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Week 11

Starner: Attention, Memory, and Wearable Interfaces

This paper begins with a discussion about the human attention mechanism, and describes how humans can attend to separate tasks only if they use different parallel parts of the attention mechanism (for example auditory and visual). It identifies this as a challenge for wearable computing, where the computer is not always the main focus of attention - you want the system to be useful without distracting the user from other activities.

They describe the current situation with PDA's whose adoption and abandonment point to a need people have that is not being satisfactorily filled. The PDA's provide a useful service of storing information, but are too difficult to access quickly on the go, and they can also interfere with primary activities. Wearables on the other hand are always accessible, and interfaces can be designed to give an awareness of the wearable's information while performing another task.

To me, it would be interesting to see a discussion of the use of the wearables during personal communication. I can understand the appeal during business or academic activities, when it substitutes in part as a more advanced note taking and information retrieval system. However, how does this play out in personal interactions? Is the user tempted to interact similarly, taking notes and referring to information?

This paper mentions using different modalities to get additional information without interrupting the primary task. In social interactions, however, we often use features of our currently active modalities to gain meta-data about the interaction without interrupting it. For example, feedback about whether a listener is understanding your point, or perhaps distracted. Perhaps there is a way to use both these techniques (spare modalities, subconscious cues) to communicate with the wearer.

[McCarthy?](#): A Plan-Based Personalized Cognitive Orthotic

The authors are describing a plan based reminder system installed on the mobile robot Pearl. This system is designed to account for the plans of the patient and provide dynamic reminders as necessary, as well as suggest alternatives if it detects potential plan conflicts. The system has the capability to infer fulfillment of activities that are not recognizable (perhaps the robot cannot tell if dinner has been eaten, but it can tell if you went to the table), as well as balance the utility of making reminders against the annoyance of the user.

They seem to have gone to great lengths to make a smart reminder system, but the concept of a system built solely for reminding strikes me as a bit odd. Is it possible to have an effective reminder system that functions in a vacuum? Would it instead be better

to have this behavior emerge from an agent's normal behavior, in which case it would have more contextual knowledge to guide its reminding?

### Consolvo: Computer-Supported Coordinated Care: Using Technology to Help Care for Elders

The authors set out to design technology to help people who care for the elderly, called computer supported coordinated care. They begin with a series of interviews of both patients, caregivers, and family members to determine the different roles and information shared within the community, and developed [CareNet?](#) based on the these results.

[CareNet?](#) is a display that monitors aspects of the elder's situation and displays them in the homes of the caregivers (for this trial, it was updated manually by operators that ask the elders for information). They deployed this display and collected data about its use through interviews, and used this data to determine information about the social networks of the elderly involved.

They found that usually one person was the primary care provider, and had changed their life significantly to allow that. The primary communication between people in the network is the telephone, and many members are often under-informed about what needs to or has been done.

They describe how computer supported collaborative care (as opposed to work) is focussed on one person, and that the activity, caring for that person, is a background activity for most members of the network. The system ought to help with these caring situations by reducing the cognitive load of caring for the elder.

I think that the idea of facilitating communication in a network like this is a good one. It is a loosely collected group of sometimes as much as 20 people - it is unlikely that any one piece of information will make it through all 20 in one on one phone interactions. A computerized system (even one with no sensor's that's maintained by the people) could attempt to present information in more efficient manner. If it could determine data on its own via sensors that would possibly be more convenient. However, the authors mention that many network members could not even be convinced to use email - in this case, it is not clear if they would even pay attention to such a system.