Pervasive Information Access and the Rise of Human-Information Interaction

Peter Lucas
MAYA Design Group, Inc.
2100 Wharton Street
Pittsburgh, PA 15203
+1 412 488 2900
lucas@maya.com

ABSTRACT

In a world of pervasive, "invisible" computing, people will interact with information objects, not computers. We must learn to design these objects with as much care as we now design computer interfaces.

INTRODUCTION

The idea that we store information "in" our computers is obsolescent. We might just as well say that our computers are "in" the information. The World-Wide-Web is a global information space--a space defined not by the computers that implement it, but by the web of interlinked "pages" that are only incidentally related to the machines that house them. Similarly, we don't (in general) store Web pages on our desktop PCs. The pages flow "through" the client machine, but they are never meaningfully "in" it.

The computer has evolved from being a medium in which we create and store information into a transducer that renders "information objects" in a tangible form. The information has been liberated from the machines into the realm of Cyberspace. We still need the machines to see the data--much as we need special glasses to see infrared. But, like infrared goggles, the computer (as has often been said) would ideally be totally transparent and out of the cognizance of its users.

Although some people find the statement that their desktop computer is "in" a dataspace somewhat strained, the point becomes clear in the context of small, mobile devices. Telephone calls aren't "in" a cell phone--the phone merely transduces from radio to audio. In this light, a PDA as a data transducer doesn't seem so strange. Computing devices will come to be thought of as floating in a vast sea of data.

INFORMATION-CENTRICITY AND CONVERGENCE

Adopting an information-centric rather than a computer-centric word view has consequence for the notion of "innovative services." For a few years, we will remain excited about the "convergence" between TVs and PCs, and cell phones and PDAs. But as the devices become transparent, we will stop talking about them, just as we have stopped talking about the electric motors that lie unseen everywhere in our homes, cars, and offices. "Convergence" will become as exciting as the convergence of gasoline, electric, and vacuum motors in our cars.

In our eyes, "services" will become information services, brought into our lives through the mediation of devices that we will think about no more often than we think about the brand of transistor radio through which we listen to our favorite music. A radio station that depends on a certain brand of radio would be a commercial non-starter. Just so, information services that depend on particular devices will cease to be commercially interesting.

The marketing challenge will be to impart brand identity and a common user experience onto "information objects" that will be turned loose in Cyberspace, and that will flow from device to device at the whim of the user. The superficial appearance and behavior of these information objects will be determined in part by the characteristics of a trillion devices whose design will be increasingly out of the control, and even knowledge of, the information designers.

FROM HCI to HII

These trends also have implications for the design professions. HCI will remain--it takes skill and technique to make computers invisible. But the focus will shift from designing computers to designing information. In 1995 Nahum Gershon coined the term Human Information Interaction (HII), to denote "how human beings interact with, relate to, and process information regardless of...the medium connecting the two."[1] The term aptly subsumes such activities as Web navigation design, information architecture, and our own work on Information Centric visualization systems[2]. It is superordinate to HCI.

The idea of "designing information" as an activity separate from the design of the machines containing the information is still in its infancy. But as a world pervaded by computation becomes reality, the notion of "things" made of data will cease to seem strange, and designing these "things" for felicitous use by people will take center stage among usability-related design activities.

REFERENCES

1. *Gershon, Nahum. Human Information Interaction, WWW4 Conference, December, 1995.*
2. *Roth, S, Kolojejchick, J., and Lucas, P. Information Appliances and Tools in Visage. IEEE Computer Graphics and Applications (July/August 1997), 32-41.*