

# Index

## A

Access Control Model (ACM) 44, 45, 47, 48, 49, 50, 51, 52, 53, 54, 56, 58, 59, 60, 61, 62  
 accessibility 316, 317, 318, 319, 320, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339  
 accessibility evaluations 316, 322, 330, 333, 334  
 Adaptable Web Applications (AWA) 100, 101, 102  
 adaptation design 101  
 Adaptive Hypermedia Application (AHA) 102  
 adaptive hypermedia applications (AHDM) 102  
 adaptive hypermedia development process (AHDP) 102  
 adaptivity 100, 101, 102, 106, 108, 113, 118, 121  
 ad-hoc messaging network (AMNET) 1, 2, 3, 4, 5, 6, 7, 8, 9, 10  
 administrative agent (AA) 147, 151  
 AGAC (Algorithm of Generation of Audience Classes) 117  
 agile 316, 317, 332, 334, 335, 338, 339  
 Agile Processes (AP) 316, 332, 334  
 Agile Web Engineering (AWE) 332  
 American Standard Code for Information Interchange (ASCII) 83, 84  
 application integration 234  
 automated discovery 234, 235, 242, 247, 252, 253  
 automated evaluation tools 323, 324, 325, 334  
 automated system 235  
 Automated Teller Machines (ATMs) 348, 358

Automatic Speech Recognition (ASR) 343, 345, 346, 350, 351, 352, 353, 354, 357  
 Autoregressive Integrated Moving Average (ARIMA) 202, 207  
 average response time (ART) 40

## B

bag-of-words 178  
 base stations (BS) 16, 17, 18, 19, 20, 21, 22, 23, 24  
 Belief-Desire-Intention architecture (BDI) 151  
 biological and ecological models (BEM) 17  
 Bluetooth 1, 2, 3, 4, 5, 6, 7, 10, 11  
 bulletin boards 8  
 Burrows-Wheeler Transformation (BWT) 82, 83  
 Business Process Modeling Notation (BPMN) 46, 58, 60  
 Byte Hit Ratio (BHR) 199, 206  
 Byte Quad Encoding (BQE) 93, 95, 96, 97, 98  
 Byte Triplet Encoding (BTE) 91, 95, 97, 98  
 Byte Word Encoding (BWE) 97, 98

## C

cache performance parameters 197, 199  
 cache server 196, 197, 202, 203  
 Case-based reasoning (CBR) 247  
 cellular mobile radios 1  
 checklist 214  
 chemical pollutants 13  
 ChinaGrid Support Platform (CGSP) 145  
 client router 161, 163  
 client server 161, 165, 169  
 climate monitoring 13, 20  
 cluster centroid 178

## **Index**

collaborative filtering (CF) 63, 65, 66, 67, 68, 72, 73, 75, 76, 77, 78, 79  
collaborative recommendation 173, 190, 193  
communication networks 160  
Composite Capabilities/Preference Profile (CC/PP) 65, 78  
compression time 97, 98  
computational geometry 27, 29  
computer graphics 27  
conformance evaluation 323  
conformance tests 323  
correlation 211, 212, 217, 220, 222, 223, 224, 225, 227  
Coupled Ocean/Atmosphere Mesoscale Prediction System (COAMPS) 245  
crop tracking 13, 24  
current leaf (CL) 35, 36, 37, 39  
cyclic-redundance-check (CRC) 23

## **D**

databases (DB) 17, 18, 19  
data collection 220, 223  
data-driven Web applications 100  
Data Grid Management System (DGMS) 144  
data loggers 14, 17, 20, 21, 23, 24  
data objects 45  
data packets 160  
data sets 72, 77  
decorative images 320  
Delaunay Triangulation (DT) 29, 30  
delivery services 46  
Design Darwinism 217  
design process 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 304, 305, 306, 309, 311  
desktop applications 293  
desktop computing 63  
Dialogue Manager (DM) 344  
dictionary-based preprocessing 83  
digital libraries 81  
disability 316, 327  
discretionary access control (DAC) 48, 49  
distributed databases 124, 125  
distributed network environments 9  
document cluster 177  
document hit 201, 202

doubly chained trees 28  
Drought Index (DI) 15, 16  
DRUM (Diagnostic Recorder for Usability Measurement) 116  
Dynamic Informational Functionality (DIF) 103  
Dynamic Knowledge Base 239, 240, 241  
Dynamic Systems Development Method (DSDM) 333, 334, 339

## **E**

e-learning environments 142, 145, 146, 149  
e-learning platforms 142, 143  
e-learning Web sites 211, 212, 218, 222  
electronic bulletin boards 8  
electronic learning (e-learning) 8, 9, 142, 143, 145, 146, 147, 148, 149, 151, 156, 157, 158, 211, 212, 218, 222, 226  
electronic zonal stations (EVS) 14, 16, 17, 18, 19, 20, 21, 22, 23, 24  
emotion 257, 262, 265  
empirical study 279, 280, 283, 284, 285, 287, 288, 289  
end-of-frame (EOF) 23  
end users 316, 331  
Equipment Identity Register (EIR) 45  
European Organisation for Nuclear Research (CERN) 144, 157  
European Regional Development Fund (ERDF) 259  
evaluation criteria 316  
evaluation methods 316, 326, 335  
experimental data 265  
expert checklist review 325  
eXtensible Markup Language (XML) 72, 236, 237, 238, 240, 241, 242, 244, 253  
Extreme Programming (XP) 333, 334, 335

## **F**

Feature Driven Development (FDD) 332, 333, 334  
framework 293, 294, 295, 296, 306, 307, 309, 312, 313, 314  
fuel price 78  
functional requirements 349

**G**

Generalized Autoregressive Conditional Heteroskedasticity (GARCH) 207  
 general packet radio service (GPRS) 44  
 generator for adaptive Web applications (GIWA) 100, 101, 102, 107, 108, 109, 110, 111, 113, 114, 115, 116, 117, 118, 119, 120, 121  
 geographical information systems (GIS) 27  
 global positioning system (GPS) 66, 70, 71, 73, 77  
 global software development 281  
 global state 163  
 Google 72  
 Google Earth 72  
 graphical user interfaces (GUIs) 342  
 Group Elicitation Method (GEM) 268

**H**

hashing 97  
 Heliothermic Index (HI) 15, 16  
 Heuristic QoS Routing 163, 165  
 Heuristic Routing 159, 160, 164, 166, 167, 168, 169  
 hierarchical profile agents 181, 184  
 Hit Ratio (HR) 199, 206  
 holding area 183, 184  
 Huffman algorithm 82  
 human computer interaction (HCI) 257, 258, 260, 261, 264, 265, 273, 277, 278, 279, 280, 287  
 human computer interaction (HCI) community 265, 297  
 Hurst parameter 196, 199, 200, 203  
 hybrid networks 2  
 hypermedia 329, 337  
 hypersonic database (HSQLDB) 130  
 hypertext markup language (HTML) 77

**I**

IBM 48  
 ICT in Education 218  
 Implications Grid 266  
 in-car warning systems 9

information communication technology (ICT) 218  
 information retrieval systems 81  
 information systems (IS) 44, 46  
 information technology (IT) 270, 271  
 input files 84, 85, 86, 87, 88, 90, 92, 94, 95, 96, 97  
 input traffic dynamics 197  
 inspection methods 323, 325  
 Integrated Web Services Broker 235  
 Integrated Web Services Brokering System (IWB) 234, 235, 237, 238, 239, 240, 241, 242, 243, 244, 245, 247, 252, 253  
 interface agent 176, 177, 184, 193  
 Internet Protocol (IP) 159

**J**

Java 4, 10  
 Java Agent Development Framework (JADE) 142, 154, 156, 158  
 Java Business Process Management (JBPM) 130, 132, 133, 134  
 join path 124, 127, 130, 133, 135, 136  
 joins 124, 125, 126, 130, 133, 134, 135, 136, 137  
 Joint MetOc Broker Language (JMBL) 236, 237, 244, 254

**K**

kd-tree 28  
 key performance indicators (KPIs) 350

**L**

Label Based Access Control (LBAC) 48  
 large databases 124, 125, 135, 136  
 Learning Management System (LMS) 156  
 Learning Objects (LO) 143, 147, 148, 149, 154, 155, 156  
 learning units (LUs) 147  
 Least Frequently Used (LFU) 206, 207  
 Least Recently Used (LRU) 206, 207  
 Leaves-Linked N-tree (LLN-tree) 27, 35, 37, 40, 41  
 Left Child (LC) 30, 31  
 Left Sites of the Frontier (LSF) 29, 30, 37

## Index

LIFT tool 214, 217  
linear complexity 86, 88, 90, 93, 95, 96, 97  
line-of-sight (LOS) 20, 21  
Linux 48  
Living Systems Framework (LSF) 259, 260  
location based services (LBS) 27, 32  
long range dependence (LRD) 196, 198, 199, 200, 202, 203, 204, 206, 207, 208

**M**

MAG (Mobile Agents Technology for Grid Computing Environments) 143  
maintenance engineers 46  
mandatory access control (MAC) 48, 49, 50  
marine micro-organisms 28  
mark-up tags 65  
message authentication code 5, 19, 25  
metadata 64, 65, 66, 67, 69, 74, 78  
meteorological and oceanographic (MetOc) 234, 235, 236, 237, 238, 239, 240, 241, 242, 244, 245, 246, 247, 248, 249, 252, 254  
Microsoft 74  
mobile ad-hoc networks (MANET) 1, 2, 3, 10, 19  
mobile information systems (MIS) 44, 45, 55, 58  
mobile nodes 1, 2, 6, 7, 10  
mobile phones 1, 3, 4, 5  
mobile technologies 44, 46  
mobile workflow management systems (mW-fMS) 46, 47, 49, 51, 52, 54, 55, 56, 57  
mobility 2  
monitoring systems 28  
motivation 257, 258, 260, 261, 262, 264, 273, 277, 278  
Motivation Systems Theory (MST) 257, 258, 259, 260, 261, 264, 273  
multi-agent structure 149  
multi-agent system 171, 172, 175, 190  
Multicast routing 159  
Multicriteria Climatic Classification (MCC) 15, 16  
multi-dimensional range queries 42  
multidimensional space 179

## N

National Oceanic and Atmospheric Administration (NOAA) 246  
NATO Underwater Research Center (NURC) 244  
Natural Language Generator (NLG) 344, 355, 356  
Natural Language Understanding (NLU) 344, 345, 346, 351, 352, 355, 356  
navigational support 173, 174  
nearest neighbor leaf/region (NNL) 35, 37, 39, 41  
neighborhood creation 65  
neighbor leaf (NL) 37  
neighbors' tree (N-tree) 27, 28, 29, 30, 31, 32, 33, 34, 35, 37, 39, 40, 41, 43  
Network-on-Wheels (NoW) 68, 69, 72, 78  
Network Time Protocol (NTP) 18, 24  
network utilization 2  
NLANR (National Laboratory of Applied Network Research) 196, 197, 202, 204, 205, 206, 207, 210  
Nocturnal Freshness Index (FI) 15, 16  
non-functional requirements 349

## O

OGSA-DAI (Open Grid Services Architecture-Data Access and Integration) 144, 158  
ontology development 238, 245  
OOHDM (Object Oriented Hypermedia Design Method) 329  
OO-H (Object-Oriented Hypermedia Method) 329  
open database connectivity (ODBC) 19  
Open Geospatial Consortium (OGC) 234, 244  
Open Grid System Architecture (OGSA) 144, 145, 155, 156, 158  
Open Unified Process (OpenUP) 330, 335  
opposite method 267, 272  
original agent 177  
Origin Denomination (OD) 16  
outsourcing 281

## P

page acceptance 183

page bidding 183  
 page distribution 183  
 path delay 159, 160, 165, 166, 168  
 personal assistant 172  
 personal digital assistants (PDA) 1, 3, 44, 47,  
 62, 63, 74, 75, 76, 77  
 personal information management (PIM) 74,  
 79  
 pervasive usability 293  
 planar Euclidean space 29  
 points of interest (POI) 64, 69, 73, 75, 77  
 Prediction by Partial Matching (PPM) 82, 83  
 Problem Solving Environment (PSE) 145  
 Profession Functionality (PF) 103  
 programming tools 19  
 proxy cache 196

## Q

QoS constraints 159, 160, 162, 163  
 Qualitative User Experience Survey Tool  
 (QUEST) 276  
 Quality of Service (QoS) 159, 160, 161, 162,  
 163, 164, 165, 166, 168, 169  
 query optimization 126, 136  
 Questionnaire of User Interface Satisfaction  
 (QUIS) 257

## R

random access compression algorithms 86, 98  
 Rank Order Grid 266  
 Ratings Grid 266  
 Rational Unified Process (RUP) 330, 337  
 recommendation gathering 184  
 recommender algorithms 78  
 recommender systems 63, 64, 65, 66, 67, 69,  
 70, 71, 72, 73, 77, 78, 79  
 regional agent (RA) 147, 152  
 Regionally Distributed Architecture for Dy-  
 namic e-Learning Environment (RD-  
 ADeLE) 142, 143, 145, 146, 147, 148,  
 150, 154, 156  
 relational databases 124, 126, 136  
 Repertory Grid 257, 258, 265, 266, 267, 268,  
 269, 270, 271, 272, 273, 274, 275, 277,  
 278

Resource Description Framework (RDF) 238,  
 254  
 response time 159, 160, 164, 165, 166, 168  
 result set (Res) 39  
 Right Child (RC) 30  
 Right Sites of the Frontier (RSF) 29, 30, 31,  
 32, 37  
 RMM (Relationship Management Method)  
 329, 337  
 routing problems 159, 160  
 Royal National Institute of Blind People  
 (RNIB) 318

## S

San Diego Supercomputer Center (SDSC) 144  
 scalability 2  
 Security Enhanced Linux (SELinux) 48  
 self-similar 199, 200, 203, 206, 209  
 sensor agent (SA) 147, 153  
 sensor networks 28  
 service oriented architectures (SOA) 47, 124,  
 126, 136  
 Sharable Content Object (SCO) 144  
 Shareable Courseware Reference Model  
 (SCORM) 144  
 shoulder sniffing 45  
 shoulder surfing 45  
 similarity threshold 180  
 simple network 161  
 Simple Object Access Protocol (SOAP) 236,  
 241  
 Small and Medium sized Enterprises (SMEs)  
 259  
 smart phones 1  
 social sciences techniques 293  
 software developers 279, 280  
 software developer teams 293  
 software development 279, 280, 281, 290  
 software engineering 293, 312  
 software usability 279  
 Source Routing 159, 160, 161, 164, 165, 166,  
 167, 169  
 Spearman's Rank correlation 211  
 speech-enabled web interface 341  
 splitting 181, 183, 191

## Index

spoken dialogue 341, 342, 344, 345, 346, 348, 349, 350, 351, 353, 354, 355, 358, 359, 360  
spoken dialogue web interface 342, 345  
SQL join query 124, 126, 127, 130, 133, 135, 136  
SQL query 126, 127, 130  
start-of-frame (SOF) 23  
Star Word Ending (StarWE) 83  
Static Informational Functionality (SIF) 103  
Static Informational (SI) 103  
Storage Resource Broker (SRB) 144, 156  
storage systems 17  
Structured Hierarchical Interview for Requirement Analysis (SHIRA) 270  
structured query language (SQL) 124, 125, 126, 127, 130, 133, 135  
supervised learning 247  
surveys 301, 302, 304, 305, 310  
SWAMI 171, 172, 174, 175, 176, 177, 185, 186, 187, 190, 191

## T

technical accessibility 317, 318, 334  
Technology Acceptance Model (TAM) 258, 260  
technology supported assistance 311  
temporal context 174  
text media 114  
Text to Speech Synthesizer (TTS) 344, 355, 356  
TFIDF 178, 179  
think-aloud 279, 284, 288  
think-aloud protocol 328  
traffic characteristics 196, 198, 199  
traveling salesmen 46  
Turkish Straits Survey (TSS) 244  
Two-level Word Replacing Transformation (TWRT) 83

## U

Unicast routing 159  
Unified Modelling Language (UML) 65, 100, 101, 103, 108, 111, 112, 113, 117, 120, 122  
Unified Processes (UP) 316, 330, 331, 332

Universal Discovery Description and Integration (UDDI) 236, 239  
Universal Mobile Telecommunications System (UMTS) 44, 51  
universal usability 318, 339  
usability 211-230, 257-262, 265, 266, 268, 269, 276, 278, 293-301, 304, 305, 306, 311-315, 341, 342, 345-360  
usability engineering 279, 280, 289  
usability evaluation 279, 280, 281, 282, 283, 284, 287, 289, 290, 291, 341, 351, 352, 353, 354, 355, 356  
usability guidelines 211, 212, 213, 214, 218, 219, 222, 223, 224, 225, 226, 229  
usability problem identification 279, 280, 282, 283, 284, 285, 287, 288, 289  
usability problem identification tool 280, 282, 283, 284, 285, 287, 289  
usability problems 279, 280, 281, 282, 283, 284, 285, 286, 288, 289  
user-centered design (UCD) 257, 293, 296, 298, 299, 301, 305, 309, 312, 332, 333, 334  
user evaluation 317, 326, 331, 334  
user experience 257, 260, 264, 265, 268, 270, 271, 272, 273, 275, 277  
user interface 258, 277, 278  
user model 174, 190, 193  
user needs 332  
user needs analysis 293, 294, 299, 301, 302, 304, 305, 306, 310, 312  
user research 293, 301, 302, 303, 312, 314  
user satisfaction 264, 265, 269  
user types 316  
UWE (UML-Based Web Engineering) 329

## V

variable-bit-length codes 81, 82  
vehicular ad-hoc networks (VANET) 63, 64, 68, 69, 73, 78, 79  
voice interface evaluation 341  
voice user interface 341  
voiceweb 341, 349

## W

wealth recalculation 183



- web accessibility 322, 335
  - Web Accessibility Initiative (WAI) 318, 323
  - Web Adaptive Unified Modelling Language (WA-UML) 100, 101, 108, 111, 112, 113, 117
  - web applications 100, 101, 102, 103, 106, 108, 111, 113, 116, 118, 121, 122, 293, 316, 317, 325, 327, 328, 329, 332, 334, 336
  - web-based applications 339
  - web-based learning 211
  - web browsing 81
  - Web cache parameters 198
  - Web cache servers 196, 206
  - Web cache systems 196, 207
  - web caching 196, 208, 209
  - Web Content Accessibility Guidelines (WCAG) 318, 319, 322, 323, 324, 325, 340
  - Web Coverage Services (WCS) 234, 244
  - web design 293, 294, 295, 296, 297, 301, 302, 311
  - web engineering 316, 317, 320, 325, 328, 330, 332, 334, 336
  - web engineering process 316, 320, 334
  - web engineers 316, 317, 319, 322, 326, 334
  - web features 316, 319
  - WebML (Web Modelling Language) 329, 335
  - Web Ontology Language (OWL) 238, 253, 254
  - web product development 293
  - web services 124, 125, 126, 127, 130, 135, 136, 142, 143, 234, 235, 236, 238, 239, 240, 241, 242, 244, 247, 249, 252, 253, 254, 255
  - Web Services Definition Language (WSDL) 236, 237, 238, 239, 240, 244, 248
  - website commissioners 316, 317
  - web site design 211
  - website development 211, 279, 280, 282
  - Web site Evaluation System (WES) 220
  - Web site hit 202
  - Web site popularity 211, 212, 215, 216, 218, 220, 222, 223, 224, 225
  - web technology 316, 319
  - Web traffic 196, 198, 199, 206, 207, 209
  - WiFi 44, 51
  - winning cluster 180
  - wireless local area networks (WLAN) 5
  - wireless networks 13, 18, 19, 20, 21, 24, 25
  - wireless sensor networks (WSN) 13, 14, 19, 20, 21, 22, 23, 24
  - Wizard-of-Oz (WOZ) 351, 352, 353, 354, 356
  - workflow management systems (WfMS) 44, 46, 50
  - workflow systems 44, 45, 46
  - World Wide Web Consortium (W3C) 213, 226, 244, 318, 323, 342, 343, 358, 359
  - World Wide Web (WWW) 144, 280
  - WSDM (Website Design Method) 329, 339
- ## Z
- Zipf law 198, 201, 202, 203, 204, 206, 207
  - Zone Routing Protocol (ZRP) 2, 10