

**The Interface Ecology Research Agenda for HCI**  
**Andruid Kerne**  
**NYU Media Research Lab and Creating Media**

The fundamental need for the HCI research agenda is to take an ecological approach. While HCI has already realized the interdisciplinary nature of undertaking to build interfaces, the field has been lacking a theoretical ground which starts by identifying the diverse constituent factors and ways of thinking and then gives them equal footing. The tendency is to start with a single aspect such as technology or problem solving or work or design. This restricts processes and results. In a world where computers are everyday artifacts used by many people for many activities, the realm of possibilities is much richer. I develop the interface ecology metadiscipline<sup>1</sup> in order to meet this challenge.

Interface ecology identifies and develops the relationships among the diverse constituents of the open system in which humans meet computers. It provides a theoretical foundation which connects theory and practice in order to enrich research, industry, and education. The immediate goal of this work is to thoroughly address the emerging digital medium by combining computer science, cognitive science, and communication theory with aspects of the humanities -- experimental artistic practice, graphic and architectural design, and cultural theory -- and the social sciences -- ethnography and performance studies. People are involved in a multidimensional spectrum of activities when interacting with computers; they are more or less deliberately combining the accomplishment of tasks, play, socializing, entertainment, art, and education. The human computer interface, as the gateway between the user and computation, data, and network connectivity, marshals the experience of the digital medium. In all cases, this interaction occurs in a socio-cultural context. Prominent attributes of the context include where and when they are using the computer, real life related activities the user is engaged in, her/his personal

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<sup>1</sup> a discipline about the combining of disciplines

background, the background and approach of the digital media authors, and the historical and economic period, as well as software, graphical, text, audio and video design/authoring considerations. Only by considering the dynamics of this open set of factors when we evaluate, design and build digital media experiences, can we claim to really work the medium. I call this an interface *ecology* because the dynamics of this open system, that is the interplay and relationships of the components, is the system's essential signature.

Interface ecology brings an alternative focus to the research agenda. For example, along with the important representations of work which have been raised by Lucy Suchman and others, we need to consider representations of play on equal footing. The theater games of Augusto Boal and Victor Turner's framework of social dramas are examples of important investigations from performance studies which are significant for HCI development.

Cultural representation is another key issue. The world's cultures form a sort of gene pool for approaches to social interaction. This repository can do more than inform localization efforts; the cultural practices of diverse people can contribute a wealth of possible models for social interaction and communication modalities. Involving diverse people and their ways of life to participate practically and conceptually in the development of issues will pay the same kind of hidden benefits to HCI research as diverse biological species bring to the development of agriculture and pharmacology.

More interfaces need to be built with an emphasis on process rather than product. As environmental theater pioneer Richard Schechner has written:

Process -- a term used often in environmental theater -- means '*getting there*' rather than '*getting there*,' emphasis on the doing, not the done... For the spectator the play is a product. The task of environmental theater is to make process part of each performance... A performer deep in process is satisfied with any point in her/his work provided s/he is in touch with that point. The ultimate of the work is identical to its immediacy: to be alive to the here and now, to express oneself here and now. What an immense risk that is! Those who love products value things and make things of all living beings. Those who love process value living and make living beings of all things. Choose.

Richard Schechner, *Environmental Theater* [Schechner 1994: :131]

Emphasizing process, rather product is another means of opening the realm of possible results. Process-oriented work can discover new approaches -- those qualitative quantum leaps in the very definition of

what interfaces and applications might be – which can never be raised by research conducted to build interfaces according to pre-defined criteria and expectations.

The goal the interface ecology research agenda for HCI is to strike a balance among artistic, cultural, scientific, and engineering methods. “User” observation is a natural part of any ethnographic work, and of performative work, as well. The context of our interfaces is an environment of many layers. User testing also contributes to this approach. The priorities of the agenda determine which research is undertaken. As we have a wide variety of users and uses, we need to support a wide spectrum of methods and practices. Only when the diverse factors of the HCI are addressed as a balanced ecology can we hope to bring forth the true potential of the medium.