

Index

A

- API 13, 14, 16
- artificial neural networks (ANN) 54
- Atanassov's intuitionistic fuzzy sets 87
- automatic intelligent data analysis 1, 4

B

- backward coupling 165, 172, 178, 316
- bank financial strength rating (BFSR) 236, 242
- bi-clustering 59
- blood alcohol concentration (BAC) 209
- bootstrap methods 272

C

- CaRBS technique 236, 237, 238, 239, 240, 241, 243, 245, 252
- Choquet theorem 34, 36, 44, 326
- chromosome representation 128
- chromosomes 120, 121, 122, 123, 124, 125, 126, 128
- churn prediction 218, 219, 220, 221, 222, 223, 224, 225, 226, 231, 232, 233, 234, 335
- churn rate 218, 220, 222, 223, 224, 225, 231
- coarse data 18, 29, 43, 44, 318, 326
- confusion matrix 91
- continuous lattices 22, 34, 43, 317
- cumulative prospect theory 254, 256
- customer relationship management (CRM) 219, 220

D

- data construction method 300, 301, 305, 307
- Dempster-Shafer theory 98, 236, 237, 252, 336
- discretization 120, 122, 124, 128

E

- ecological modeling 82, 314
- evolutionary algorithms 131, 132, 140
- evolutionary strategy (ES) 133
- expected monetary value (EMV) 254

F

- FAM bank 111, 113, 115
- financial crisis forecasting 289
- fitness function 123, 124, 125, 128, 129, 133, 135, 137
- flexible overlapped bi-clustering (FLOC) 55
- Fourier transform (FT) 105
- fuzzification 16, 108, 120, 122, 124, 128, 129, 205, 208, 210, 212, 213, 214, 215, 312, 314
- fuzzy decision trees (FDT) 202
- fuzzy logic Controller (FLC) 186
- fuzzy matching 2, 8
- fuzzy membership functions (MFs) 202
- fuzzy neural network models 103, 104, 106, 115, 117

fuzzy neural networks (FNNs) 103, 104, 106, 338
fuzzy set theory 203, 337

G

gene expression 45, 46, 47, 48, 49, 50, 51, 52,
53, 54, 55, 56, 57, 58, 59, 60, 61, 62,
63, 318, 336
genetic algorithms (GAs) 120, 121, 122, 123,
125, 128, 129, 130, 133, 187
genetic learner 123, 124, 125, 126, 128
genetic programming (GP) 133

H

hidden Markov model (HMM) 218
Hilbert-EMD-based intelligent learning approach
286
Hilbert-Huang-Transform (HHT) 288, 289

I

if-then rules 104, 106, 107, 111
individual risk management (IRM) 257
intelligent travel time estimation system (ITEMS)
14
intervalized kernel method of density estimation
(IKDE) 300
intrinsic mode components (IMCs)
286, 288, 289, 292

J

Jacobian matrix 146, 148

K

knowledge discovery from databases (KDD) 104

L

learning classifier systems (LCS) 133
least squares global optimization 143
light scattering 143
linear regression model 173, 180, 186, 328

M

machine learning 17, 69, 81, 85, 87, 99, 119,
120, 121, 122, 123, 141, 308, 310, 317,
326, 327, 333
machine learning algorithm 120, 121
Markov chain Monte Carlo algorithms 161
membership functions (MFs) 202, 210
Michigan approach 124, 125, 128

microarray 45, 46, 48, 63
Monte Carlo experiment 278, 283
moving block bootstrap (MBB) 276

N

neural networks (NN) 186
neuro-fuzzy classifier (NEFCLASS) 15

P

particle identification 146, 147, 151, 152, 155,
157, 158, 160, 334
perception-based information 18
Pittsburgh approach 123, 124, 125, 126, 127,
128
predictive model markup language (PMML) 2
principal component analysis (PCA) 105

Q

quantum-inspired EA (QEA) 133

R

random forests 65, 67, 70, 73, 78, 79
random fuzzy sets 18, 21, 36, 37
random sets 20, 21, 23, 25, 30, 36, 25, 36, 37,
38, 44, 326, 339

S

soft computing 118, 119, 186, 187, 188, 189,
337, 340, 341
soft computing platform for intelligent data analysis
(SPIDA) 4
SPIDA wizard 12, 14
stochastic gradient boosting 67, 69, 83, 323
support vector machine (SVM) 286, 288, 291
swarm intelligence 134

T

telecom 218
TreeNet 65, 67, 69, 70, 71, 72, 73, 75, 79, 80,
81, 84, 327, 328
Tungsten inert gas (TIG) welding 185, 189

V

variable-length chromosome 127, 128, 130, 322

W

wavelet transform (WT) 105