

Index

Symbols

16th Loebner prize 330

A

a behavior language (ABL) 404
 ABL 396, 402, 403, 404, 405, 407, 408, 411
 ABL programming language 403
 adaptation 424
 adaptive personalities 391–412
 Adi theory of emotions 309
 AEI 350, 352, 362, 363, 364, 365, 367, 369, 372, 373, 374, 375
 affective computing 2, 7, 413, 415, 430, 432, 435, 514, 547
 affective evaluations 74, 75
 affective goal manager (AGM) 78
 affective memory 75, 77
 affective pedagogical agents 428
 affective personified emotional agents (APE agents) 367
 affective states 204, 226
 affective task manager (ATM) 78
 affect model demonstration 105
 affect-modulated navigation 95
 agent-based computational economics 181–197
 agent paradigms 424
 agents, two kinds 189
 AGM 78, 79, 80, 83
 ambient emotional responsive character, case study 454
 ambient intelligence 461, 465, 472, 473, 474, 475, 476, 477, 478, 480, 481, 482, 487, 489, 490, 491, 492, 493, 498, 499, 536, 537

ambient intelligence (AmI) 473
 ambient media 443, 444, 445, 446, 447, 449, 450, 451, 452, 453, 454, 456, 458, 527
 ambient media principles 451
 AmI 472, 473, 491, 499, 500
 Amygdale 363, 364, 365
 animated pedagogical agents 427
 antecedents of emotions 226
 APE agents 353, 364, 365, 367, 371, 375
 appraisal theories 416
 appraisal theory 228, 231, 233, 236
 artificial affect 95
 artificial emotional intelligence (AEI) 350–378
 artificial model of anger and fear 253
 artificial surprise 267–291
 artificial surprise, applications 285
 art of the soluble 34, 35, 46, 47, 50, 54, 504
 associative thinking 125
 astonishment 279
 ATM 78, 79, 80, 81
 automatic detection of emotion in music 9–33
 autonomous agents, moral emotions 166–180
 autonomous dynamics 124
 autonomy 247, 248, 263, 264

B

Barabási-Albert network 188
 basic emotion 153
 benevolent action from emotional motivation 67
 benevolent agent 58, 73
 benevolent characters 57–73
 benevolent multirobot system (BMRS) 62
 biological functions of emotion 134

Index

BMRS 62, 63, 73
boundary polarities 297
bubbles 488, 489, 494, 505

C

CASIMIRO 1, 2, 3, 5, 7
categorization 39
categorization of emotions 448
circumplex model 3, 7, 540
circumplex of emotions 141
clinical psychology confirmation 314
CMC 419
cognition 467, 469, 470, 543
cognitive appraisal 228, 229, 230
cognitive evaluations 75
cognitive-psychoevolutionary model 270
cognitive systems 122
cognitive tutor authoring tools (CTAT) 382
cognitive variables 379, 384
commitments management 198–227
commitment theory of emotions 198, 199, 203, 214
compound abstract processes 297
compound emotion 299, 302, 305, 312
computational model 188
computational model of emotion 64, 415
computer-based learning environments 413–442
computer mediated communication (CMC) 419
computer-supported collaborative learning (CSCL) 420
core relational themes (CRT) 231
critical transformative bubbles 488
critical transformative room 474, 475, 485, 491
CRT 231
CSCL 420
CTAT 379, 382, 383, 384, 385, 386, 387, 501
CTAT cognitive tool 382
CTAT, interactivity elements 382

D

deliberative layer 398
DIARC 74, 75, 81, 85, 86, 542
diffusive control 121, 122, 126, 127, 130, 131
digital rights management (DRM) 490
digital signal processing (DSP) techniques 19
dimensional emotion theories 416
directional control 92
disorientation 281
dispositional entities 266
DRM 490
DSP 19
dynamic window 94, 116, 515

E

EBDI agents 354, 355
echoic memory 466
EI 350, 351, 352, 360, 362, 363, 364, 373, 374, 375
EI, competing models 360
elementary emotion 299, 300, 310
elicitation structure 199, 206
emotional agents 353
emotional agents in education 426
emotional agents, role of emotions 355
emotional ambient media 443–459
emotional ambient media design 454
emotional behavior 242
emotional-belief-desire-intention agents (EBDI agents) 354
emotional binding 446, 451, 459
emotional brain 364
emotional categories 295
emotional competence framework (ECF) 371
emotional computation 444, 445, 446, 447, 449, 450, 452, 453, 454
emotional computation, techniques 448
emotional control 127
emotional decay 4
emotional intelligence (EI) 350
emotional layer 398
emotional long term memory 396
emotional memory 5, 391–412
emotional modeling in an interactive robotic head 1–8
emotional models in psychology 447
emotional processing hierarchy 143
emotional representations 12
emotional stabilization 238, 245
emotional state 449, 452
emotional variables 379, 384, 387
emotional variables-anxiety-motives 386
emotion-based music assistants 23
emotion, biological functions 134
emotion capture 449
emotion in agents 60
emotion inducing factors 66
emotion in MRS, roles 62
emotion in music 9
emotion in the Turing Test 325–349
emotion models applied to agents 356
emotion's behavior mechanism 237
emotion scripts 203, 204, 205, 212, 213
emotions dynamics 202
emotions from root words 298

emotions in artificial intelligence (AI) 251
 emotions interaction 239
 emotion stabilization 241
 emotions theory 186
 emotions without mind 462
 emotion variables behavior 255
 eMuu 43, 49, 50, 504
 engagement polarities 297
 environment-rules-agent (ERA) 188
 ERA 188, 189
 evolutionary biology 134, 142
 expected utility 74, 75, 76, 77, 78, 80, 81

F

face processing (FP) 35
 facial expression 34, 35, 36, 37, 40, 41, 44, 45, 46,
 47, 48, 515, 49, 50, 51, 52, 519, 54, 527, 52
 facial expression classification, analysis 35
 facial expression synthesis 42
 FIS 67
 FP 35, 36, 44, 45, 46, 48
 fuzzy inference system (FIS) 67

G

GeDA-3D agent architecture 352, 353, 365, 370,
 372, 373, 374, 375
 gender perspective 154, 155, 156, 157, 159, 160,
 161, 162
 gesture-based interaction 47
 GIM 26
 global emotion 103, 104
 goal and task selection for social robots 74–87
 guided imagery and music (GIM) 26

H

hard problem 133, 134, 136, 137, 140, 152
 hardwired synthetic emotions, TPR 2.0 460–471
 harmonic pitch class profiles (HPCP) 20
 HCI 413, 415, 423
 HCI and the face, workshop 45
 HPCP 20
 HRI 353
 human-robot interaction (HRI) 353
 hyperinflation 181, 182, 195, 196, 508

I

informational self-determination 490
 input module 203
 input recognition 126

instructional design, motivation and emotion 417
 intelligent tutoring systems (ITS) 379, 426
 interactive robotic head, emotional modeling 1–8
 intrinsic motivation and emotions 173
 invisibility 472, 473, 476, 487, 494, 495, 500, 510
 invisible intelligence technology 473
 ITS 379, 380, 387, 388, 389, 426, 427, 438, 501,
 523, 524, 534

J

James-Lange theory 143

K

k-Nearest-Neighbors (k-NN) 20
 k-NN 20

L

language as best evidence about emotions 294
 layered agents 354
 lementary abstract processes 297
 Loebner 2004-2006 scores 334
 Loebner 2006 conversations 331
 Loebner prize for artificial intelligence 330
 logic based agents 354
 Lorini-Castelfranchi model 278

M

Macedo-Cardoso model 274
 machine learning 396
 mapped emotion 104
 mapping 38, 41
 media technology 443, 444, 445
 mel-frequency cepstral coefficients (MFCCs) 20
 memory and emotion relationship 394
 memory retrieval 396
 metacognition 382, 384, 385, 386, 387
 metacognitive variables 385
 meta learning 127, 130, 131
 MFCCs 20, 22
 MIR 17, 18, 19, 20, 24, 31
 MIREX 21, 22, 27, 28, 513, 520
 mirror neurons 142
 mismatch-based surprise 278
 mismatch theories of emotions 248
 mobile robot navigation 88, 91, 97, 102
 mood-based decision-making 75
 moral emotions 166, 167, 168, 171, 172, 173, 176,
 178
 moral emotions for autonomous agents 166–180

Index

moral understanding, emotions 171
motivational climate 423
motivational problem 119, 120, 127, 131, 132
motivational system 168, 173, 175, 176, 177, 204, 227
MRS 62
multiple intelligences 351
multi-robot team work 57–73
musical features and emotion 15
music and emotions 10
music conveys emotion 10
music information retrieval evaluation exchange (MIREX) 21
music information retrieval (MIR) 16

N

natural language semantics 292–324
nature of emotion 394
negative affect 76, 77, 78, 80, 84, 85
neuromodulators 121, 130
neurophenomenology 136, 147, 150, 151, 152, 524, 540

O

OCC model 37, 38, 39, 40, 41, 49, 50, 356, 357, 360, 361
OCEAN model 359, 360, 361
ontology for affective personified emotional agents (APE agents) 367
output module 212

P

path planning 92
pattern recognition 34, 35, 36, 46, 47, 48, 50, 54
PEPE project 397
percentage for affecting emotion (PIEI) 241
personality models 359
personal music assistants 23
person recognition 6
phenomenology 136, 137, 138, 139, 141, 142, 144, 149, 150, 152, 153, 520, 521, 528
PIEI 240, 241
positive affect 76, 77, 78, 84
protoemotions 461, 462
protophenomena 137, 138, 139, 140, 143, 144, 145, 146, 147, 148, 152
protophenomenal analysis 136, 140
protophenomena of robot emotion 144
psychological theories of emotions 248
psychological theories of surprise 270

psychological variables 379, 382, 383, 384
psychology, emotional models 447

Q

qualia 137, 139, 140, 152
quantification 40

R

reactive agents 354
reactive layer 398
Readware 315
Reduction 136
reflection 41
reflex layer 398
robot emotion, protophenomenal analysis 136
robotic emotions 88–118, 135
robotics, personality and emotions 154–165

S

secondary emotions 141
Seignorage 185, 189
SI 351, 352, 374
signaling function of emotion 247, 248, 254
situated agent 248, 250, 252, 265
situated agents, artificial emotions 251
social bonding 134
social climate 423
social intelligence (SI) 1, 2, 351
socio-emotional agent's functions in instructional design 429
socio-emotional climate in computer-based learning environments 422
somatic feeling theory 143
specific-stimulus theories of emotion 252, 263
states of emotion 62
stochastic difference equation model 182
structure of emotion 236
supervised learning 32
support vector machines (SVM) 20
surprise computation 275
surprise, effects of 277
surprise-enhanced BDI agent 281
surprise, history of research 269
surprise in humans 268
surprise mechanism 271
surprise model 274
surprise models, comparison 281
surprise, pre-theoretical characterization 268
surprise processes 271
surprise, theoretical definition 272

survival variable 123, 124
SVM 20, 21, 22, 31, 32
synthesis, emotion modeling 37
synthesis of emotions 450
synthetic emotions 460, 461, 463, 466, 469, 470, 549

T

teaching-learning sequence (TLS) 379
technological climate 423
theory of emotions 292, 293, 294, 295, 296, 297, 309, 314, 315, 316
TLS 379
TPR 1.0 463
TPR 1.0 and TPR 2.0, differences 465
TPR 2.0 460–471

triggering of emotions 310
Turing Test, emotion 325–349

V

velocity control 94
virtual creatures, AEI 350–378
visibility 473, 474, 476, 478, 479, 481, 482, 484, 486, 490, 492, 493, 500
visibility management 492

W

word root semantics 309
word roots, generating theories of emotions from 297