

Book Chapter: Abstract from an upcoming book in which I have written a chapter based on my research at Stanford and my association with Stanford's Center for the Study of Language and Information (CSLI).

Gesture and Tacit Knowledge **Edited Book (Upcoming) 2004**

Editors: Satinder P. Gill and Barbara F. Kelly **MIT Press**

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In a world where we are increasingly dependent on human-machine symbioses in various forms and modalities, we need to move the design of 'machine' interfaces beyond the mechanistic and information models of communication. A consideration of 'interface' as being located in 'dialogue' and the tacit dimension of knowledge, may expand our conception of what constitutes the relation between the physical, emotional, and cognitive dimensions of human connectivity. Interaction may be seen as the resonance of structures in communication operating at multiple dimensions. Since we exist within our bodies, the body may be seen as a mediating interface for the tacit and explicit interrelationship of human communication, carried through the body's movement, breath, and sound; gesture, silence, and speech.

In bringing together researchers and practitioners from a range of disciplines, represented here by psychologists, actors, interactive artists, human-computer interaction researchers, anthropologists and philosophers, we explore the representation, simulation, and engagement of the body in various kinds of interactive frames, such as theatre, computers, education/learning, therapy, and culture. Each chapter develops a discussion that informs us about the body in dialogue, and the different perspectives from cognition, communication, and emotion, require us to understand how gesture and the body is fundamental to our everyday life as connected beings.

In doing so, it offers the possibility to reflect on why and how we create artificial spaces and frames of interaction. The discussion has a bearing on the current and future mergence of digital and contemporary media that lies within the tacit-explicit frame of cognition due to its interactivity.

Steve DiPaola's Chapter Abstract:

Virtual Gesture and Expression in 3D Virtual Communities and Personas

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Virtual-based tools have now opened up the possibilities of dynamically authoring gesture and emotion, both at the naïve and professional level, where casual users and artists/researchers alike can interpret, mix, and remap the gestural implicit in way to best express themselves and their work. As thousands upon thousands of people are daily inter-relating in 3D avatar-based online virtual communities, they are beginning to break down the old definitions of identity and are growing new virtual mechanisms of gesture and expression. Not only do they inhabit many identities and modes of expression that are each authentic in a particular context, but they also soon realize that expressive identity itself is a dynamic construct that, like a leash, can be pulled in tight or given generous slack. In this way, one does not have to choose between the extremes of either playing a role or strictly being oneself, but instead can meander through identity and expression space of this role of the self. Literally they have begun to dynamically and intuitively authoring the self.

One of these virtual communities which uses voice based emotive head avatars in online 3D virtual environments of their own creation has evolved a very specific gesture and expression language that uses voice, gesture and 3D space in a socially complex manner which both emulates but also expands on many natural social metaphors which now has evolved over the years.

We will discuss the original design goals of creating this 3D virtual community system, how those goals succeeded and failed over the years and how ultimately the community members independently evolved expressively rich conventions of gesture, expression and emotional creation for their own personal inter-relationship needs. We will then expand on this work with newer research in creating an emotional and gestural 3D virtual face system capable of remapping emotion and gesture space to different emotional behavior sets and even interpreting other forms of aesthetic commutation forms such as reinterpreting music compositions into facial gestures.