



this is applied between individuals, it provides the possibility for *Perceptually-Seductive Communication (PSC)*, based on the exchange of intrinsic, non-symbolic information, often in changed modalities. Intrinsic features include:

- the environmental situation in which a communicator is located (noise, change, temperature, smell, etc.)
- aspects of the communicator – such as restlessness, rate and depth of breathing, position of parts of the body, eye gaze, etc
- paralinguistic features such as rate of speech, dynamics and articulation (whether loud or soft, smooth or jerky, etc.), pitch contours and other prosodic features.

PSC is not concerned with the linguistic content of any speech or gesture; there is no attempt by the system to identify meaning. Any such interpretation is left to the communicators; the technology *mediates* but does not attempt to *understand*. Shifting the modality of information allows us to *convey* intrinsic information without having to *simulate* it, and thus to use relatively low bandwidth. We take intrinsic features, transform them and display them - often in an ambient way accessible to peripheral processing.

#### **APPLICATIONS OF PSC**

Applications of PSC include any situation where it is desirable to convey the state and situation of another person even though they are not present.

#### **Cross-Cultural PSC**

Our initial trials are with two Tents, one in Northern Sweden and the other in Southern Africa. Our occupants are thus separated by huge geographical and cultural distances, but are conveniently within the same time zone. When the Tents are empty, they display the reality at the other end, in altered form. But when occupied, the immersants affect the process in a distant-biofeedback sort of way - my situation is projected to you, but this changes your experience which is projected back to me, which changes my experience, and so on. This plays with the idea of "being" - being here, being there, being in both places at once, or "being in transit" – the original meaning of "psyche".

#### **Intimacy while Apart**

Two lovers, separated by an ocean but each in a Tent, can share an intimate experience while apart. A scared child alone in a distant bedroom can be comforted by an ambient display that includes the smell of his mother. Conversely, anxious parents can have a dynamic ambient display of baby's state projected on the ceiling of the living room, so that they would be peripherally aware of any disturbance to normal sleeping patterns. We can also use PSC to put back cues, in modified form, to low-bandwidth media such as e-mail and telephone calls. This would allow context to be added without trying to duplicate reality, and so the data transfer demands could be kept realistically low. Imagine

an affective e-mail, where the sender records a PSC file while composing a mail, attaches it to the message, and then the receiver can (in some senses!) experience the sender's state and situation as an ambient display while reading the mail.

The idea of communicating non-symbolic "intrinsic" information (sometimes alongside symbolic information like speech and images) is fun because it is common across different people (even across different mammals!) and, when people interact in this way, the non-symbolic will soon become symbolic, in interestingly unpredictable ways.

#### **Special Needs**

A particularly useful application of PSC is in facilitating communication by people with special needs, in person or over the telecommunications network. Imagine a wheelchair-bound person who can only speak via a synthesiser controlled from an adapted keyboard by means of a head-mounted pointer. Existing approaches have used physiological indicators to control modulation of the output speech, but this may already be too late for a viable conversation to be established. Producing the desired utterance is at all times a difficult and fairly slow process, but especially so when the user becomes emotionally agitated.

A PSC system used in such a situation might detect and convey the following information:

- this is a dark, hot, noisy place (a difficult context to produce a message) – conveyed perhaps as a busy visual pattern with a deep rhythmic sound beat
- I am agitated, and I am doing something (this is important to me) – conveyed perhaps with rapidly pulsating, multiplying stars.

The receiver might then infer (not necessarily consciously) that he should wait for a message. Adding visual displays, related non-linguistically to the sender's emotional state, to existing assistive technology could establish PSC between the participants from the outset of their interaction.

#### **CONCLUSIONS**

The Tent provides a novel environment for seclusion and to experiment with perceptually-seductive communication. Non-symbolic interaction and information exchange is used both to stimulate personal creativity and to provide the possibility for a rare intimacy in electronic communication.

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