

Index

- alias error, 325
- almost interpolation, 260
- anti-aliasing, 76
- approximated refinement equation, 148
- approximation order, 34, 72, 82
 - optimal, 263
- artifact, 69, 76, 88

- B-spline, 4, 104, 246
 - discrete, 112, 113
 - evaluation, 109
 - recursion formula, 105
 - refinement, 112, 118
 - smoothness, 105
 - stability, 109, 133, 140
 - support, 105
- B-wavelet, 133, 142
 - computation, 136
 - construction, 144
- Bernstein
 - polynomial, 107, 252
- Bernstein-Bézier
 - techniques, 251
- bivariate spline, 249
- box-spline, 3
 - 4-direction, 14
 - bivariate, 12
 - triangular, 15
 - univariate, 8

- cardinal spline, 108, 114
- coding
 - arithmetic, 322
 - edge based, 341
 - face based, 336
 - Huffman, 321
 - predictive, 347
 - vertex based, 342
- coloring algorithm, 265
- conditionally positive definite
 - function, 208
- convex combination mapping, 292
- convolution, 210
 - spherical, 195

- Delaunay
 - property, 221
 - triangulation, 220
- determining set, 257
 - minimal, 257
- dimension of bivariate spline space, 255
- discrete harmonic map, 297
- divided difference, 104

- edge
 - collapse, 383
 - swap, 385
- edge collapse, 328
- eigenanalysis, 69
- entropy, 321
- extraordinary point, 18, 79

- Faber decomposition, 128
- fairness criterion, 330
- Fourier-Legendre series, 191

- half-edge collapse, 328
- Hausdorff distance, 330
- Hermite interpolation set, 259
- hexagonal lattice, 223
- hierarchical basis, 129

- image processing, 93
- incremental decimation, 324
- interpolatory subdivision, 25, 29, 37, 39

- knot insertion, 5

- Lagrange interpolation set, 259, 263
- Laurent polynomial, 51
- least squares problem, 168, 224, 292, 326
- Legendre function, 170
- Legendre polynomial, 170
- level of detail, 365, 387
 - uniform, 387
 - variable, 387
- local Lagrange interpolation, 263

- macro element, 261

- mask, 31, 80
- mesh, 363, 366
 - base, 370
 - complexity, 323
 - conforming, 366
 - connectivity, 319, 332
 - extracted, 372
 - genus, 320
 - geometry, 319
 - manifold, 320
 - modification, 367, 382
 - edge-based, 383
 - vertex-based, 383
 - multiresolution, 369, 370
 - conforming, 374
 - orientable, 320
 - polygonal, 319
 - quad, 37, 58
 - reference, 370
 - simple, 320
 - simplicial, 366
 - three-directional, 42
- mesh decimation, 311, 323, 327, 382
- models
 - nested, 376
 - irregular, 381
 - regular, 376
 - non-nested, 376
- Moore-Penrose pseudoinverse, 169
- multilevel approximation, 227
- multiresolution
 - analysis, 121, 147, 169, 305, 307
 - on hierarchical triangulations, 157
- natural configuration, 85
- non-stationary subdivision, 35
- nonlinear subdivision, 93
- optimal recovery, 210
- orthogonal spline, 129
- Oslo algorithm, 112, 113, 127
- parameterization, 287, 333
 - least squares, 297
 - meshless, 308
 - most isometric, 304
 - non-linear, 298, 305
 - shape-preserving, 296
 - uniform, 293
- partition of unity, 33, 109, 110
- Poisson kernel, 171
- positive definite function, 191, 208
- power function, 214, 239
- precision set, 70, 82
- progressive transmission, 324
- quadrangulation, 261
 - checkerboard, 267
- quadric error metric, 326, 330
- quantization, 346
 - error, 347
 - non-uniform, 348
 - uniform, 347
 - vector, 348
- quasi-interpolant, 216
- query
 - selective refinement, 387–389
 - spatial selection, 387, 388
- radial basis function, 206
 - compactly supported, 206
 - Gaussian, 206
 - inverse multiquadric, 206
 - multiquadric, 206
 - polyharmonic spline, 206
 - spherical, 195
 - thin plate spline, 206, 212
- remeshing, 305, 333
- reproducing kernel, 177
- resampling, 324
- reverse decoding, 338
- Riesz basis, 121, 122
- scaling function, 121, 152
 - weighted, 180
- scattered data
 - filtering, 228
 - fitting, 205, 243
 - interpolation, 207
- semi-wavelet, 138
- shape function, 110
- spherical
 - harmonic, 173
 - radial basis function, 195
- spline spaces, 108
 - bivariate, 249
 - nested, 112, 120
- stationary subdivision, 29

- stencil, 80
- subdivision
 - connectivity, 157, 305, 325, 332
 - of box-splines, 3
- subdivision scheme
 - 4-point, 29, 57, 70
 - $\sqrt{3}$, 81, 83
 - butterfly, 39, 60, 62
 - Catmull-Clark, 16, 19, 84
 - Chaikin, 71, 73
 - Doo-Sabin, 16, 20, 83, 84
 - Dubuc-Deslauriers, 30, 48
 - edge-adapted, 96
 - ENO, 94
 - ENO-SR, 94
 - Loop, 17, 20
 - simplest, 81, 83
 - tensor-product, 37
 - triangular, 39, 60
- super-spline, 261
- surface reconstruction, 308
- symbol, 51, 52

- tensor-product spline, 13, 247, 292
- terrain visualization, 228, 243
- texture mapping, 288
- thin plate energy, 213
- thin plate spline, 212
- thinning algorithm, 229
- triangle collapse, 383
- triangulation, 288
 - Clough-Tocher, 261
 - Delaunay, 220, 261, 298, 310
 - manifold, 311
 - Morgan-Scott, 256
 - nested polygon, 258
 - planar, 289
 - Powell-Sabin, 261
 - simple, 289
 - surface, 312
 - uniform, 258
- truncated power function, 104

- uncertainty relation, 216, 218

- variation diminishing property, 78
- vertex
 - clustering, 325
 - contraction, 328
 - displacement, 385
 - forest, 399
 - insertion, 383
 - removal, 327, 383
 - split, 383
- Voronoi
 - diagram, 220
 - neighbour, 221
 - point, 239
 - tile, 220
 - vertex, 221

- wavelet, 121, 129, 132, 169, 307
 - BLaC, 147
 - weighted, 185
- wavelets
 - non-nested, 147