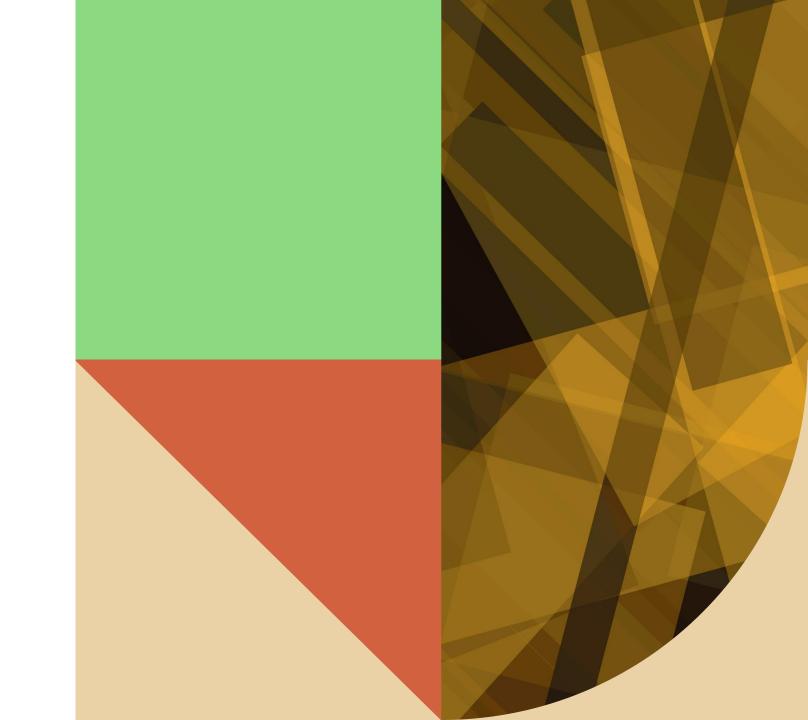
Image Compression

Huffman and Arithmetic coding



Huffman coding

Original source		Source reduction			
Symbol	Probability	1	2	3	4
a_2	0.4	0.4	0.4	0.4	→ 0.6
a_6	0.3	0.3	0.3	0.3 –	0.4
a_1	0.1	0.3 0.1 0.1 –	→ 0.2 _⊤	→ 0.3 –	
a_4	0.1	0.1 –	0.1		
a_3	0.06	→ 0.1 –			
a_5	0.04 —				

Huffman coding

Original source		Source reduction				
Symbol	Probability	Code	1	2	3	4
a ₂ a ₆ a ₁ a ₄ a ₃ a ₅	0.4 0.3 0.1 0.1 0.06 0.04	1 00 011 0100 01010 01011	0.4 1 0.3 00 0.1 011 0.1 0100 -0.1 0101	0.1 011	0.4 1 0.3 00 - -0.3 01 -	0.6 0 0.4 1

Arithmetic coding

Source Symbol	Probability	Initial Subinterval
a_1	0.2	[0.0, 0.2)
a_2	0.2	[0.2, 0.4)
a_3	0.4	[0.4, 0.8)
a_4	0.2	[0.8, 1.0)

Arithmetic coding

