

Index

- Absolute Category Rating (ACR) 53
- accommodation 7
- accuracy 65
- ACR 53
- adaptation
 - to light 20
 - to patterns 30, 58, 152
- adjustment tasks 51
- aliasing 44
- amacrine cells 15
- analytic filters 74
- aperture 5
- aqueous humor 7
- artifacts 42, 45
 - blocking 43, 125
 - blur 43
 - flicker 44
 - ringing 44
- astigmatism 9
- attention 129, 130
- audio 52, 154
- audio-visual quality metrics 154

- B-frames 41
- bipolar cells 15
- blind spot 13
- blockiness 43, 126
- blur 43

- Campbell–Robson chart 22
- chroma 135
- chroma subsampling 37
- chromatic aberration 9
- CIE $L^*a^*b^*$ color space 58, 118, 155
- CIE $L^*u^*v^*$ color space 118, 135, 155
- CIE XYZ color space 85
- coding 36, 39
- color bleeding 44
- color coding 36
- color matching 25
- color perception 25
- color space conversion 84, 155
- color spaces 118
 - CIE $L^*a^*b^*$ 58, 118, 155
 - CIE $L^*u^*v^*$ 118, 135, 155
 - CIE XYZ 85
 - LMS 85
 - opponent 85, 118
 - RGB 84
 - YUV 37, 114, 130
- colorfulness 135, 145
- complex cells 19
- compression 36
 - artifacts 42
 - lossy 36
 - standards 39
 - video 38
- cones 11
- consistency 65
- contrast
 - band-limited 72
 - isotropic 72

- contrast (*Continued*)
 isotropic, local 76, 134
 local 72
 Michelson 72
 Weber 21, 72
 contrast gain control 62, 92, 94, 152
 contrast sensitivity 20, 91, 95
 contrast sensitivity function (CSF) 21, 59
 cornea 7
 correlation coefficient
 linear (Pearson) 65
 rank-order (Spearman) 65
 cortex transform 59
 cpd 7
 CSF 21
 cycles per degree (cpd) 7
- DCR 53
 DCTune 63
 deblocking filter 40
 decomposition
 filters 86, 119
 perceptual 86, 120
 Degradation Category Rating (DCR) 53
 depth of field 6
 detection 94, 106
 diffraction 6
 diopters 6
 direction-selective cells 19
 display 49
 distortion map 101
 dithering 55
 Double Stimulus Continuous Quality Scale (DSCQS) 52, 54
 Double Stimulus Impairment Scale (DSIS) 52, 54
 DSCQS 52, 54
 DSIS 52, 54
 DVD 41
 Dyadic Wavelet Transform (DWT) 80
- end-stopped cells 19
 error propagation 46
 eye 5
 movements 9
 optical quality 8
 optics 6–7
- face segmentation 130
 facilitation 29
 fidelity 50, 133
 field 38
 fixation
 involuntary 10
 voluntary 10
 flicker 44
 focal length 6
 focus of attention 130
 fovea 12
 full-reference metrics 67, 154
- gamma correction 36
 ganglion cells 15
- H.263 42
 H.264 40, 46
 HLS (hue, lightness, saturation) 136
 horizontal cells 14
 HSI (hue, saturation, intensity) 136
 HSV (hue, saturation, value) 136
 hue cancellation 26
 human visual system (HVS) 1
- I-frames 41
 image appeal 133, 145
 image formation 6
 inter-lab correlations 68
 interlacing 37, 47
 iris 8
 isotropic contrast 72
- jitter 47
 judgment tasks 51
- lateral geniculate nucleus 17
 lateral inhibition 16

- lens
 - concave 6
 - convex 6
 - Gaussian formula 6
 - optical power 6
 - optical quality 8
- lightness 136
- line spread function 8
- LMS color space 85
- local contrast 72
- loss propagation 46

- macroblock 41
- magnocellular pathways 16, 18
- masking 55, 58, 91, 117, 152
 - spatial 28
 - temporal 30
- M-cells 16
- Mean Opinion Score (MOS) 54, 70
- mean squared error (MSE) 54
- mechanisms
 - in-phase 73
 - quadrature 73
 - spatial 31, 90
 - temporal 32, 86
- metamers 25
- metrics, *see* quality metrics
- Michelson contrast 22, 72
- Minkowski summation 94, 121
- models of vision, *see* vision models
- modulation transfer function 8
- monotonicity 65
- MOS 54, 70
- mosquito noise 44
- motion estimation 39
- Motion Picture Experts Group (MPEG) 39
- Moving Picture Quality Metric (MPQM) 62
- MPEG-1 40, 42
- MPEG-2 40, 41, 108, 127
 - elementary stream 42
 - program stream 42
 - transport stream 42
- MPEG-21 40
- MPEG-4 40, 42
- MPEG-7 40
- MSE 54
- multi-channel theory 31, 86

- naturalness 134
- no-reference metrics 154
- Normalization Video Fidelity Metric (NVFM) 62
- Nyquist sampling theorem 48

- object segmentation 129
- object tracking 130
- opponent color space 83, 118
- opponent colors 18, 26, 84
- optic chiasm 16
- optic nerve 15
- optic radiation 17
- optic tracts 16
- outliers 65

- packet loss 45
- Pair Comparison 53
- parvocellular pathways 16, 18
- pattern adaptation 30, 58, 152
- P-cells 16
- PDM, *see* Perceptual Distortion Metric
- peak signal-to-noise ratio (PSNR) 54
- Perceptual Blocking Distortion Metric (PBDM) 126
- perceptual decomposition 86, 120
- Perceptual Distortion Metric (PDM) 82
 - color spaces 118
 - component analysis 117
 - decomposition 119
 - pooling 120
 - prediction performance 111, 144
- performance attributes 64, 115
- P-frames 41
- photopic vision 11
- photoreceptors 11, 20
- point spread function 8
- pooling 94, 98, 120

- prediction performance 107, 111, 129, 131, 144
- presbyopia 8
- probability summation 94
- progressive video 38, 47
- propagation of errors 46
- PSNR 54
- psychometric function 94
- psychophysics 51
- pupil 8, 20
- quality
 - subjective 48
- quality assessment
 - metrics 54
 - procedures 51
 - subjective 51
- quality metrics 54
 - audio-visual 154
 - comparisons 65
 - evaluation 103
 - Perceptual Distortion Metric (PDM) 82
 - performance attributes 64, 116
 - pixel-based 54
- quantization 39
- Real Media 42
- recency effect 54
- receptive field 15, 18
- reduced-reference metrics 64, 137, 154
- redundancy 36
 - psychovisual 36
 - spatio-temporal 36
 - temporal 39
- refraction 6
- refractive index 6–7
- resolution 48
- retina 10
- retinotopic mapping 17
- RGB color space 85
- rhodopsin 11
- ringing 44, 127
- rods 11
- saccades 10
- saturation 135
- scotopic vision 11
- segmentation
 - blocking regions 126
 - faces 130
 - objects 129
- sharpness 134, 145
- signal detection theory 51
- simple cells 21
- Single Stimulus Continuous Quality Evaluation (SSCQE) 53–54
- Snell's law 6
- sound 50, 154
- SSCQE 53–54
- staircase effect 44
- steerable pyramid 90, 120
- streaming 45
- subjective experiments 109, 140
- subjective quality 48
- subjective testing 51
- superior colliculus 17
- synchronization 50
- threshold measurements 51
- tracking 130
- transmission errors 45, 54
- trichromacy 25
- tristimulus coordinates 25
- veiling glare 50
- video
 - coding 36
 - compression 36, 38
 - interlaced 38, 47
 - progressive 38, 47
 - quality 35
- Video Quality Experts Group (VQEG) 66, 108
- viewing conditions 50, 51
- viewing distance 48
- vision 6
- vision models 71
 - multi-channel 58, 73
 - single-channel 56

visual angle 6, 48
visual cortex 18
visual pathways 16
vitreous humor 7
VQEG 66

wavelet frames 81

Weber contrast 21, 72
Weber–Fechner law 21, 72
Windows Media 42

XYZ color space 85

YUV color space 37, 84, 118