## **Subject Index**

Aardvark, 24, 33, 34, 40 Academic pages, 270 Accuracy definition of, 267 Ad hoc retrieval, 36 Advanced user models novelty and diversity, 124-126 α-NDCG, 128 intent-aware ERR, 129 intent aware family, 127-128 subtopic recall and precision, 126 - 127sessions, 129-130 expected global utility, 131–132 extending tradition to session measures, 132-133 normalized session discounted cumulative gain (nsDCG), 131 Advocacy Web pages, 255 Aesthetic theory, 298–300 Alchemy, 156 α-NDCG, 128 Amazon, 36, 37, 232 Amnesty International Web site, 296 Anglo-American legal system, 290 "Anomalous state of knowledge" (ASK), 22 AOL, 232 ARES (A Retrieval Engine Based on Sentiments), 150 Aristotelian logic, 286 Artworld, 299

Ask, 232 Average precision (AP), 113 interpretation of, 115-116 Baidu, 175 Bayesian mathematics, 297 Bayesian methods, 297 "Bell curve", 219 BibTip, 37 Binary Preference (BPref), 217 definition of, 218 Bing, 3, 61, 252, 256, 257 BingMaps, 60, 64, 66 Bing Streetside, 56 Blekko, 38, 39 "Bundles", 230 Business Web pages, 255 Cards, 233-234, 235-237 Central limit theorem, 219 Citation networks, 296 Clewwa, 268 Click popularity, 25 Coefficients of probability, 287 Collaborative filtering, 35-38 Collaborative networks, 295 Collaborative search system, 34-35 Commodity market, 87-88 Common law, 290 Community pages, 270 Computer-supported cooperative work (CSCW), 231 Connotea, 22

Corporate pages, 270 CoSearch system, 35 Country-code top level domain (ccTLD), 71 Coverage, 167 Cranfield paradigm, 106, 107 Crawling, 297 Creativity, 302 Credibility assessments, influence of search engine interfaces on, 251 alternative search engine interfaces, 262 Information Foraging Theory, 256-257 Information Quality and Credibility, 254 on Web, 259 Prominence-Interpretation Theory, 259-260 Criteria-based judgments, 293 Daily duplication frequency, 178, 179 histograms, 179 patterns, 181-182 Daily rank change frequency, 178, 180 histograms, 180 patterns, 183, 185 Data type, 220 Deduction works, 286 Discounted cumulative gain (DCG), 119, 120, 152 Discovery search, 54 Diversity (Web search), 140-141 assessing, 145 comprehensive analysis of, 149-151 definition, 142 dimensions of, 144-146 evaluation measures for result, 151 - 153future challenges, 159-160

in result sets and ranking, 147-149 Diversity-aware search, medical web content and, 153-158 architecture of search engine, 155 - 156content collector, 156 content extractor, 156-157 diversity assessor, 157 relevance filter, 156 retrieval and ranking engine, 157 visualization component, 157 - 158functionality of search engine, 153-154 Document ranking, 212–213 Dogear, 229 Dragon Toolkit, 156 eBay, 232 Effectiveness evaluation, 106 advanced user modules of, 124-133 retrieval systems, 133-134 traditional measures of, 111 - 113with user modules, 114-124 English (British) law system, 290 Entertainment Web pages, 255 Escapism, 231 Eurekster, 38

Evaluation measures, traditional, 111 average precision, 113 precision and recall, 111–113 Evaluation parameters, 169, 170 Evolutionary epistemology, 300 Evolutionary theory, 300 Expected browsing utility (EBU), 122–124 Expected global utility (EGU),

131 - 132

Expected reciprocal rank (ERR), 121-122 Expected search length (ESL), Cooper's, 114-115 Explicit collaboration, 25 Exploratory search, 54, 229 Facebook, 32, 33–34, 232 Faceted search, 150-151, 229 Falsification, 285 Feature parameters, 169, 170–172, 198 - 201database, 171 home page, 171 keyword entry options, 171 result, 171 search options, 171 user preferences, 170 Field trial, 238-240 Flickr, 22, 52 F-measure, 112, 152 FOAF-format (friend of a friend), 23 Forex (foreign exchange/currency market), 87, 89-90 Foursquare, 71 Game studies, 301 General Web search, 65 Geographic Information Retrieval (GIR), 7, 48, 50, 53 Geographic Information Systems (GIS), 50-51 Geospatial search, 49 Goodman and Kruskal's G, 217 Google, 2, 40, 164, 232, 252, 256, 257 Google's PageRank, 25 Google +1-button, 40, 41 Google Answers, 33 Google Co-op, 38, 39 Google Earth, 51 Googlefight, 292

Google Local, 51 Google Maps, 51, 60, 61, 62, 65, 69 Google News, 266 Google Plus, 41 Google Realtime, 24 Google SearchWiki, 40, 41 Google SERP interface, 274 Google Sidewiki, 40 Google Social Search, 40, 41 Google Streetview, 56 Google Trends, 83 Graded relevance, 116–117 Graphical user interface (GUI), 230, 235 Hakia, 268 Hermann's theory, 300 Histogram patterns benchmark, 188 and classification, 180-182 expected value, 187-190 parameters for, 187 validation of, 190–193 Human-computer interaction (HCI), 230 Human motivations, 247 Hunch, 37, 38 Hypertext 2.0, 301 Implicit collaboration, 25

Index as an aesthetic marker of presence, 298–299 Induction works, 286 Informational queries, 142 Informational Web pages, 255 Information Foraging Theory, 256–257 Information networks, 296 Information pages, 270 Information quality and credibility, 254 definitions of, 254 expertise, 254

heterogeneity of information sources, 254-256 trustworthiness, 254 dimensions, 254 multidimensional construct, 255 Information Retrieval (IR) community, 3, 4 history of, 21-22 Information retrieval (IR) system, 106.166 classical model of, 229 Information retrieval, 231 Internet, 80 Internet Engineering Task Force (IETF), 166 Internet Movie Database, 295 Internet scholarship, 288 IR, see Information retrieval iSearch, 23 "Jerry and David's Guide to the

World Wide Web," 26–27 Judgmental truth claims, 292–294

Kartoo, 262, 263f Kendall's τ, 210 definition of, 210 Knowledge networks, *see* Information networks Kurrently, 24

"Laboratory Model of Information Retrieval," 22 Last.fm, 37 Latent Semantic Analysis (LSA), 269 Law, truth claim in, 290–292 Legal standards of proof, 291 Library and Information Science (LIS), 3, 4 LifeLines, 229 Link topology, 25 Local search engines, 7, 48-50, 71 - 72current, 55 as entity search, 59-60 further research on, 74 history of, 50-51 impact, 72-73 map-based, 58-65 usability of, 56 Location-based services (LBS), 50, 51, 52 Logical empiricism, 285 Logical positivism, 285 Manual indexing, 26, 27 Map and search engine, 55-56 Map-based local web search, 5 8-65 MapQuest, 232 Market of search engine, 2-3 "Mash-up", 233 Mean average precision (MAP), 214 MedSearch, 150 Mendeley, 37 Metaphor, 233, 234 Microsoft, 232

Middlespot, 262 Mobile local search, 73–74 MovieLens, 37

MSN, 257

Navigational queries, 142 NetBeans Integrated Development Environment, 98 NetBeans Platform, 96, 97, 98 "Network of networks", 294 Networks types and behaviors of, 294–296 News Web pages, 255 Newton, Isaac, 285 Nexplore, 262 Nonprofit pages, 271 "Normal distribution", 219 Normalized discounted cumulative gain (NDCG), 118–121 Normalized Discounted Cumulative Gain (NDCG), 219 Normalized session discounted cumulative gain (nsDCG), 131 "Normal science", 285 Null hypothesis, 287

Objectivity definition of, 267 Ockham's razor, 287 Offline evaluation, 133, 134 123people, 23 Online evaluation, 133, 134 OpenStreetMap, 71–72 Operational mechanism, 297-298 PageRank, 253, 266, 267 Pearson correlation coefficient, 215 Pebbles, 234, 237, 238 Peer review, 294 People powered search engines, 23 Performance measurement metrics, 165, 177–180 frequency measures, 179-180 stability, 178 timeliness, 177 Performance parameters, 165, 169, 172-173, 202 quality of results, 172 response time, 172 total number of results, 172 Performativity, 301-303 Period duplication frequency, 178, 179 patterns, 183-186 Personalised search engine evaluation, 163-193 Personalized social search engines, 38-40 Personal pages, 271

Personal Web pages, 255 Philosophic perspectives, on nature of search, 298 Pipl, 23 Place Search, 69 Popper's theories, 285–286, 300 Precision @ N, 173, 174 Precision, 166, 173 Precision and recall as evaluation measures, 111-113, 152 Preference networks, 295 Probabilities of occurrences, 287 Prominence-Interpretation Theory, 259-260, 272 Psychological basis of search, 300 Quality metrics, 166, 169 Quantitative versus qualitative research methodologies, 289t Qype, 71 Random networks, 296 Rank-biased precision (RBP) models, 117-118 Rank correlation and search engines, 203 alternative RCCs, 217-219 discussion, 215-217 document ranking, 212–213 examples, 207, 208-209 investigating, 219-220 motivations and concepts, 205-211 system architecture, 214-215 system ranking, 213-214 Rank correlation coefficient (RCC), 204 linearity, 220 ties, 220 RankSpeed, 150 "Reasonable man" test, 292 Recall, 166, 173

Recall @ M, 173

Reciprocal rank (RR), 121-122 Recommender networks, 295 Recovery search, 54 Redz, 262 Relevance, 166 evaluation, 173–174 feedback, 21 metrics, 173, 174 scoring algorithms, 169 Research inquiries, 283–284 Research on search engines, 4-6 Research tradition, 283 Result diversification, 147 Retrieval effectiveness, 165, 167, 168 RMS (Root mean squared errors), 213 Rollyo, 38, 39 Scale-free network, 296 Science, truth claim in, 285–287 Scientific method, 285, 286-287 SDART Ltd, 94 Search Cube, 262 Search engine comparison case study, 176-177 data collection methodology, 175 qualitative evaluation, 175-176 quantitative evaluation, 175 - 176Search engine evaluation criteria, 165 - 168qualitative evaluation, 165 quantitative evaluation, 165 user-oriented. 167-168 Search engine evaluation models, 168 - 174feature parameters, 170-172 performance parameters, 172 - 173quality issues, 174 relevance evaluation, 173-174 weighted parameters and summary score, 169-170

Search engine interfaces, influence of, on credibility assessments, 251Search engine mechanisms, 297–298 Search engine optimization (SEO), 253Search engine results pages (SERPs), 7, 204, 253 Search index metric, 168 Searchrolls, 39 Search strategy, 168 SearchTogether, 35 SERPs, Quality-Related Cues on, 265 - 269Session test collection, 130 70 Features and performance parameters, 169 Six degrees of separation, 295 Slashtags, 39 "Small world phenomenon," 23 Social collaboration, 25 Social data, 23 Social graph, 22 Social media search engines, 24 Socialmention, 24 Social networks, 295 SocialPageRank, 29 Social question-answering (QA) community-based systems, 32 examples of, 31t expert-based systems, 32-34 fundamentals of, 29-30 Social science triangulation in, 288 truth claim in, 288-289 Social search, 20 definition, 21, 23 taxonomy of, 26f see also Search engines SocialSlimRank, 29 Social software, 24 Social tagging, 26 definition, 27

direct usage of, 28 indexing and, 27-28 indirect usage of, 29 SparTag, 229 "Spatial Search and Browsing," 51 Spearman's footrule, 178 Spearman's rank correlation, 210 Stock market, 87, 88-89 System architecture, 214-215 System ranking, 213-214 Targets, absence of, 247 Taste graph, 37 Technological networks, 295 Technology probe investigation, 227 field trial, 238-240 findings, 240 confounding properties of the experience, 240-242 grasping the possibilities of pebbles, 242-245 reflections on cards, 245-246 implications for future research, 246-247 web interaction probes, designing, 233-235 cards, 235-237 pebbles, 237, 238 web use, typologies of, 228-233 Technorati, 24 Test collection methodology, 107 Text REtrieval Conference (TREC), 107-108, 153, 213 document collection, assembling, 108 documents relevant to topics, identifying, 108, 109-110 information needs, creating, 108 Theory of learning, 300 Toponym extraction, 67 Transactional queries, 141-142 TREC Web Track, 159 Truth claim, 282

in law, 290-292 in science, 285-287 in social science, 288-289 judgmental, 292-294 Twitter, 32 Typologies, of web use, 228–233 Uclue, 33 UMLS, 156, 157 Universal search results, 68 Usenet, 94, 95 User-generated content (UGC) tools, 231 User models, effectiveness evaluation with, 114 Cooper's expected search length, 114-115 expected browsing utility (EBU), 122 - 124expected reciprocal rank (RR), 121-122 graded relevance, 116–117 normalized discounted cumulative gain (NDCG), 118-121 rank-biased precision (RBP), 117 - 118Robertson's interpretation of average precision, 115-116 see also Advanced user models User-oriented evaluation, 167-168 Uses and gratifications theory (U&G), 230–231, 232 UX paradigm, 230 Viewzi, 263, 264f Web-based hubs, 296 Web browsing, 231 Web interaction probes, designing, 233-235

pebbles, 237, 238 Web page publication of, 255 Webpage, 205 Web pages, 271 WebPerceiver, 94-96 additional modules of, 99-100 future developments, 99 package diagram for, 98 use case for, 99 Web search, 283, 284 Web search engines statistics analysis, 81 Web search queries statistics, 82 advantages of, 82-83 associative analysis of, 93-94 computational processing and, 91-93 examples of, 87-90 issues of, 84 prognosis mechanism of, 85-87 Web tools, 193 Web trends, manual gathering and, 96

Web use, typologies of, 228-233 Webworld, 299 Weighted Kendall's  $\tau \subset w$ , 218 definition of, 218 Whostalking, 24 Wiki Answers, 32 Wikipedia, 295 Wink, 23 WordNet, 158 World Wide Web (WWW), 252, 296 World Wide Web Consortium (W3C), 166 Yahoo, 3, 26, 175, 232, 252, 256, 257 Yahoo! Answers, 32, 33 Yahoo! FireEagle, 71 Yahoo! Maps, 60, 63, 66 Yahoo Search BOSS, 38, 39 Yasni, 23 Yellow pages, 52, 57-58 Yelp, 71 YouTube, 22, 232