Editors' Preface: Past, Present, and Future

The inaugural IFIP TC13 chair Brian Shackel is quoted as saying that

> "From early days (cf Licklider & Clark, 1962) the need for larger displays has been emphasised; but just when it seemed, in the late 1980s, that full page and larger displays would come with lower prices, the focus in the industry turned to portability and we moved backward to smaller screens. While there was some improvement, larger screens (eg 21 inch CRT displays) are still not available at an acceptable price; as long ago as 1977 Kay & Goldberg (1977) in their Dynabook concept specified a display the size of a full paper page, but I know of no portable laptop, let alone notebook, which has an A4 page size screen." (Brian Shackel, 2000)

Today the situation has changed, and we are happy to recognize the improvements made by industry in order to satisfy the needs of customers and users. In the past, these developments included attempts to achieve "man-machine symbiosis" (Licklider, 1960), the "augmentation of human intellect" (Engelbart, 1963), the "Dynabook" (Kay and Goldberg, 1977), and "ubiquitous computing" (Weiser, 1991). This line of development resulted in a number of important building blocks for HCI. Some of these building blocks include the mouse, bitmapped displays, personal computers, windows, the desktop metaphor and point-and-click applications. Research on operating systems, meanwhile, has developed techniques for interfacing a variety of input/output devices, for tuning system response time to human interaction times, for multiprocessing and for supporting windowing environments and animation.

Many early problems faced by researchers working on human factors had strong sensory-motor features. The problem of the operation of computers by humans was a natural extension of classical human factors concerns, except that the new problems had substantial cognitive, communication and interaction aspects not previously encountered in human factors. Ergonomics is similar to human factors, but it arose from studies of work practice. As with human factors, the concerns of ergonomics tended to be at the sensory-motor level, but with an additional psychological flavour and an emphasis on stress. Human interaction with computers was also a natural topic for ergonomics, but again, a cognitive extension to the field was necessary, resulting in the current "cognitive ergonomics" and "cognitive engineering." Because of their roots, ergonomic studies of computers emphasize the relationship to the work setting and the effects of stress factors, such as the routine of work, sitting posture, or the visual design of displays. Industrial engineering arose out of attempts to raise industrial productivity starting in the early years of the last century. The early emphasis in industrial engineering focused on the design of efficient manual methods for work, the design of specialized tools to increase productivity and reduce fatigue, and, to a lesser extent, the design of the social environment.

Interaction with computers is an important topic for the field of industrial engineering in the context of how the use of computers fits into the larger design of work methods. In addition, the growth of discretionary computing and the mass personal computer and workstation computer markets have meant that sales of computers are more directly linked to the quality of their interfaces than in the past. This has resulted in the gradual evolution of a standardized interface architecture from hardware support of mice to shared window systems to application layers. Along with these changes, researchers and designers have begun to develop specification techniques for user interfaces and testing techniques for the practical design and production of interfaces.

As the technological and social contexts have changed, so the focus of HCI has changed accordingly. It is now time to consider HCI not just from a technical point of view, but also from an ergonomic, design and artistic point of view. One of the most prominent perspectives that has emerged is the user-centered design (UCD)

paradigm. This conference presents an excellent opportunity for people from different backgrounds and expertise to meet and discuss the state of the art and the future of HCI.

We hope this conference will open new doors to the future for HCI developers, researchers and societies throughout the world.

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