

Index

A

accuracy 382
 active net 90, 93, 109
 agent 7, 16
 alert detection 347, 348
 ALOI database 99
 artificial intelligence (AI) 383
 artificial vision 10

B

bag 375
 BALAS 232
 BAYesian Learning in Asymmetric (BALAS) 194
 bi-dimensional space 176
 breast imaging reporting and data system (BI-RADS)
 xii, 315, 317, 337

C

camera stabilization 346, 347
 CBIR xiii, 371, 372, 373, 374, 378, 380, 383, 384
 CBIR, Feature Analysis and Similarity Measures
 373
 CBIR systems, Color 380
 CBIR systems, Initial Query 378
 CBIR systems, Texture 380
 clustering vii, 20, 21, 22, 26, 27, 28, 30, 31, 33, 34,
 37, 38, 39, 40, 41, 48, 61, 65, 80, 42, 66, 81,
 88, 91, 93, 99, 117, 134, 135, 146, 147, 149,
 179, 195, 217, 232, 286, 290, 292, 298, 319,
 351, 366, 377, 386
 color classification 347, 348
 content-based image retrieval (CBIR) xiii, 371
 content-based multimedia retrieval (CBMR) xii, 289

D

databases indexing problems 172
 data compression 173

data mining 172
 Daubechies filters 24
 Daubechies wavelet 380
 Daubechies wavelet transform 22, 24, 26, 29, 380
 decision making 180
 difference-of-Gaussian 122
 distance based indexes 134
 drug activity prediction problem 375
 dynamic time warping ix, 145, 146, 149, 158, 168,
 169

E

edge flow algorithm 236, 244
 ETH-80 database 98, 99
 Euclidean distance 27, 32, 51, 79, 80, 91, 130, 146,
 149, 151, 154, 155, 156, 159, 160, 161, 162,
 165, 204, 207, 238, 265, 266, 270, 290, 301,
 306, 378, 379

F

face capture and tracking 347, 349
 feature extraction 1, 3, 6, 18, 27, 45, 46, 52, 57, 73,
 90
 feed-forward neural network 376, 381

G

Gabor wavelet transform and post-gabor 52
 genetic algorithms 1, 2, 11
 geodesic-intensity-histogram 128, 130
 global features viii, 115, 117, 118, 263
 grating cells 59, 64

H

Haar wavelet transform 23, 24
 hash index 132, 135
 heritage 180
 Hierarchical Learning Framework v, xiii

Index

hierarchical learning framework 375, 379, 382, 384

I

IBM smart surveillance solution 343, 344, 351

image databases 174

image descriptors viii, 87, 115, 117, 118, 124, 127, 132

image indexing and semi-automatic annotation 177

image keywords 264

image retrieval 371, 372, 377, 383, 384

image segmentation 266

image understanding 67, 107, 108, 110, 113, 114, 233, 260, 284, 285, 339

index cluster 290, 298, 299, 300, 309

indexing 26, 45, 96, 106, 110, 111, 113, 114, 132, 140, 142, 160, 167, 168, 172, 173, 177, 179, 188, 213, 257

information retrieval 173

instance 375

integrated region matching (IRM) 266

intensity-domain spin image 128

J

judge 180

K

k-Nearest Neighbors (k-NN) ix, 171

k-nearest neighbor search 131

k-NN 174, 175

L

labels 180

latent semantic indexing (LSI) 374

learning, multiple instance 270

learning, probabilistic feature relevance 272

learning, relevance feedback xi–xiii, 261–288

log-based retrieval 374, 382

log-based retrieval mechanism 374

logistic regression 226, 227, 233, 327, 328, 330, 332, 338

long-term learning xiii, 371, 373, 374

lower bounding measure 152, 159

M

machine learning 172, 372, 375, 392

machine learning-based model iv, ix, 171

Markov model mediator (MMM) 371, 376

maximally stable extremal region 126

metadata 260

middleware for large scale surveillance 344, 345, 346, 351

MIL 371, 372, 373, 374, 375, 376, 378, 379, 382

MMIR system 371

MMM 371, 372, 373, 374, 376, 377, 378, 379, 382, 386, 412

MMM_MIL framework 377

MMM_MIL Iteration 379

moving object detection and tracking 346, 347, 364

multi-Scale Harris Detector 122

multilayer feed-forward neural network 376

multimedia databases 172, 173

multiple instance learning (MIL) 270, 371, 372, 373, 385, 392

N

naive method 181

neighborhood graph construction algorithms 177

neighborhood graphs 175, 177

neighborhood graphs indexing-based approach 177

neural network (NN) 15, 230, 373

neural networks 8, 18, 63, 82, 230, 241, 243, 283

non-texture images vii, 20, 22, 27, 33, 34, 38, 117

O

object classification 346, 347, 361

OPTICS vii, 20, 22, 30, 32

P

pattern recognition 8, 16, 17, 18, 19, 40, 42, 62, 63, 65, 66, 67, 81, 83, 107, 108, 109, 110, 111, 112, 113, 114, 142, 144, 167, 168, 169, 187, 188, 190, 212, 213, 214, 230, 231, 232, 233, 234, 257, 259, 260, 282, 283, 285, 286, 287, 311, 312, 340, 341, 367, 368, 369, 370

perceptual texture 49

performance comparison 382

performance measurement metric 382

picture archiving and communication systems (PACS) 315

point access methods (PAM) 173

principle for scale selection 120

probabilistic feature relevance learning (PFRL) 272

Q

query-by-example (QBE) 381

query center 373

Query Logs 381

query point 373

R

radial basis function 243
 reference sets 247, 252, 253
 region 375
 region-based learning approach 374
 region-based retrieval 373, 375, 376
 relative neighborhood graph 176
 relevance feedback 45, 61, 65, 66, 88, 145, 146, 152,
 161, 162, 163, 164, 165, 169, 170, 192, 193,
 194, 195, 196, 197, 198, 199, 200, 201, 203,
 204, 205, 206, 208, 209, 210, 211, 213, 216,
 218, 219, 220, 221, 223, 224, 229, 214, 230,
 216, 219, 220, 221, 223, 224, 229, 230, 231,
 232, 233, 234, 235, 236, 237, 238, 241, 247,
 256, 257, 258, 259, 260, 268, 282, 283, 284,
 285, 286, 287, 289, 291, 292, 293, 300, 302,
 307, 309, 311, 312, 313, 315, 319, 320, 321,
 327, 328, 329, 332, 333, 336, 339, 372, 373,
 374, 382, 384, 385, 386, 397
 relevance feedback (RF) 372
 retrieval by keywords 175
 retrieval by visual content 175
 Rocchio algorithm 221

S

scale-space representation 120, 121, 122
 semantic class 200, 201, 289, 290, 293, 294, 296,
 297, 298, 299, 300, 302, 303, 305, 306, 309
 semantic classification 290, 291, 304, 305
 semantic gap 107, 116, 217, 230, 236, 261, 264, 267,
 276, 281, 290, 291, 292, 293, 343, 371, 372,
 373, 374, 379, 384

semantic precision 291, 307, 309
 semantics supervised cluster based index 290
 semi-automatic annotating 179
 similarity 172, 174
 similarity measure 266
 singular value decomposition (SVD) 374
 smart surveillance engine 344, 345, 346, 351
 space access methods (SAM) 173
 space area 178
 statistical reasoning 373, 374, 376, 377
 statistical reasoning mechanism 376
 structuration model 174
 supervised learning 373
 support vector machines (SVM) 212, 223, 224, 230,
 231, 283, 286, 318, 337, 374

T

texture feature extraction and description 46, 52, 57
 texture feature vectors 25
 texture images 21
 time series data 146, 158, 166, 167, 168

U

utility function 249

V

video parsing 346

W

warping path ix, 145, 146, 150, 151, 153
 weighting method 181