

Chapter 11 - Texture Mapping

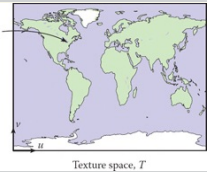
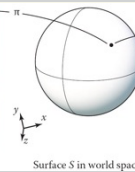
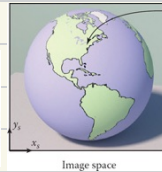
texture mapping - using an image to store surface details

textures - shadows, reflections, illumination, surface shape

1. Texture Values

$$\phi : S \rightarrow T$$

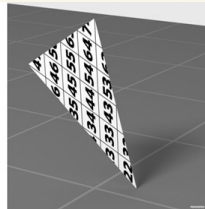
$$: (x, y, z) \mapsto (u, v)$$



2. Texture Coordinate Functions

2.2. Interpolated Texture Coordinates

09	19	29	39	49	59	69	79	89	99
08	18	28	38	48	58	68	78	88	98
07	17	27	37	47	57	67	77	87	97
06	16	26	36	46	56	66	76	86	96
05	15	25	35	45	55	65	75	85	95
04	14	24	34	44	54	64	74	84	94
03	13	23	33	43	53	63	73	83	93
02	12	22	32	42	52	62	72	82	92
01	11	21	31	41	51	61	71	81	91
00	10	20	30	40	50	60	70	80	90



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04	14	24	34	44	54	64	74	84	94
03	13	23	33	43	53	63	73	83	93
02	12	22	32	42	52	62	72	82	92
01	11	21	31	41	51	61	71	81	91
00	10	20	30	40	50	60	70	80	90



2.3. Tiling, Wrapping Modes and Texture Transformations

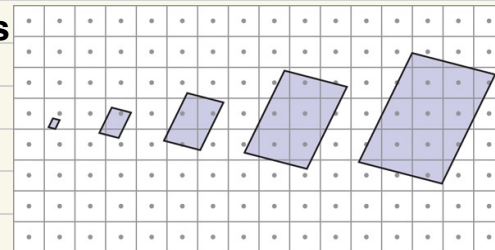
3. Antialiasing Texture Lookups

3.2. Reconstruction

bilinearly interpolated texture:

express sample point in texel

average four neighbour values



Upsampling
magnification

Downsampling
minification

3.3. Mipmapping

sequence of textures containing same image at lower resolution

base level (0) - original full resolution texture image

1 level up - downsampling image by factor of 2 in each dimension