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Vorwort: From Our Minds to the Artificial Digital Mind

Gestural interfaces, perception-driven navigation, hybrid control mechanisms – these are some of the hot topics in the field known as Human-Computer Interaction (HCI). Will the reader of this book get instantaneous access to all it takes to translate a gesture – such as a finger pointing to a place on a museum map – into a command – show me details of the picture hanging there – to be executed by the computer? Or to the know-how how neuronal activity – Did I turn off the lights before leaving the house? – will translate into the computation – Check lights, turn off if they were left on – desired? Or how our anticipation of a forthcoming event – a child not even in our view abruptly runs across the street – can translate into control of the complex system (a fast-moving car, in this case)? Probably *No*, in the sense of a blueprint. But definitely *Yes*, in the sense of a conceptual map. Let me explain, and in doing so suggest why this book is not an end in itself but an opening of many paths.

In the age of computation, natural language – or language as people know it – is complemented by a never-ending number of new languages. In the civilization of literacy, language grew with every new form of human activity. Where natural language no longer corresponds to the new nature of computer-based human interaction, each new form of interaction requires its own language. The fact that technology changes very rapidly is evidenced by the immense amount of hardware that all of us have thrown away at one time or another in the process of getting used to faster cycles of change. Even more dramatic is the number of manuals for which there is no other use than to be recycled. Paper can be recycled, the ideas expressed in those tomes serve as testimony to the learning curve associated with new media, new forms of interaction, and new forms of human activity.

At the time I became involved in computers – the late 1960s – computer memory was limited; computation speed was ridiculously slow, and images were transferred to paper by means of rudimentary plotters. That was not yet the time for taking design into consideration, although a few of us – computer scientists, artists, designers – tried. Guiding us was the desire to imitate what other professionals delivered through the traditional media of the past. I see an element of continuity between those beginnings and the

sophistication attained today in deploying computers for knowledge acquisition, knowledge dissemination, and the conception of new forms of human activity. I see another line of continuity between the time when iconic interfaces emerged – a paradigm inspired by semiotics, and not yet transcended even on the desktop of the most sophisticated computers working today. My own work on the iconic interface of the Lisa™ – Apple Computer’s precursor to the Macintosh – guided many designers and computer scientists who later came up with more suitable representations (although the desktop metaphor still dominates our interfaces). I make this observation regarding an element of continuity in the development of the new languages embedded in computer applications because the book you have in your hands might suggest that things are simpler and easier to handle than they are in reality. If they are, it is because many of us worked hard to make them easier and simpler.

This is what makes Torsten Stapelkamp’s book so relevant. He has acquired a great deal of knowledge pertinent to the experience that we computer scientists and designers have accumulated in over 50 years of computation. And he makes this experience available in a very clear manner. Since I had the opportunity of working with Torsten Stapelkamp, I know that his knowledge comes from practical experience. The worldwide first Webcast (cf. *Digital Design 2000+*) on design issues – such as the ones he presents in this book – profited from his involvement. The CD-ROM that documented the contributions of internationally known designers and computer scientists was a breakthrough. It connected media: the closed universe of an interactive CD with the open-ended world of the Internet. But as the discussion mentioned above convincingly suggested, new media – the DVD, in particular – allows for new ways to publish and interact. Ahead of many of his colleagues, Torsten Stapelkamp realized that designers cannot wait for others to develop languages of interaction. Within the broader concept of Computational Design, which he practices as professor and as designer, he has developed a conceptual discipline from which I am sure that the readers of this book will benefit. This is why I believe that his book bridges between the experience of yesterday, the design practice of today, and the new challenges of the future.

Although the new languages expressed in user interfaces, in navigation tools, and in interaction procedures make our relation with computers more intuitive, more natural, they remain constructs. Torsten Stapelkamp goes into the details of the work of what is still called an ‘information architect.’ He deals with the design foundation. He realizes that a new understanding of typography is necessary. Typography is rooted in the experience of printing, but its new condition in the dynamic media is rarely clarified. The same holds true for color and for layout. He deals with the cognitive aspects of multimedia-based forms of interaction. I know how his own learning curve was shaped because we worked together closely during the interval between *Digital Design 2000+* and *Anticipation – The End Is Where*

We Start From, the hybrid publication (book-DVD-Web knowledge portal), in which he was actively involved. The reader will find sufficient reference to the latter work in this book. Absent, however, is the description of the discovery process he went through. All the aspects involved in producing such work involved dealing creatively with new media and new technical possibilities. It also involved overcoming limitations inherent in computer-based activities. What appears in this book as an inventory of navigation forms or a methodology of creating flowcharts, the storyboard – to name only three – are discoveries made through trial and error over days and nights. He also taught many students and even colleagues professors. Many of his other projects, as well as projects carried out by colleagues all over the world, are documented in this book.

Is this book the end of the story? By no means. New media continue to emerge. As I've stated since 1994, computation will become more and more ubiquitous. That is, it will be embedded in the devices and processes that help us do what we do. We've transcended the information society model and work within the knowledge society. Games, for example, have taken over many educational and training endeavors. Massively distributed forms of interaction require better languages and more intuitive forms of interaction. If you work in this field, Torsten Stapelkamp's book will be a good guide – even for professionals using game engines to build new marketing procedures, for example, or for the simulation of future scientific endeavors.

And the next step? Probably anticipatory computing. And with it the expectation of individualized languages that each user can customize to reflect and serve his or her own characteristics.

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