Name: JACKSON COUGAR WIEBE / **UCID**: 30062138

MODEL #	EFFECT #	MARKS
1. Augustus	**ORIENTATION-BASED** **1. Near-Silhouette Abstraction and Backlighting** (pp. 3 - 5)	**___ / 3**
2. Armadillo	**ORIENTATION-BASED** **2. Plastic and Metal Highlights** (pp. 7 - 9)	**___ / 3**
3. Venus	**DEPTH-BASED (BONUS)** **3. Toon Shading with Level of Abstraction (LOA)** (pp. 11 - 13)	**___ / 3**
4. Carburetor	**ORIENTATION-BASED** **1. Near-Silhouette Abstraction and Backlighting** (p 15) **2. Plastic and Metal Highlights** (p. 16)	**___ / 2**
	DEPTH-BASED (BONUS) **3. Toon Shading with LOA** (p. 17)	**___ / 1**
5. Terrain	**DEPTH-BASED (BONUS)** **4. Aerial Perspective with LOA** (pp 19 - 20)	**___ / 2**

TOTAL	___ / 8	BONUS	___ / 6

MODEL # (PLY format)	**EFFECT #**	**TEXTURE #** (PPM format)		
1. Augustus 	**ORIENTATION-BASED** **1. Near-Silhouette Abstraction and Backlighting** $D = (N.V)^r$	**1. fig-10b** 	**2. fig-10c** 	**3. fig-10d** 
Marks (0 = it does not work; 1 = it works)		**___ / 1**	**___ / 1**	**___ / 1**

- **N** and **V** are the unit normal and view vector, respectively

User-defined Parameter:

- **r** ≥ 0 controls the magnitude of the effect.

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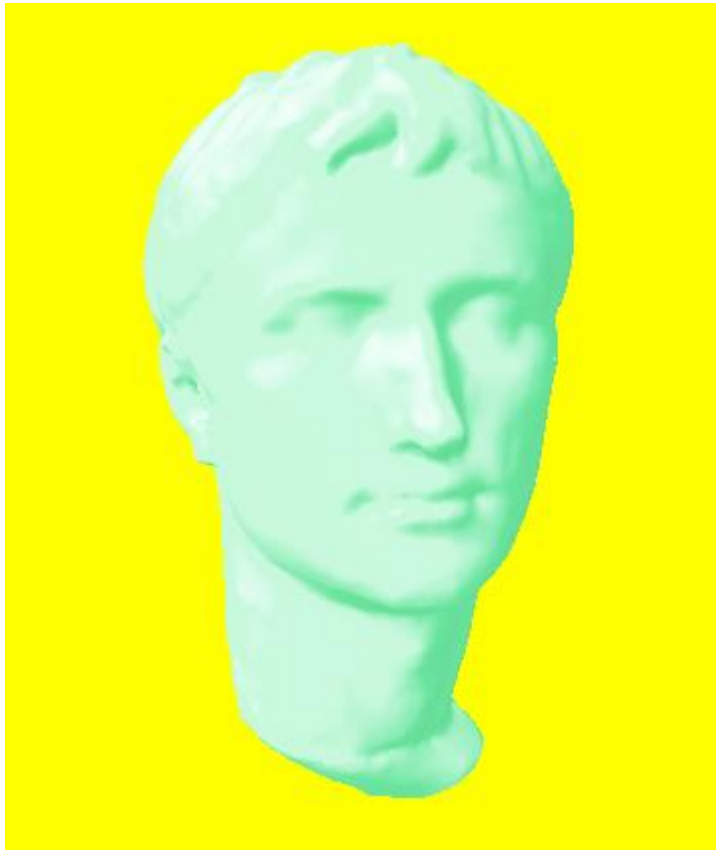
$$D = (N.V)^r$$

MODEL #1: Augustus / EFFECT #1: Near-Silhouette Abstraction and Backlighting / TEXTURE #1: fig-10b
Three result images, same V, with different values for parameter 'r'

r = 0.0422213

r = 1.61866



r = 553.294

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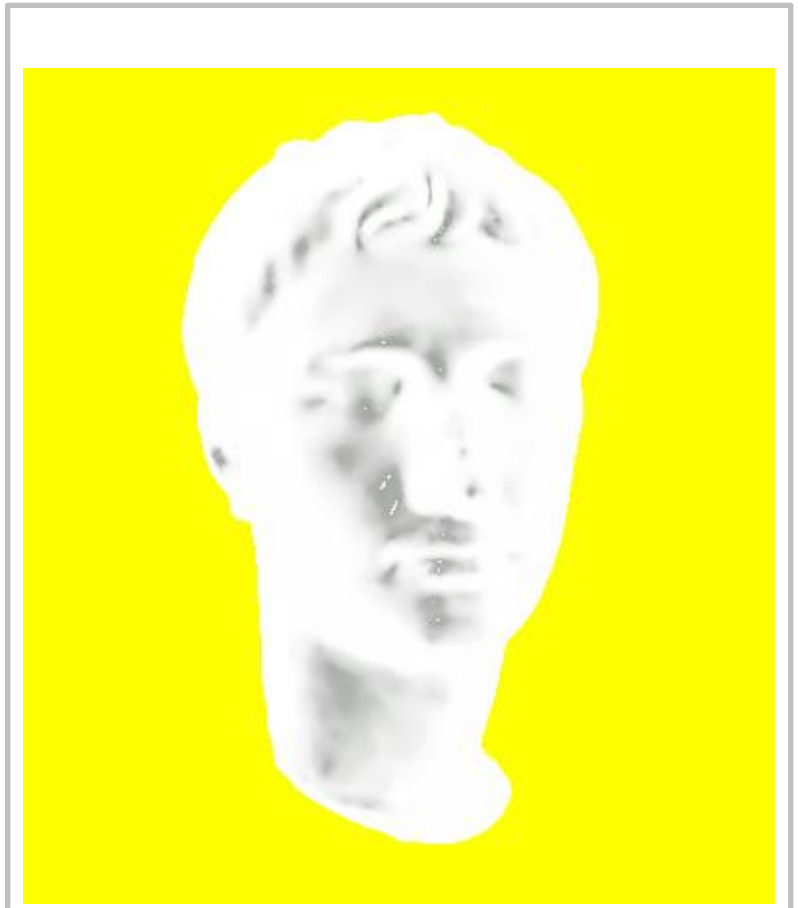
$$D = (N.V)^r$$

MODEL #1: Augustus / EFFECT #1: Near-Silhouette Abstraction and Backlighting / TEXTURE #2: fig-10c
Three result images, same V, with different values for parameter 'r'

r = 0.0270216

r = 1.24313



r = 15.9608

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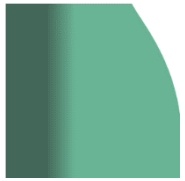
$$D = (N.V)^r$$

MODEL #1: Augustus / EFFECT #1: Near-Silhouette Abstraction and Backlighting / TEXTURE #3: fig-10d
Three result images, same V, with different values for parameter 'r'

r = 0.0422213

r = 2.33087

r = 7.97381

MODEL # (PLY format)	EFFECT #	TEXTURE # (PPM format)		
2. Armadillo 	**ORIENTATION-BASED** **2. Plastic and Metal Highlights** $D = (V.R)^s$	**4. fig-11b** 	**5. fig-11c** 	**6. fig-11d** 
Marks (0 = it does not work; 1 = it works)		**___ / 1**	**___ / 1**	**___ / 1**

- **V** is the view vector and **R** is the light reflection vector at the current surface location

User-defined Parameter:

- ***s*** ≥ 1 is the "shininess" coefficient set by the user to control the magnitude of the effect.

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$$D = (V.R)^s$$

MODEL #2: Armadillo / EFFECT #2: Plastic and Metal Highlights / TEXTURE #4: fig-11b
Three result images, same V, one light source, with different values for parameter 's'

s = 1

s = 6

s = 16

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$$D = (V.R)^s$$

MODEL #2: Armadillo / EFFECT #2: Plastic and Metal Highlights / TEXTURE #5: fig-11c
Three result images, same V, one light source, with different values for parameter 's'

s = 1

s = 4

s = 14

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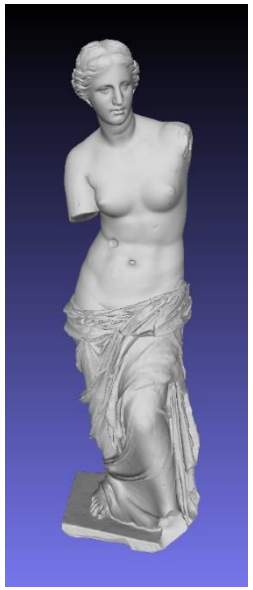
$$D = (V.R)^s$$

MODEL #2: Armadillo / EFFECT #2: Plastic and Metal Highlights / TEXTURE #6: fig-11d
Three result images, same V, one light source, with different values for parameter 's'

s = 1

s = 4

s = 14

MODEL # (PLY format)	EFFECT #	TEXTURE # (PPM format)		
3. Venus 	**DEPTH-BASED (BONUS)** **3. Toon Shading with Level of Abstraction (LOA)** $D = 1 - \log_r \left(\frac{z}{z_{min}} \right)$	**7. fig-7b** 	**8. fig-7c** 	**9. fig-7d** 
Marks (BONUS) (0 = it does not work; 1 = it works)		**___ / 1**	**___ / 1**	**___ / 1**

User-defined Parameters:

- z_{min} is the distance at which the detail starts decreasing
- $r > 1$ is the scale factor that defines the coarsest detail (greatest abstraction)

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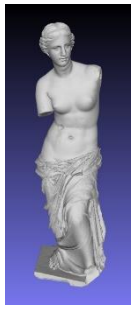
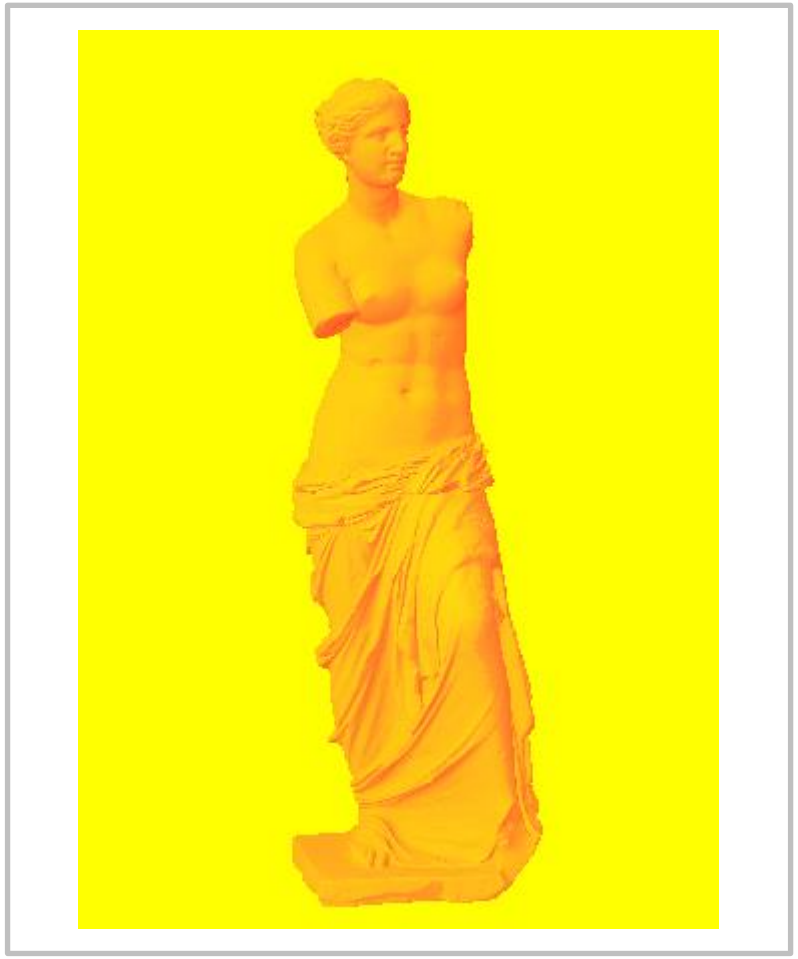
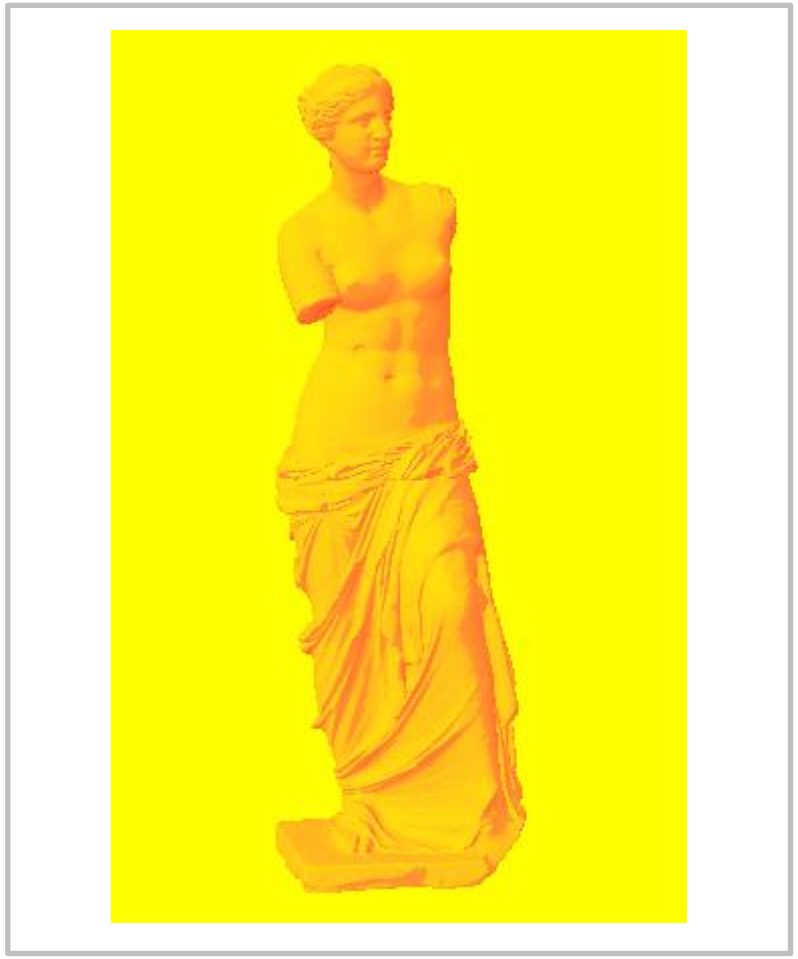
$$D = 1 - \log_r\left(\frac{z}{z_{min}}\right)$$



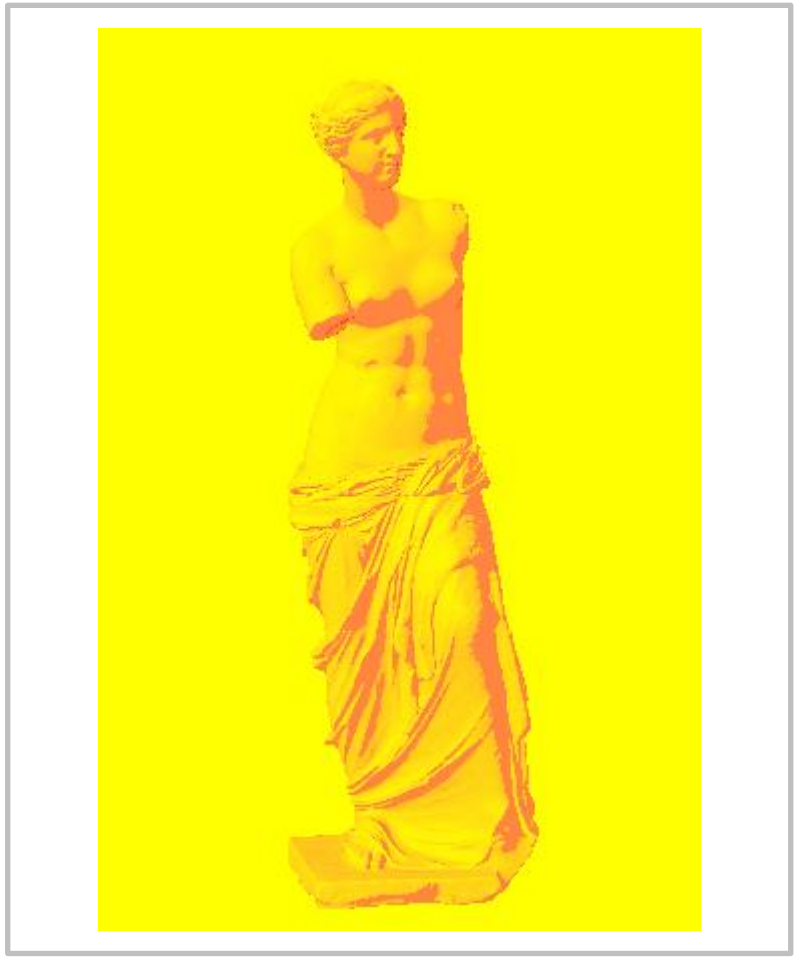
MODEL #3: Venus / EFFECT #3: Toon Shading with Level of Abstraction (LOA) / TEXTURE #7: fig-7b
Three result images, with different values for parameter 'r' and 'zmin', as in Fig 7b (Barla et al. 2006)



r = 1.61303 **z_min = 1042.24**



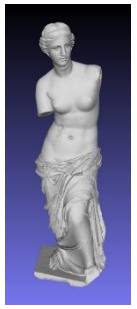
r = 10.033 **z_min = 594.99**



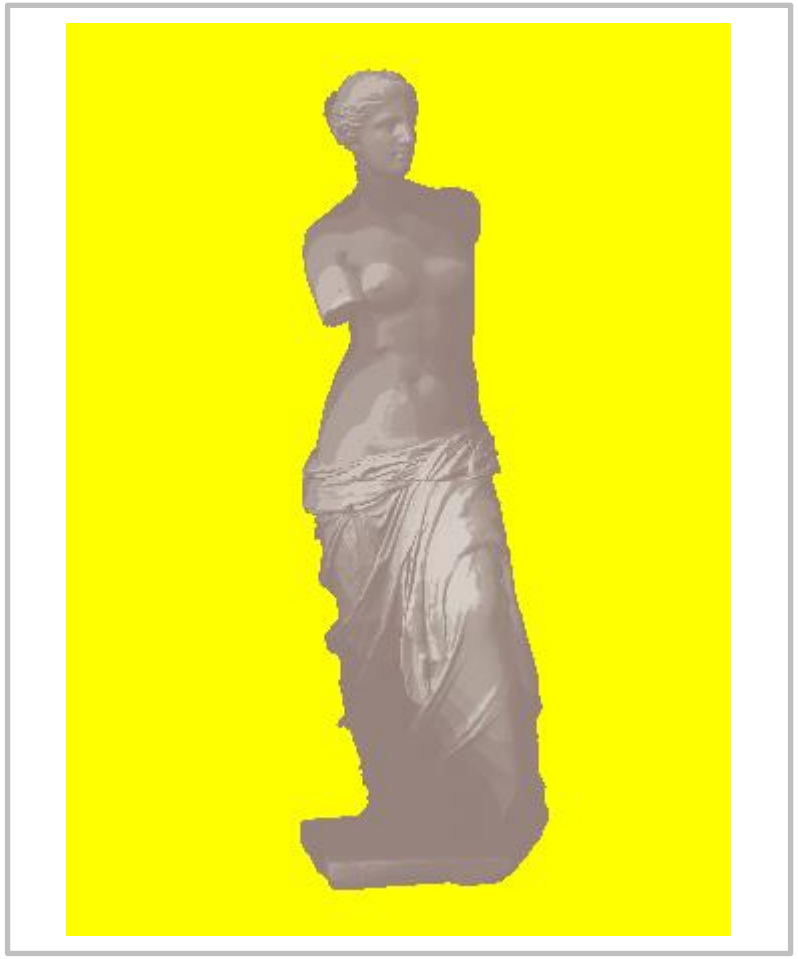
r = 11.0008 **z_min = 1233.91**

Name: JACKSON COUGAR WIEBE / **UCID**: 30062138

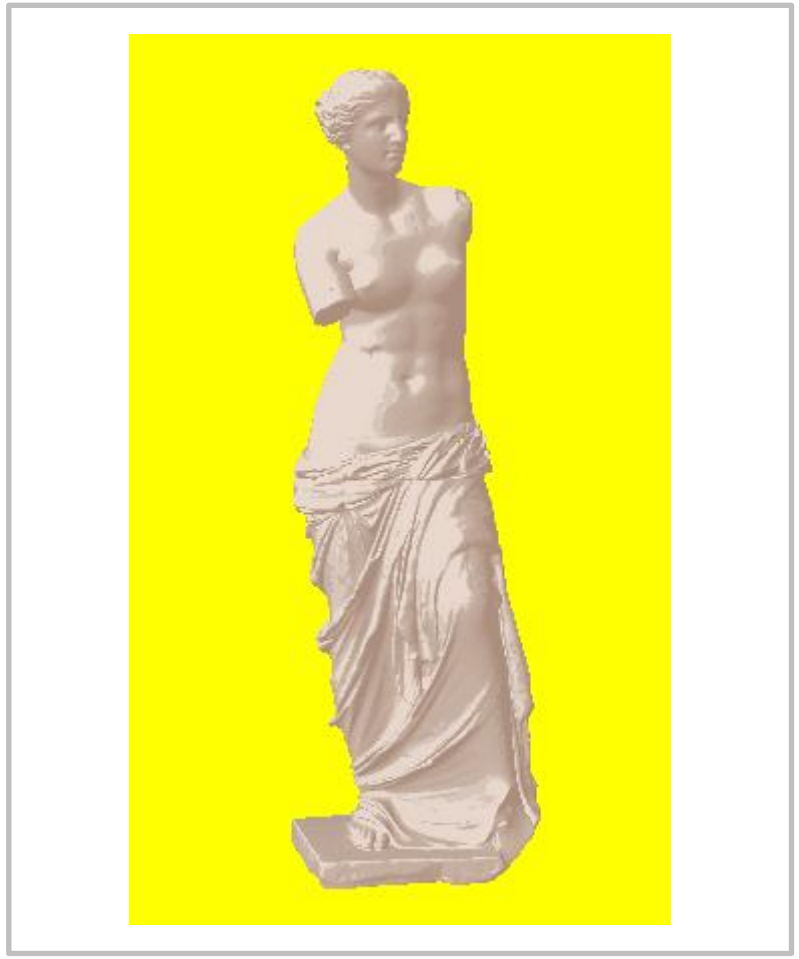
$$D = 1 - \log_r\left(\frac{z}{z_{min}}\right)$$



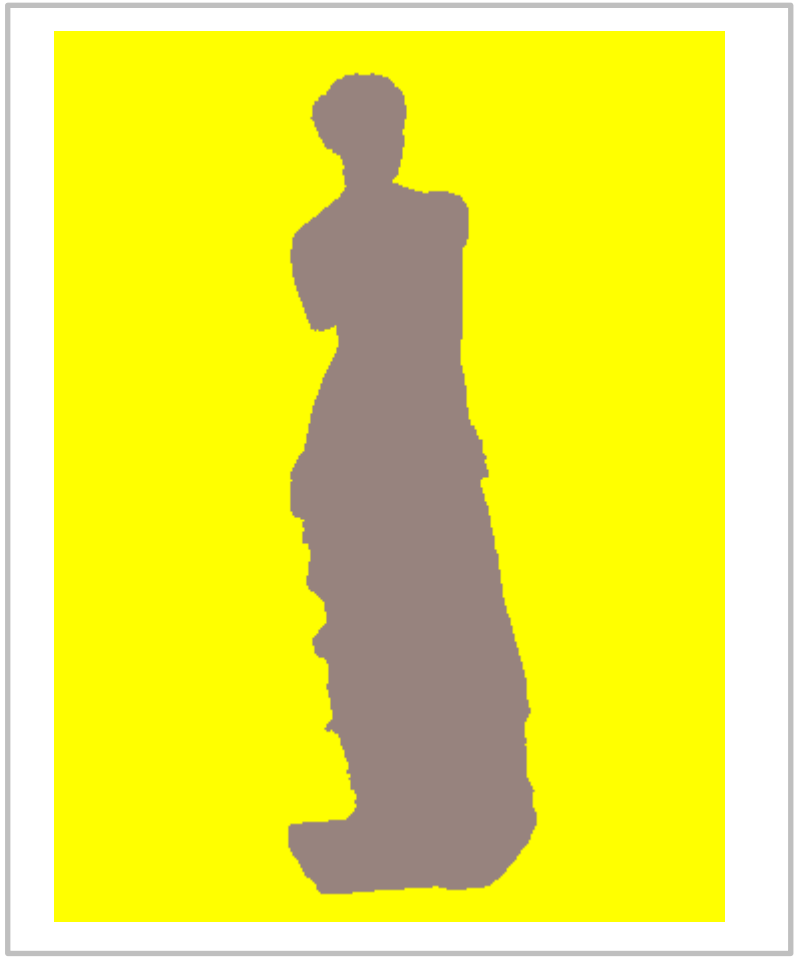
MODEL #3: Venus / EFFECT #3: Toon Shading with Level of Abstraction (LOA) / TEXTURE #8: fig-7c
Three result images, with different values for parameter 'r' and 'zmin', as in Fig 7c (Barla et al. 2006)



r = 1.61303 **z_min = 978.345**



r = 1.77433 **z_min = 1233.91**



r = 8.09735 **z_min = 211.635**

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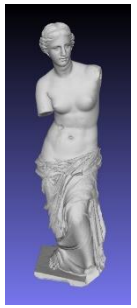
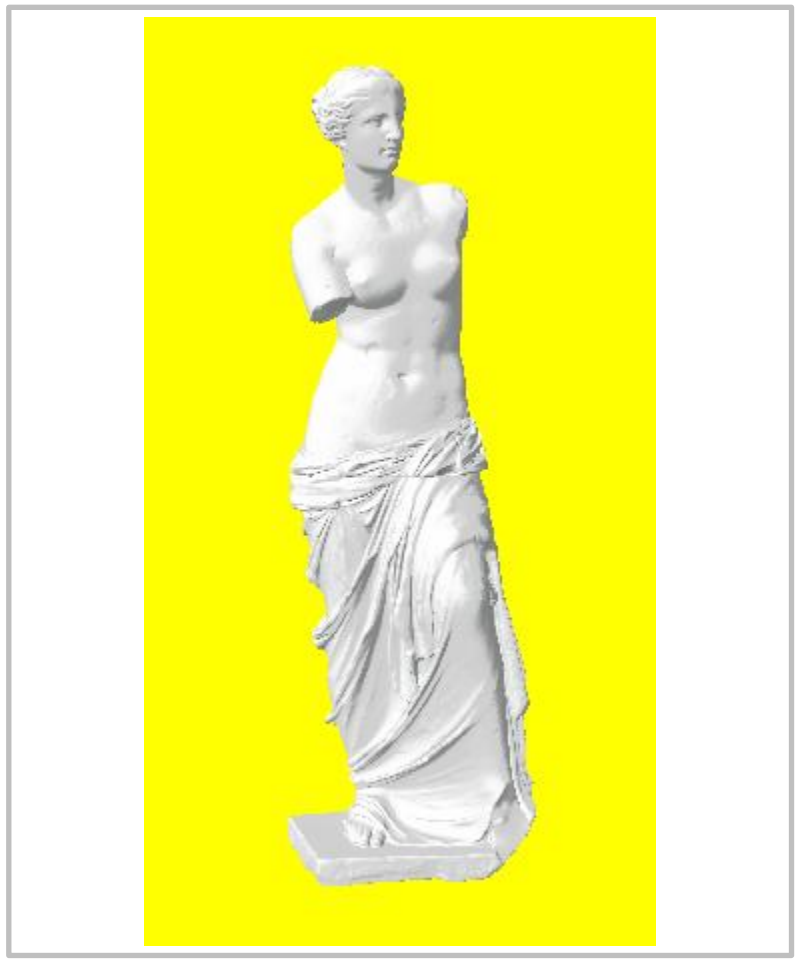
$$D = 1 - \log_r\left(\frac{z}{z_{min}}\right)$$



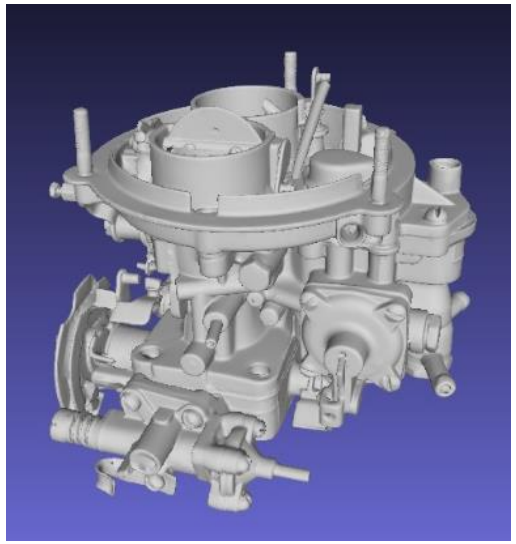
MODEL #3: Venus / EFFECT #3: Toon Shading with Level of Abstraction (LOA) / TEXTURE #9: fig-7d
Three result images, with different values for parameter 'r' and 'zmin', as in Fig 7d (Barla et al. 2006)

r = 1.61303 **z_min = 1553.38**



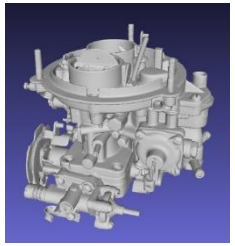
r = 1.61303 **z_min = 1233.91**

r = 1.93564 **z_min = 914.453**

MODEL # (PLY format)	EFFECT #	TEXTURE # (PPM format)	MARKS (0 = it does not work; 1 = it works)
5. Carburetor 	**ORIENTATION-BASED** **1. Near-Silhouette Abstraction and Backlighting** $D = (N.V)^r$	**1. fig-10b** 	___ / 1
	ORIENTATION-BASED **2. Plastic and Metal Highlights** $D = (V.R)^s$	**5. fig-11c** 	___ / 1
	DEPTH-BASED (BONUS) **3. Toon Shading with LOA** $D = 1 - \log_r \left(\frac{z}{z_{min}} \right)$	**9. fig-7d** 	___ / 1

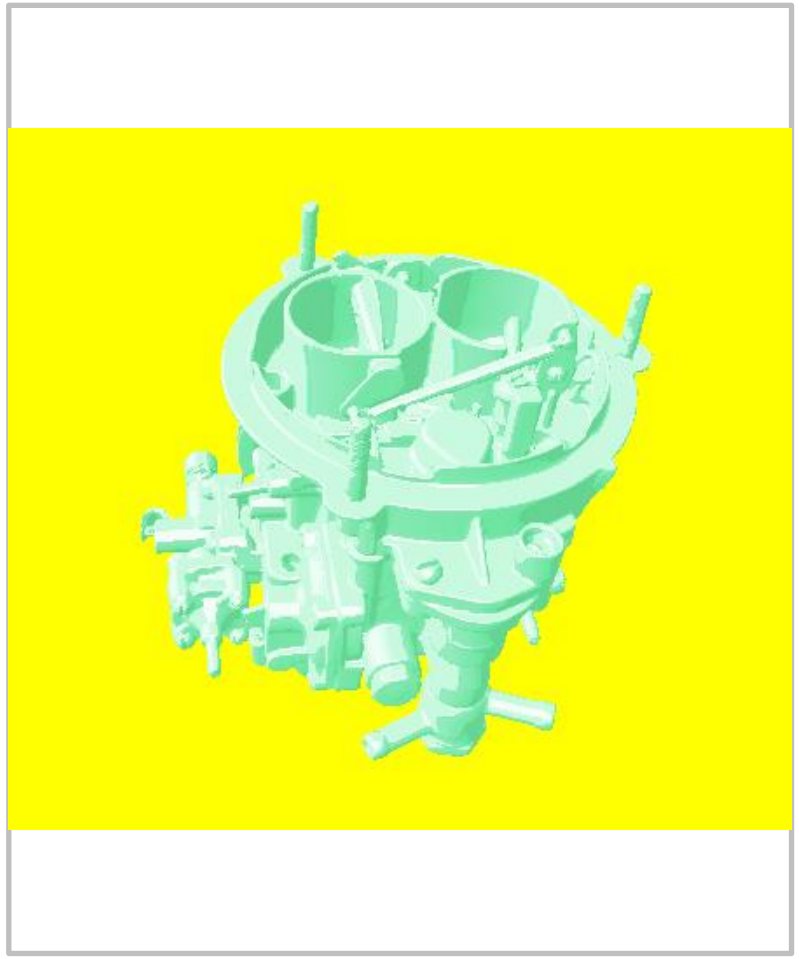
Name: JACKSON COUGAR WIEBE / **UCID**: 30062138

$$D = (N.V)^r$$

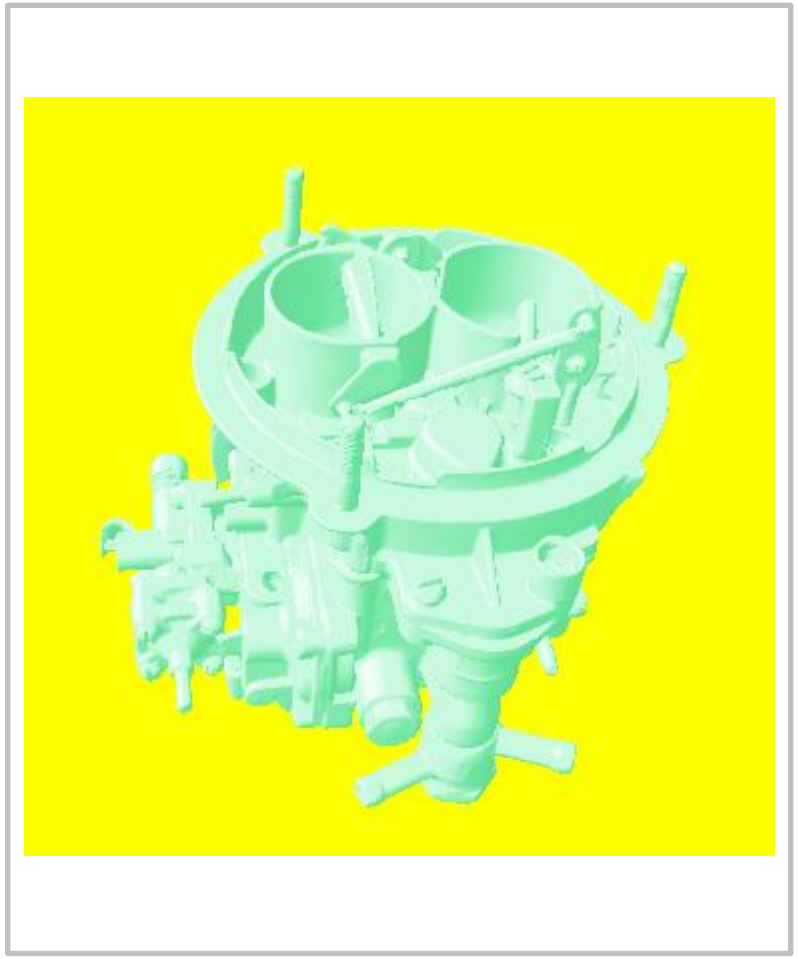


MODEL #4: Carburetor / EFFECT #1: Near-Silhouette Abstraction and Backlighting / TEXTURE #1: fig-10b
Three result images, same V, with different values for parameter 'r'

r = 0.0138351



r = 0.0856631



r = 35.1378

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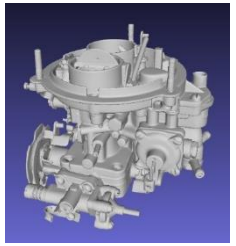
$$D = (V.R)^s$$



MODEL #4: Carburetor / EFFECT #2: Plastic and Metal Highlights / TEXTURE #5: fig-11c
Three result images, same V, one light source, with different values for parameter 's'

s = 1

s = 2

s = 19

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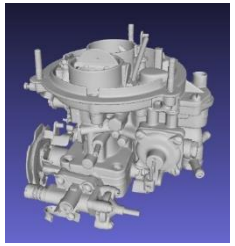
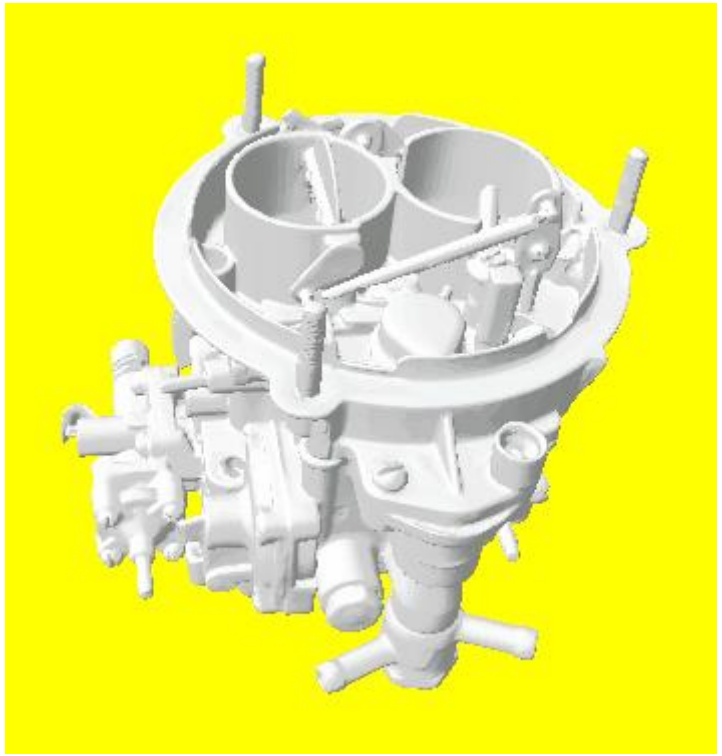
$$D = 1 - \log_r\left(\frac{z}{z_{min}}\right)$$

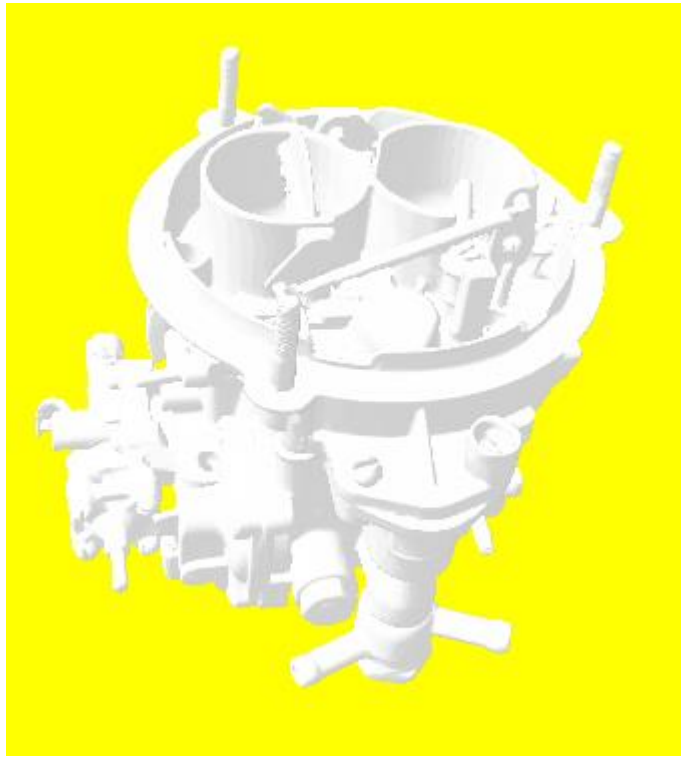


MODEL #4: Carburetor / EFFECT #3: Toon Shading with Level of Abstraction (LOA) / TEXTURE #9: fig-7d
Three result images, with different values for parameter 'r' and 'zmin', as in Fig 7d (Barla et al. 2006)

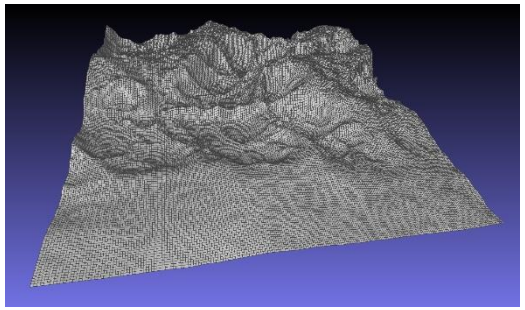
r = 1.39276 **z_min = 497.676**



r = 8.07799 **z_min = 184.93**



r = 8.35654 **z_min = 67.6508**

MODEL # (PLY format)	**EFFECT #4**	**TEXTURE #** (PPM format)	**MARKS (BONUS)** (0 = it does not work; 1 = it works)
6. Terrain 	**DEPTH-BASED (BONUS)** **4. Aerial Perspective w/ LOA** $D = 1 - \log_r \left(\frac{z}{z_{min}} \right)$	**10. fig-9b** 	**___ / 1**
		11. fig-9f 	**___ / 1**

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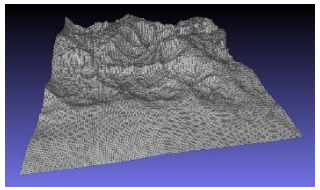
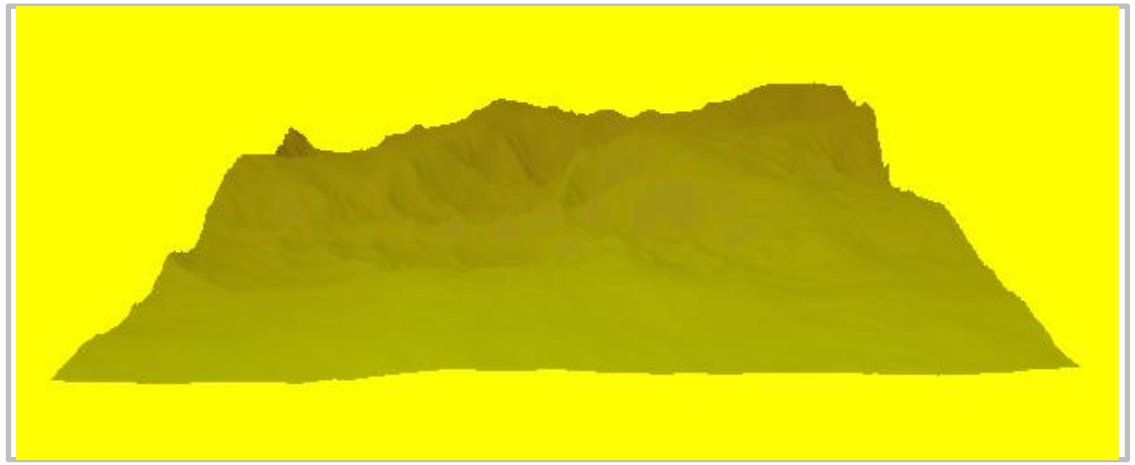
$$D = 1 - \log_r\left(\frac{z}{z_{min}}\right)$$

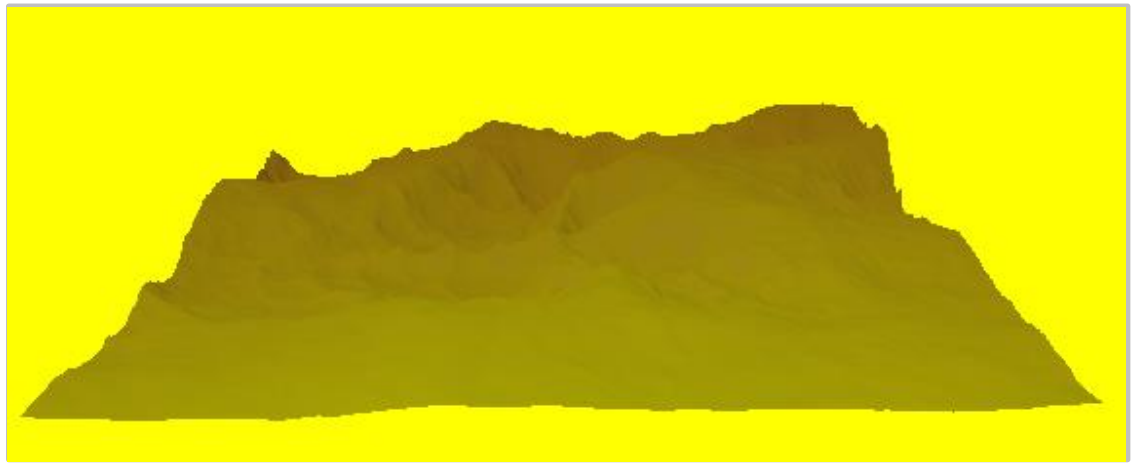


MODEL #5: Terrain / EFFECT #3: Aerial Perspective w/ LOA / TEXTURE #10: fig-9b

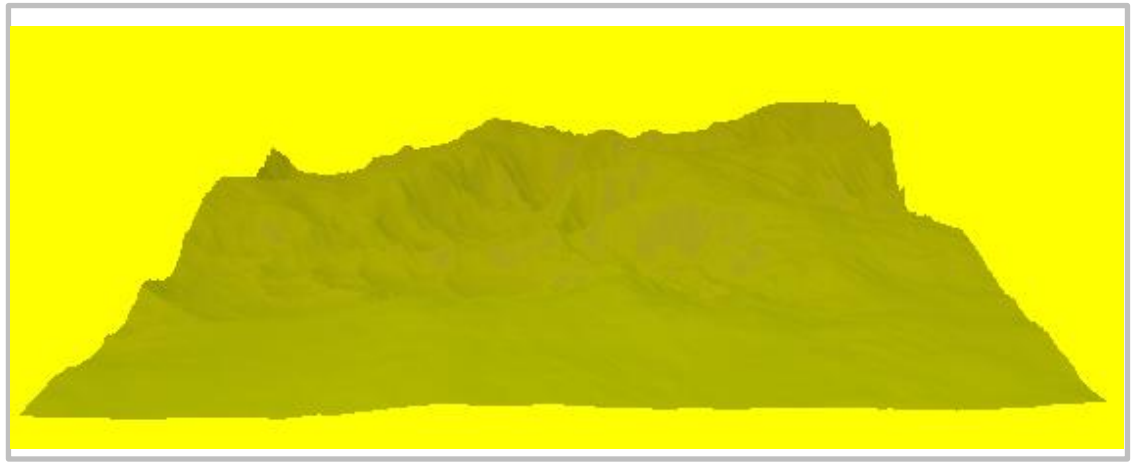
Four result images, with different values for parameter 'r' and 'zmin'



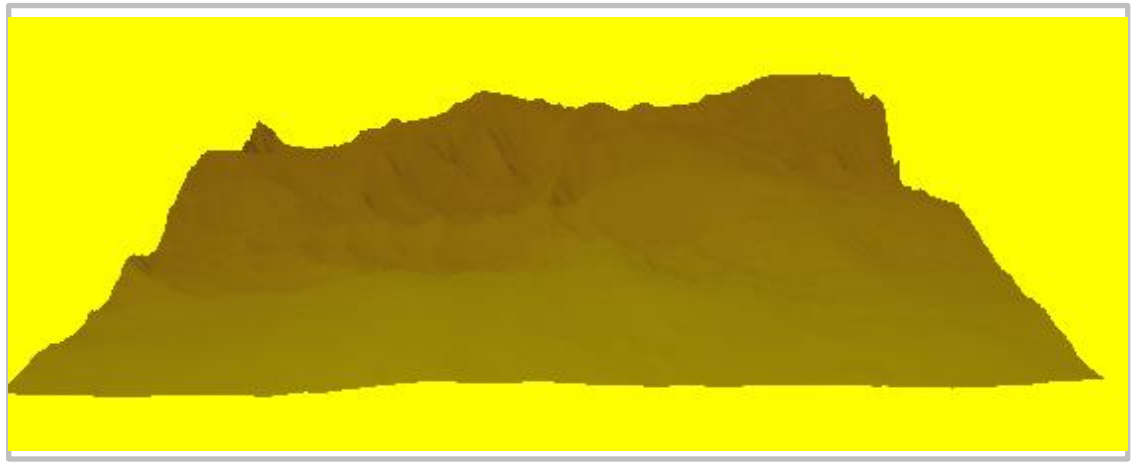
r = 2.66667 z_min = 2227.4



r = 2.66667 z_min = 1750.1



r = 9.5 z_min = 2227.4



r = 2.50001 z_min = 1431.9

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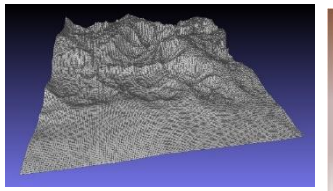
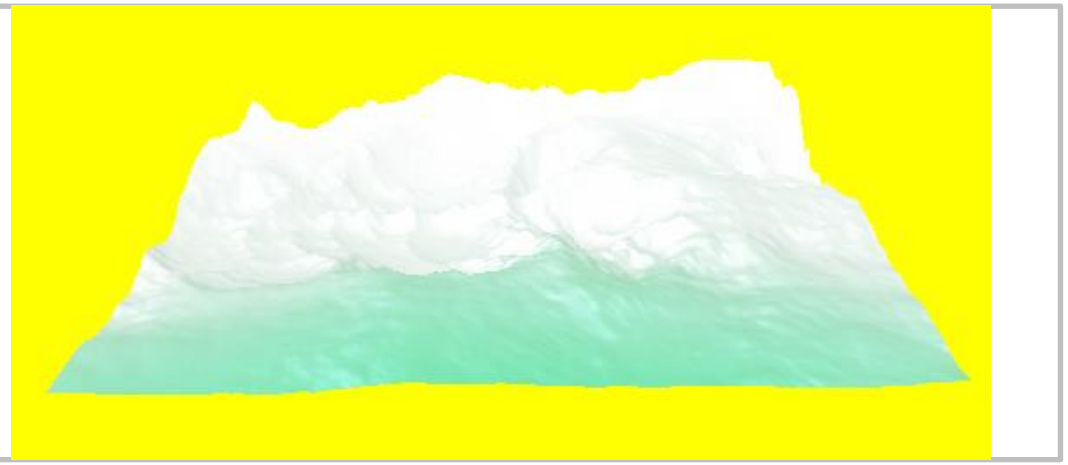
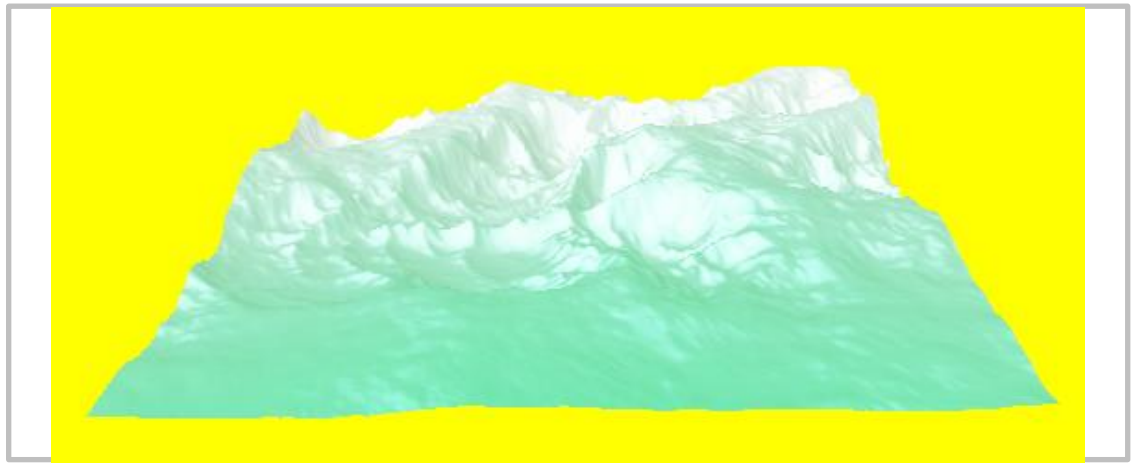
$$D = 1 - \log_r\left(\frac{z}{z_{min}}\right)$$



MODEL #5: Terrain / EFFECT #3: Aerial Perspective w/ LOA / TEXTURE #11: fig-9f
Four result images, with different values for parameter 'r' and 'zmin'

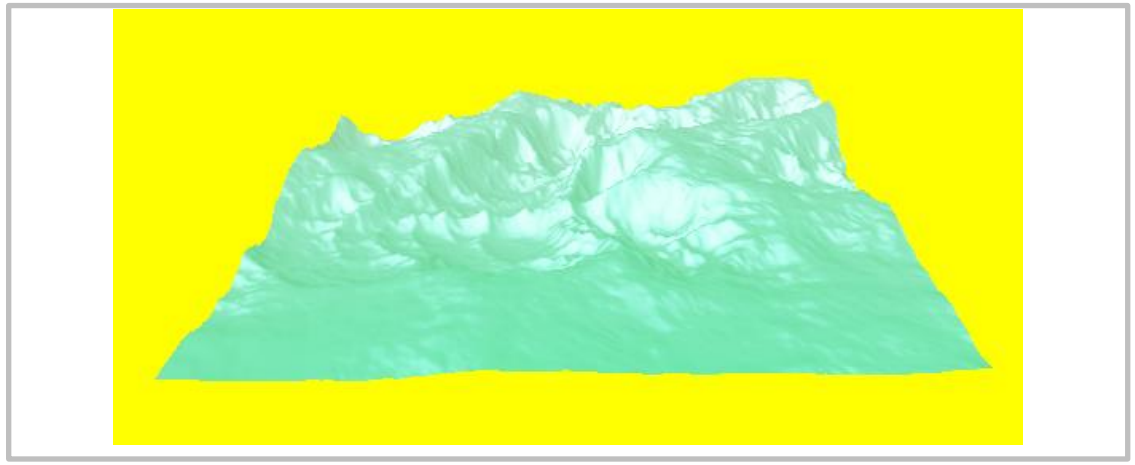


r = 1.66667 z_min = 2386.5



r = 3.33333 z_min = 2386.5

r = 3.16667 z_min = 1909.2



r = 9.50001 z_min = 2386.5