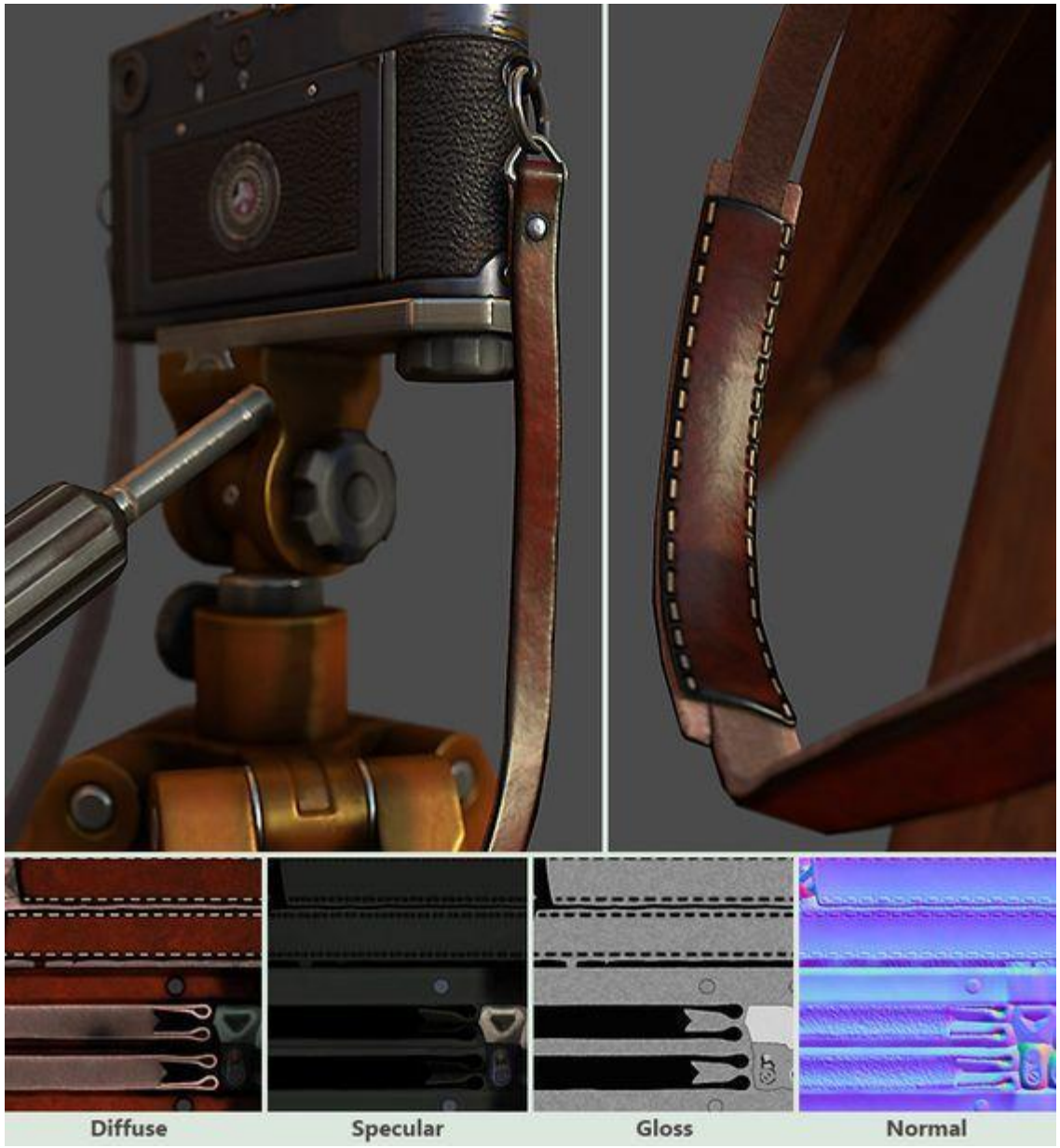






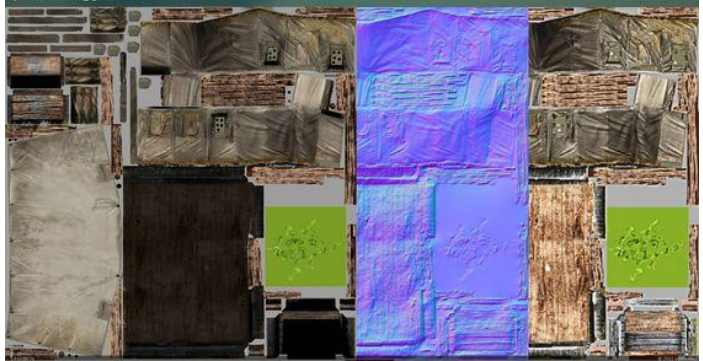

final low poly tilable floor
blockout / basemesh wip
high poly done in 3dsMax using 5 slabs made in zbrush, then modulated with max
256 triangles
Michael Vicente / Orb - 2011

Diffuse
Specular
Gloss
Normal


Diffuse
Specular
Gloss
Normal

Палатка армейская «Усб-56»

punkvideo3d@gmail.com



Battle Axe

384 Triangles, 1024 Diffuse, Specular, Normal

sauder.benjamin@googlemail.com

HYPSTER 80
HYPSTER 80
HYPSTER 80
Polycount: 8500 Textures: 1x2048
EMAIL: morangal3d@gmail.com
WWW.MORANGAL.COM

Modular Stone Stairs
3370 TRIANGLES
Modular Texture Examples
Nathanial Castronovo
NateTheArtist@gmail.com

Orc Warrior - *Breakdown - Textures maps (Staff)*

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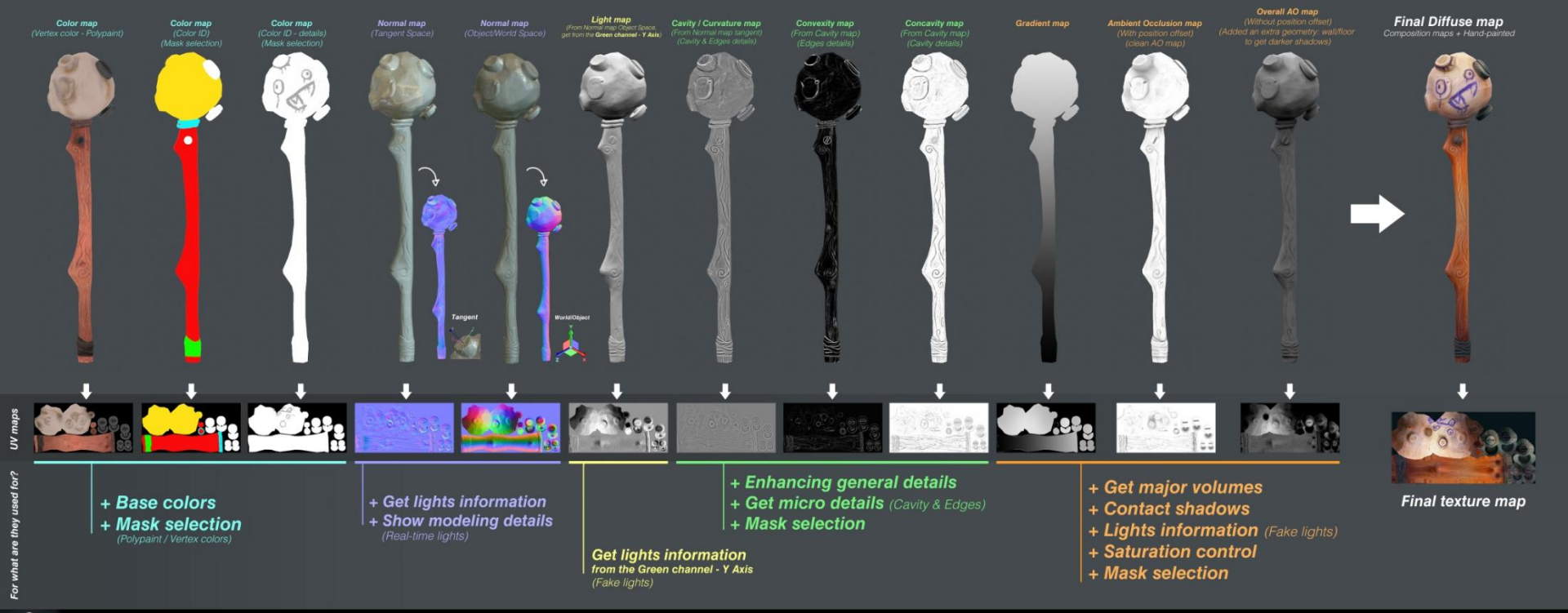

Please note, this is just a documentation of my workflow and creation process. Above are some descriptions regarding some textures maps I use most to create this final Diffuse map. There are many ways to create/use those maps and each model or style might request different approach or skills. :)

Artstation.com

Pinterest.com

CGSpeak (Youtube.com)

https://lazaruz.carbonmade.com

Render.ru