Cyberspace

Josh Lepawsky
University of Kentucky, USA

Kyonghwan Park
University of Kentucky, USA

Cyberspace is the geographies made possible by the adoption of computer technologies into everyday life. At first, this broad description and its emphasis on plural geographies may not seem intuitive. Yet, the breadth of this description is helpful when considering the massive variety of ways that computer-related technologies are unevenly incorporated into human life. The incorporation of these technologies is altering the scales and rates at which people can organize, intervene in, and understand human and nonhuman worlds (Hayles, 1996). Yet these processes are not universal. They differ from place to place and matter in different ways for different people as individuals and collective groups. Thus, cyberspace crosses numerous social, political, economic, and cultural boundaries (Haraway, 1991, 1997).

The term *cyberspace* was first used by novelist William Gibson (1984), but the phenomena now described by it predate the term's common use. It is difficult to understate the widespread resonance that the publication of Gibson's novel and the popularization of the term *cyberspace* has had in terms of underwriting studies of cyberspace (Bukatman, 1993a, 1993b; Chesher, 1994; Stone, 1992). Often, the term is used interchangeably with specific technologies (especially the Internet and the World Wide Web) and their effects (e.g., Starrs, 1997; Starrs & Anderson, 1997; Warf, 2001; Warf & Grimes, 1997), not to mention being used in marketing strategies for the late dot.com industries and the so-called New Economy (Graham, 1998). With some important exceptions, early commentators took a techno-utopian stance toward cyberspace and saw what Bell (1973) called the *postindustrial society* and Toffler (1980) called the *Third Wave* finally coming to fruition. Gibson uses the term to both tell a story and provide a critical commentary about technology and society (Benedikt, 1991). The simultaneously conceptual and material relationships between technology and society are central to the concept of cyberspace.

The plural geographies comprising cyberspace raise the issue of spatiality. The term *spatiality* is itself a complex and contested concept (Johnson, Gregory, & Smith, 1994). In a broad sense, spatiality refers to coconstitutive relationships between societies and their spatial organization. The concept informs a wide range of academic disciplines in the social sciences and humanities in what has come to be known as the spatial turn (Soja, 1989). While this idea may appear rather simple, it is a source of considerable philosophical and practical debate (Crang & Thrift, 2000; Gregory, 1994; Harvey, 1996; Lefebvre, 1991; Massey, 1994; Smith, 1990; Soja, 1996). With respect to cyberspace, research centers on how the incorporation of computer-related technologies into everyday life can change how human spatialities are organized, intervened in, and understood.

Research into topics collectively coming to be thought of as cyberspace cuts across realms often thought to be separate, for example, the economic, the social, the cultural, and the political (Graham, 2004). Many authors agree that the incorporation of computer technologies are part of important changes in human life (e.g., Castells, 1996) but disagree on their novelty and/or revolutionary consequences. Critical researchers place these apparently new technological phenomena in more expansive geohistorical analyses. They temper simplistic assumptions about the revolutionary novelty of computer technologies (e.g., Winston, 1998), often by describing their emergence within more expansive analyses of the imperatives of capitalism and its uneven geography, especially in the form of *time-space compression* (e.g., Harvey, 1989; Massey, 1994). Research in this vein tends to argue that the incorporation of computer technologies always involves uneven material relationships between people and places. Examples include research on high-tech labor and manufacturing in the context of economic restructuring, deindustrialization, and globalization (e.g., Gold, 1991; Goldmark, 1972; Harkness, 1976; Harvey, 1996; Holcomb, 1991; Massey, Quintas, & Wield, 1992; Morgan & Sayer, 1988; Nilles, Carlson, Gray, & Hanneman, 1976), the economic and organizational effects of computers and networks on firms (e.g., Hepworth, 1987, 1990; Zuboff, 1988), regional economic development (e.g., Braczyk, Fuchs, & Wolf, 1999; Malecki, 1991; Saxenian, 1998; Scott, 1990), urban-regional restructuring (e.g., Castells, 1989; Castells & Hall, 1994; Gottman, 1983; Graham & Marvin, 1996, 2001; Malecki, 2003; Sassen, 2002), and social movements (Benner, 1998; Froehling, 1997) to name but a few.

At the heart of research on cyberspace are fundamental questions about how technology and society interrelate with one another (Bingham, 1996; Bingham, Valentine, & Holloway, 1999; Uimonen, 2001). Such questions include new possibilities for human identity and human interaction (Hakken, 1999; Holloway & Valentine, 2001; e.g., Turkle, 1995; Valentine & S. Holloway, 2001; Valentine & S. L. Holloway, 2001; see especially Wellman & Haythornwaite, 2002). Consequently, research on cyberspace has the potential to contribute important insights into broader concepts of technology and society that go beyond people's use of specific technologies such as (but not limited to) personal computers, the Internet, and the World Wide Web. Technology remains one of the most ill-theorized research themes across the social sciences (Ingold, 1997; Latour, 1992, 1999; Shields, 1997). The ambiguity with which technology is theorized tends to generate research theoretically grounded somewhere along a continuum between technological determinism and technological possibilism. Briefly, determinist approaches assume direct causal relationships leading from technological change to social change. In contrast, possibilist approaches assume that technologies offer a variety of opportunities for a range of human action and, consequently, cause–effect relationships are more interactive and contingent than determinism can account for.

With important exceptions (e.g., Leigh-Star, 1991, 1995; Zuboff, 1988), research on the incorporation of computer technology into everyday life has not managed to avoid this ambiguity. In considerations of cyberspace, this ambiguity is particularly evident in problematic distinctions between the virtual and the real (e.g., Batty, 1997; Batty & Barr, 1994; Crang, Crang, & May, 1999; Hillis, 1998; cf. Lepawsky, 2002).

In the early to mid-1990s, excitement over apparent distinctions between the virtual and the real peaked as speculation about experimental *virtual reality* technologies fueled the public's imagination at the same time that the Internet and World Wide Web were becoming more mainstream. Graham (1998) describes what he calls the "explosion of spatial metaphors anchoring current discourses about information technologies and society" (p. 1). One reason for the emphasis on spatial metaphors lay in implicit assumptions of the supposedly radical effects of substituting communication technologies for transportation technologies and the subsequent dematerialization of the economy (e.g., Cairncross, 1997). It was imagined that real geographies would be superseded by virtual ones whereby computer networks would support alternative spaces of commerce and exchange. These alternative virtual worlds would be the space in which economic relations of *frictionless capitalism* would continue (Gates, 1999).

While there is no doubt that many economic activities increasingly rely on computer networks, they also depend on material geographical relationships between people and places. For example, the manufacture of computer and telecommunications equipment (e.g., microchips, monitors, disk drives, fiber optic cable) at lower prices and higher profits requires (among other things) an *international division of labor* premised on uneven wage rates (Ong, 1987; Sussman, 1998; Sussman & Lent, 1998). Or the eventual disposal of computer hardware (much of which is classified as toxic waste in North America and Europe) requires an international geography of uneven environmental regulation such that some places remain willing to accept and dispose of this waste (Basel Action Network, 2004; Silicon Valley Toxics Coalition, 2004). Other cultural and political geographies are crucial as well. For example, the ability of different people to access the Internet or World Wide Web and use any information they find, or to participate in online interactions, depends heavily on where they live, what language(s) they speak, and how they are governed (Citizen Lab, 2004; Dodge & Kitchin, 2001; Loader, 1997; OpenNet Initiative, 2004). It is, for example, an entirely different proposition for a teenager in Chicago to access and use online information about HIV/AIDS or to criticize his/her government in an e-mail than it is for a teenager in Beijing or Riyadh (Kitchin, 1998; Skinner, Biscope, & Poland, 2003). Indeed, geographies of access and use of the Internet vary widely with respect to how different people are positioned vis-à-vis place, class, race, and gender (among other possibilities). Even international financial transactions that move vast sums of money at the push of a button rely not only on sometimes minute differences in information between times and places, but also (and crucially) the uneven availability and quality of telecommunications infrastructure to exploit those differences and make their profits (Graham, 2000; Roberts, 1994).

Noting such tangles of people, places, and technologies in what Massey (1994) has called *power-geometry*, some researchers argue that it is a mistake to conceptualize cyberspace as a virtual realm occurring entirely *within* computer networks (Bingham, 1996, 1999; Crang et al., 1999; Dodge & Kitchin, 2001). Rather, cyberspace is a coproduction of interrelations between people, places, and computer-related technologies that are always material in important ways.

REFERENCES

Basel Action Network. (2004). *Basel action network*. Retrieved July 15, 2004, from *www.ban.org*