Turning from Image Sharing to Experience Sharing

Paul M. Aoki
Palo Alto Research Center
3333 Coyote Hill Rd.
Palo Alto, CA 94304-1314 USA
aoki@acm.org

Margaret H. Szymanski
Palo Alto Research Center
3333 Coyote Hill Rd.
Palo Alto, CA 94304-1314 USA
szymansk@parc.com

Allison Woodruff
Intel Research Berkeley
2150 Shattuck Ave., Ste. 1300
Berkeley, CA 94704-1347 USA
woodruff@acm.org

ABSTRACT
Recent research on cameraphone image sharing suggests that there are users who would like to have remote, interactive sharing sessions that enable them to feel like they are sharing experiences rather than just sending messages. We sketch an argument that one way to facilitate this sense of "experience sharing" may be to place image sharing in an explicit conversational context. We further argue that this would *not* be most effectively done by using the obvious synchronous conferencing model.

1. INTRODUCTION
Judging from market penetration statistics, the pervasiveness of cameraphones in the First World can now be taken as given. Even when considered only as highly personal and portable digital cameras, they represent the culmination of a trend in which the low incremental cost of digital imagery – both in terms of economics and effort – has enabled the widespread capture and sharing of images of mundane events [2,8,11,14,16].

However, even with the availability of mechanisms such as MMS, online albums and moblogs, the sharing aspect remains more problematic than the capture aspect. In the case of sharing, barriers – again, in terms of both economics and effort – remain. More fundamentally, sharing is highly relationship-specific [13]. Sharing "solutions" tend to be oriented toward providing common types of functionality (messaging, organizing/browsing) rather than addressing specific types of relationships. (And as former participants in a marginally successful study of the use of synchronized photo-taking within weak-tie social groups [4], we can attest to the difficulty of coming up with intuition-guided modifications to existing mechanisms that are effective at addressing relationship-specific issues.)

As image sharing is itself a complex research space, we focus here on a theme common to several recent studies of cameraphone use (e.g., [8,16]): the frustration people have when trying to share images remotely and interactively. In these cases, people are generally trying to share experiences with friends and/or family, using cameraphone images as a topical resource. Further, they are frequently shared at the time of capture (an experience very different from the kind of retrospective sharing [3] that is commonly termed storytelling [1] in this research area).

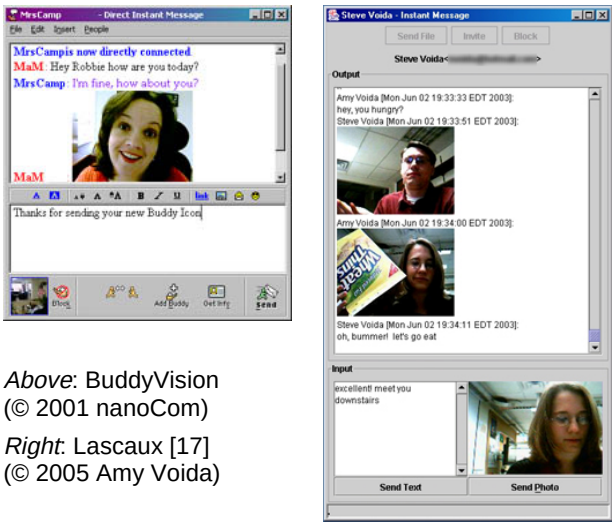
Remote, interactive sharing can be accomplished up to a point using an asynchronous, message-oriented model [9,13]. However, it is not clear that this is necessarily ideal in terms of immediacy. That is not to say that immediacy is always a desirable property for remote interaction – in their discussion of *ambient virtual co-presence*, Ito and Okabe note that mobile email messages are used to constitute a "social setting that is substantially different" from interaction in systems that require "direct opening of a channel" [7], and this effect is also seen with image sharing through mobile email [13]. (And, indeed, we have seen related phenomena, including one we called *extended remote presence*, in our own ethnographic work on push-to-talk mobile audio messaging [18].) But it is also clear that immediacy has its place; in other studies, users have been seen to improvise "side" channels, including parallel phone calls, to provide commentary and receive affective responses [8,16].

A synchronous conferencing model is suggested by the fact that some study participants seem to conceptualize remote, interactive image sharing in this way [16]. As can be seen from the years of research in network quality of service (QoS), a lot of effort must go into controlling the effect of QoS parameters such as latency, jitter and packet loss so that interaction is not disrupted and the association between actions in different media streams (audio, video, application sharing, etc.) remains clear to the user. But at the end of all this, one risks ending up with a directional experience akin to a remote "vacation slide show": at one end of the conference, the "sharer" is living (or reliving) a moment, occasionally throwing up a new image to which the sharee should react, whereas the "sharee" at the other end is left to attend to a series of images and distracted commentary.

What we argue here is that remote, interactive image sharing need not be limited to these options. The argument draws on our previous research in related areas, all of which has been concerned with experience sharing and social interaction.

2. EXPERIENCE SHARING
The preceding discussion suggests that there are cameraphone users who would like to have remote, interactive image sharing sessions that enable them to feel like they are sharing experiences rather than just sending messages. However, this must be balanced against the general trend toward lightweight communication systems, such as IM, that do not require the same kind of attentional commitment [12] that arises from a phone call.

How might images be used to increase the "investment" of the sharee? Let us consider an accessible example: IM clients that allow webcam images to be inserted into an ongoing session in a very lightweight manner. (Figure 1 shows some examples of desktop clients, but mobile image IM clients are now in use as well.) Image IM is interesting because it suggests that what is important is not the use of "live," isochronous media. Nor is it that the image travels "instantly"; the IM system itself isn't "instant" in that sense. Neither is it that multiple media – here, images and text – are combined; other mobile messaging systems can do this.



Above: BuddyVision (© 2001 nanoCom)

Right: Lascaux [17] (© 2005 Amy Voida)

Figure 1. Desktop image IM (similar mobile clients exist).

What the image IM examples suggest is that, to enable spontaneous image sharing within interaction, *what is important is that users can **position** images in an interaction so that their content is visibly relevant within a **sequence** of contributions.* This has two implications that may not be clear from the text of the statement. First, the social framing is more symmetric. Consider the participation framework [6] of two situations, one set up as "I'm mailing pictures to you" or "Look at my web album," and the other set up as an interaction in which some contributions will likely be images. The latter implies that sharing will be mutual rather than unidirectional. Second, incorporating the images into an explicit, visible sequence of contributions makes the appropriateness of recipient design [15] more clear to the participants[1]; if the images are contributions themselves rather than just topical resources, both sharer and sharee will tend to become more "involved" in their production [10]. (Signs of such recipient design can be seen in the Lascaux screenshot in Figure 1, in which the two participants are discussing where to find something to eat – the images are clearly being framed as responsive to prior turns.) Both implications seem likely to increase the participatory investment of the (now nominal) sharee.

Note that the explicit "visibility" to which we refer can be established in more than one way. Of course, one can make sequential organization visible in the graphical sense (as in Figure 1, or in a listbox of MMS images). However, it also seems possible to do so in a moment-by-moment, temporal sense – either by having the system deliver "turns" synchronously, enabling participants to position utterances and images in time, or by ensuring that the user receives immediate notifications when turns are received. As a simple example of the latter, consider an audio session (perhaps full-duplex, or perhaps half-duplex push-to-talk [18]) in which participants also control the one-at-a-time display of images on each others' handset screens using a separate pushbutton.[2] Depressing this pushbutton captures an image, and holding it down sends it to the other participants; the sender hears a "beep" when the image can be seen by the others, and ends the "turn" by releasing the pushbutton. The point is that this degree of temporal control seems to provide "just enough" synchrony to enable positioning of both audible and visual contributions. For example, after the beep, the sender can make assessment comments ("I love these shoes") or prompt for responses ("what do you think?"). The beep informs the sender when the image has become available as a common resource [15] for talk. While it is certainly possible for users to "tie together" sequences from their constituent parts in a series of MMS messages, as in the wonderful example of teasing described in [10], the asynchronous nature of MMS would necessarily work against a sense of moment-by-moment engagement.

Our argument is not simply based on the image IM examples themselves, as we have extensively analyzed observations of users positioning media content into social interactions in another context. Specifically, in prior research on electronic guidebooks [19], we found that an appropriately-designed audio sharing system enabled visitors to position audio guide clips within their own ongoing conversations. What was particularly interesting was that interactions naturally fell into the preface-telling-response storytelling organization that is well-known in conversation analytic research, with the visitors in effect orienting to the guidebook audio as if it were a third party in the conversation.[3] We are *not* saying that the same behavior would be observed with image sharing, but rather that our own findings would lead us to speculate that putting image sharing in a "conversational" context would lead naturally to predictable behaviors in terms of positioning and recipient design.

3. CONCLUSION

Facilitating states of mutual engagement in social interaction is a tricky and difficult design problem. It is unsurprising that remote sharing methods (largely based on the dominant paradigms of messages and albums) have not been entirely successful in meeting the needs of users who wish to share their experiences interactively. Drawing on the prior research, our experiences with image sharing [4], and our own research on experience sharing [18,19], we have suggested an approach to sharing that draws users into interaction *using* images rather than *over* images.

Generalizing the conversation-oriented approach beyond the specific examples given here is itself a design challenge, one which we would expect to be an area of fruitful discussion.

[1] Recipient design does not only mean that turns are "produced for" a specific person, but has the additional implication that they should fit into the context of the ongoing interaction.

[2] A number of wireless service providers have deployed "push to view" services of various kinds, though (to our knowledge) none of them work in a manner that enables the kind of interaction described in this example. Some simply initiate video conference connections; some do not allow interleaving of audio and video; some have a stronger "message" model in which the sender is not notified of delivery and each image must be "accepted" in a GUI by the recipient; and so on.

[3] The research on audiophotography [5] suggests that a minute of "silent" shared listening would disrupt participants' engagement in conversation, yet this was routine in our studies.

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