

# Index

- Abandon All Hope (MUD), 188–9  
 abstract spatialization, 38  
 Academic Map of the UK, 124–7  
 academic papers, semantic analysis of, 143  
 Active Worlds, 204, 212  
 Adams, Paul, 178–9  
 aesthetic appeal of images, 10  
 affinity, strength of, 158  
 aggregation of data in maps, 4  
 Alcatel Submarine Systems, 22  
 AlphaWorld, 195–209, 214, 233  
 Amir, Elan, 38  
 Anders, Peter, 191  
 Andrews, Keith, 139  
 Anemone, 108–10  
 Animal Logic, 236  
 Antarcti.ca, 123  
 AOL, 76  
 Apple Computer, 80–1, 134–5  
 arc–node topology, 18, 22, 30  
 Arkady, 188  
 Arneson, Dave, 181  
 ARPANET, 16–19, 155  
 Artificial Intelligence Lab, 115  
 artistic values, 8  
 AS Core Internet graph, 47  
 ASCII text MUD maps, 184–5  
 Astra SiteManager, 96–7  
 asynchronous media, 155  
 AT&T, 18  
 Atari, 223  
  
 bandwidth, 10–11, 22  
 Baran, Paul, 17  
 Barr, Charles B., 12  
 Bartle, Richard, 181  
 Battlezone, 223  
 BayMOO, 190–1  
 Bellovin, Steve, 164  
 Berners-Lee, Tim, 79  
 BERN, 26–7  
 BITNET, 76  
 Bolt Beranek and Newman (BBN), 17  
 Borges, Jorge Luis, 114, 251  
 Bray, Tim, 123, 144, 147  
 Britannia, Map and Grand Atlas of, 220–1  
 British Legends, 181  
 broadband data transmission, 22  
 bulletin boards, 158, 164  
 Burch, Hal, 42  
 Burchard, Paul, 101  
 Burden, Peter, 124  
  
 Cable & Wireless, 14–15  
 cable layouts in buildings, 20–1  
 Card, Stuart, 102, 136  
 Carroll, Lewis, 251  
 Carta network drawing tool, 38  
 Cartia Inc., 119  
 category maps, 115  
 CAVE environment, 61  
 Central Intelligence Agency (CIA) database, 5  
 Centre for Advanced Spatial Analysis, 97

- CERN, 76, 79  
 CESNET, 34-5  
 Chat Circles, 7, 174-7, 258  
 Chen, Chaomei, 143  
 Chen, Hsinchun, 115  
 Cheswick, Bill, 42, 47  
 Chi, Ed, 102  
*Chicago Tribune* website, 98-9  
 choropleth mapping, 25  
 Cichlid toolkit, 50  
 Claffy, K., 37  
 Clark, David D., 114  
 Clarke, Graham J., 188  
 “clickable maps”, 124  
 Cobot, 192-3  
 Collaborative Virtual Environment, 140  
 communities in cyberspace, 154  
 CompuServe, 76, 181  
 computer games, 214-25  
 cone-trees, 102-3  
 connectivity, 24-5, 42, 136  
 ContactMap, 155-7  
 content classification, 164, 167  
 Conversation Map, 164-7  
 “conversational landscape” tool, 177  
 Cooperative Association for Internet Data Analysis (CAIDA),  
     33, 47-9  
 Cross Post Visualization, 170-1  
 Cugini, John, 104  
 CultureMap, 246-7  
 Curtis, Pavel, 192  
 CUT (content-usage-topology) analysis, 102  
 CWUSA, 47  
 CyberAtlas, 250  
 cyberpunk, 229-30, 234  
  
 Dahlström, Gunnar, 224  
 Damer, Bruce, 195  
 Dashboard, 168-9  
 data flows, geography of, 52  
 data mining, 168  
 data portraits, 161  
 data quality, 6  
 December, John, 75-7  
 Deck, Andy, 246  
  
 Defense Communication Agency, 18  
 Digital Landfill, 240-1  
 Discworld Atlas, 186-7  
 disk-trees, 102  
 domain name maps, 28-9  
 Donath, Judith, 158, 174, 177  
 Doom, 222-3  
 D+CON/trol, 248  
 Dungeons and Dragons, 181  
 Dynamic Diagrams, 80, 88-94  
  
 ecological fallacy, 5, 258  
 Eick, Stephen, 58  
 Elam, Gunilla, 238  
 Electric Sky map, 250  
 electron shells, 171  
 Ellis, Jim, 164  
 email, 155-6  
 EQ Atlas, 218-19  
 Ericsson Medialab, 238  
 Essex University, 181  
 ethics, 7  
 ET-Map, 115-17, 123, 246  
 EverQuest, 214-19  
 Exploratory Data Visualizer, 98  
  
 Fenner, Bill, 37  
 Feynman diagrams, 155-6  
 fiber-optic cable, 22-3  
 FidoNet, 26-7, 76  
 Fiore, Andrew, 168  
 fisheye sitemaps, 84  
 “focus plus context” technique, 84  
 Foote, Ken, 7  
 Fork Unstable Media, 131  
 Foy, George, 229  
 FrontPage 98 Explorer, 97  
 Fry, Ben, 107-8, 245  
 FurryMUCK, 188  
  
 GEnie, 76  
 Geomview, 101  
 Gibson, William, 131, 229-30, 233, 235  
 Gill, MacDonald, 14  
 Global Information Network as Genomorphic Architecture  
     (GINGA), 254-5

- Gopher, 76  
 Graz University of Technology, 139  
 “Great Circle” map, 14–15  
 Guggenheim Museum, 250  
 Guha, Ramanathan V., 135  
 Gygax, Gary, 181
- H3 layout algorithm, 101  
 Harmony information landscape, 139  
 Hayward, Nigel, 20  
 Heubner, Donald, 7  
 Hoffman, Eric, 37  
 Holtzbrinck Corporation, 94–5  
 Hong Kong, 44–5  
 host computers, 26–7  
 HotSauce, 134–5  
 HTML code, 241  
 Hudson-Smith, Andy, 204, 211–12, 241  
 Huffaker, Brad, 33  
 hyperbolic space, 48–50, 101  
 hyperlinks, 101, 111–14, 144  
 HyperSpace Visualizer, 111  
 Hyperwave, 139  
 Hyun, Young, 48
- IBM, 97  
 id Software, 223  
 identity, personal, 154  
 ie4D, 251–4  
 information space, 76–7, 114  
   three-dimensional, 136, 139, 143  
 infrastructure census maps, 24–5  
 infrastructure of cyberspace, 10–11, 17, 24–5  
 instant messaging, 76  
 Intel, 120–1  
 interactive maps, 33–4, 40–1, 48, 58, 75, 88, 120, 123, 178  
 International Telecommunications Union, 5  
 Internet, the  
   congestion on, 67  
   geographical diffusion of, 24–5  
   infrastructure of, 17, 25  
   mapped as abstract space, 42  
   network maps of, 4, 26–7, 31–2  
   number of users, 2  
   origins of, 18  
   traffic flows, 52–3, 56–9  
   uses of, 10  
 Internet Average monitoring system, 67  
 Internet Explorer, 79  
 Internet Mapping Project, 42  
 Internet Protocol (IP) addresses, 28, 249  
 Internet service providers, 30–1, 44–7  
 Internet Weather Report (IWR), 66–7, 70  
 interpretation of images, 8  
 intranets, 76  
 Inxight Software, 84  
 Ippolito, Jon, 250  
 Isbell, Charles Lee Jr, 192
- Jackson, Shelley, 83  
 Jevbratt, Lisa, 251  
 Johnson, Brian, 120
- Kahn, Paul, 80  
 Kearns, Michael, 192  
 Kohonen self-organizing map (SOM), 115  
 Koutsofios, Eleftherios, 192  
 Kunark Mapping Project, 217
- Laboratory for Immersive Environments, 254  
 LambdaMOO, 192–4  
 Landweber, Larry, 25–6  
 Lenk, Krzysztof, 88  
 Lexis-Nexis archive, 84  
 Linkie, 246–7  
 liquid architecture, 254  
 Lisowski, Michael, 191  
 listservers, 158  
 logical adjacency models, 191  
 Loom, 164–5  
 Lufthansa, 130–1  
 luminosity of websites, 144  
 Lycos, 76  
 Lyman, Peter, 155
- mailing lists, 158  
 Map of the Market 120–1, 172  
 Map Shop of Norrath, 217  
 Map.net, 122–3, 144–7, 258  
 MAPA package, 88–90  
 Mapnet, 32–3

- Mappa Mundi* magazine, 86–7
- mapping  
 future directions for, 258  
 power of, 3–4  
 distortion involved in, 4  
*see also* spatialization
- Mapuccino, 96–7
- marketing maps, 4, 14, 30–1, 151
- Massachusetts Institute of Technology (MIT) Media Lab,  
 108–10, 158
- Massively Multiplayer Online Roleplaying Game (MMORPG),  
 214, 220
- The Matrix*, 234, 236–7
- Matrix.Net, 26–7, 67
- Matsumoto, Fumio, 254
- MBone, 36–8, 101
- MCI WorldCom, 30
- MediaMOO, 190–1
- Mercator projection, 4
- Mesh system, 79
- message threads, 167–8
- Meta-Content Framework, 135
- Microsoft, 120
- Modifiable Areal Unit Problem, 5
- Monmonier, Mark, 3
- Morse, Samuel, 12
- Mosaic browser, 61, 79–80, 144
- MUD object-oriented elements (MOOs), 180, 214
- MUDs, 181–4
- multicasting, 37
- “Multimedia Gulch”, 28
- multi-user dungeons/domains (MUDs), 180–95
- Munzner, Tamara, 37–8, 48, 101
- MUSE (company), 181
- Mutual Fund map, 120
- my body sitemap, 83
- Napier, Mark, 241
- Nardi, Bonnie, 156–7
- National Center for Supercomputing Applications (NCSA), 61, 79
- Nature*, 90–1
- Netmap, 52
- Netscan, 161, 164, 168–72
- Netscape, 79, 92–3
- Network Wizards Internet data, 5
- networking of computers, 17–19
- Neuromancer*, 230–1
- New York, 10  
 Stock Exchange, 143–4
- newsgroups, 164–72
- NewsMaps, 118–19, 258
- NicheWorks, 98
- NORDUnet, 68–9
- North, Stephen, 192
- Novak, Marcos, 251–3
- NSFNET, 56–7
- nuclear threat, 17, 58
- 1:1 project, 248–9
- Open Directory, 123–4, 147
- Organic Information Design, 106–7
- Organization for Economic Cooperation and Development  
 (OECD), 5
- Pacific Northwest National Laboratory, 119
- Palo Alto Research Center (PARC), 84, 102, 136, 192
- Parasite, 155–6
- Paschalis, George, 191
- PathFinder networks, 143
- PeopleGarden, 158–62
- PhoenixMUD, 184–5
- “piano-roll” display, 168–9
- ping data, 67
- Plankton, 40–1
- Plumb Design, 132
- Porsche website, 84–5
- Potatoland, 240–1
- Princeton University Cognitive Science Laboratory, 132
- privacy, 7
- Prodigy, 76
- PSInet, 47
- Quake, 76, 223–5
- Quarterman, John S., 26
- Qwest, 47
- radar graphs, 70–1
- Rhizome forum, 128
- RIOT, 242–3

- Ritson, Henry, 30  
 Roelofs, Greg, 202, 208
- Sack, Warren, 167  
 San Francisco, 10, 28–9  
 satellites, 20–3  
 SaVi software, 22–3  
 Scholtz, Jean, 104  
 science fiction, 229  
 SciFi channel, 151  
 Sealer, Susan, 191  
 search engines and directories, 76, 246  
 SeeNet3D, 58  
 self-organized equilibrium, 111  
 semantic constellations, 143  
 semantic networks, 167  
 “sensitive maps”, 124–5  
 shareware, 223  
 Shelton, Christian, 192  
 Shneiderman, Ben, 120, 172  
 Shredder, 240–1  
 Silicon Valley, 10, 28, 30  
 Site Lens maps, 84  
 site maps, 80–4  
   fisheye type, 84  
   interactive, 88  
   spatialized, 82  
 SiteBrain, 86–7  
 skitter, 47–9  
 “skyscraper” maps, 61–2  
 SmartMoney.com, 120  
 Smith, Marc, 7, 164, 168  
*Snow Crash*, 232–3  
 social interaction, 154–5, 161, 167–8, 174, 192, 196, 258  
 spam, 62  
 spatialization, 2–8  
   abstract, 38  
   of chat, 178–81  
   experimental methods of, 75  
   hyperbolic, 101  
   of hyperlink structures, 114  
   of information, 75  
   of large sections of the Web, 143  
   of mailing lists, listservers and bulletin boards, 158  
   of newsgroups, 164  
   of online communication and interaction, 154  
   spider graphs, 167  
   Spiral interface, 128–9  
   “Sprawl” trilogy, 230, 233  
   Standage, Tom, 12  
   Stanford graphics group, 100–1  
   Stanford Research Institute, 17  
   Staniforth, Daniel, 187  
   Staple, Greg, 70  
   STARRYNIGHT interface, 128–9  
   Stephenson, Neal, 229, 233  
   Sterling, Bruce, 229  
   stock-market information, 120, 143  
   streaming media, 76  
   Swiernik, Michael A., 218  
   synchronous media, 174
- task-tunable information space, 136  
 telecommunications networks, 14–15  
 telecommunications traffic, 54–5  
 Teledesic satellites, 20–3  
 TeleGeography, 54–5, 70–1  
 telegraph links, 12–13  
 teleports, 212–13  
 Telstra network, 33  
 Ten-155 network, 33  
 Tendril sculpture, 244–5  
 TheBrain Technologies Corporation, 87  
 ThemeScape, 119  
 Thinkmap, 132  
 3-D Trading Floor (3DTF), 143–4  
 three-dimensional images, 34–7, 48–51, 101, 107–8, 111–12,  
   131–2, 135–6, 139, 144, 147, 151, 210–11, 223  
 Thurman, Robert, 22  
 time, mapping cyberspace in relation to, 70–1  
 Tomlinson, Ray, 155  
 traceroutes, 62–5  
 treemaps, 120, 171–3  
*Tron*, 234–5  
 Trubshaw, Roy, 181  
 Truscott, Tom, 164  
 Turrittin, Tom, 188
- UBUBU, 150–1  
 Ultima Online, 220  
 undersea cables, 22–3

- universal resource locators (URLs), 246
- University of Arizona, 115
- University of California, 17
- University College, London, 20, 28
- University of Illinois, 144
- University of Utah, 17
- updating of maps in real time, 62
- Usenet, 52, 164, 168-73
- UUCP, 26-7, 76
- UUNET, 30-3, 47
  
- Valence, 107
- van der Meulen, Pieter, 201-2, 208
- Varian, Hal, 155
- vBNS network map, 50-1
- “very large scale conversations” (VLSC), 167
- Vevo mapping, 208-9
- Vilett, Roland, 204, 208
- virtual reality, 61, 111-12, 143, 195
- Virtual Reality Modeling Language (VRML), 34-7, 143
- “visibility” of websites, 144
- Visual Net, 123
- Visual Thesaurus, 132-3
- VisualRoute, 62-5, 258
- VisualWho, 158-9
- VISVIP mapping, 104-5
- Vollaro, Thomas, 191
- VR-VIBE data space, 140-1
  
- Wachowski, Andy and Larry, 236
- WAIS, 76
- Walker, John, 230
- Walrus software, 48
- Warner Brothers, 151
- Warriors of the Net*, 234, 238-9
- Wattenberg, Martin, 120
- Web Analysis Visualization Spreadsheet (WAVS), 102
- Web caches, 41
- Web Crawler, 76
- Web Ecology and Evolution Visualization (WEEV), 102
- Web Forager, 136-7
- Web Stalker, 242-3
- WebBook, 136
- WebFan, 158, 161-3
- WebPath, 112-13
- website planning maps, 90, 93-5
- websites
  - evolution over time, 102
  - linking to, 258
  - mapping of traffic through, 104-8
  - number of pages on, 2
  - “visibility” and “luminosity” of, 144
  - visual management tool for, 97
  - see also* site maps
- Webviz, 101
- Williams, Tad, 229
- Williston, John B., 223
- Wolfenstein 3-D, 223
- Worfolk, Patrick, 22
- World Bank, 5
- World Wide Web
  - origins of, 79
  - bird’s eye view of, 114
  - structure of, 144
  - users’ trails through, 112-13
  - see also* websites
- WorldNet thesaurus, 132
- WWF wrestling, 151
  
- Xerox, 84, 102, 136, 192
- Xiong, Rebecca, 161-2
- X-Men*, 151
- XML standard, 123
  
- Yahoo!, 76, 87, 115, 144
- Yell Guide, 82
- Young Hyun, 48
  
- Z-form diagrams, 88-91
- “ziggurats”, 144, 147
- zip codes, 28
- Zook, Matthew, 28