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Week 11

A Plan-Based Personalized Cognitive Orthotic

Since these guys seem to be at least competent in the area of plan-based AI, I will skip of the technology and attack the common sense. First off, the authors completely missed the point of memory orthotics. It's not for remembering appointments, it's for remembering pointless acronyms such as ADL ("activities of daily life?!"). If it weren't for all the acronyms, I would have memory to spare for appointments. The paper seems a little familiar, considering that the authors couldn't help but write a copy into the nursing home scenario paper (week 5, "Towards robotic assistants in nursing homes"). I think the authors have gotten the common sense part of things down pretty well, at least in writing. All except for the detail of the plan input, that is. If your life were as boring as unsalted overcooked oatmeal, this plan would of course succeed brilliantly. This is, of course, a not-so-subtle indicator of why most elders are depressed. It is exactly because caregivers come up with schedules like this, and people being the creatures that they are, follow these scripts without expecting the considerable mental energy that is required to break out and do something different.

At any rate, for those of us with bad memory and friends who do not use the AutoMinder system, there is going to be a slight problem. Firstly, AutoMinder has no concept of plan interaction. It thinks of everything as constraints. However, for real humans, the interaction between plans generally has much higher priority than many other activities. For example, even if I had breakfast late, I might want to go to lunch with my close friends, though constraint-wise it would serve me better to go later. Second, the system has no concept of how constraints come to be, and what different constraints mean to people. The system also seems to be based on the premise that all these necessary inputs will magically appear (the failed to appear in the last paper, by the way), and bypasses all the real issues that surround the daily planning problem and focuses on a rehash of a decades-old constraint-based planner for scheduling. As far as I can recall, the first time a computer did this is when they were still batch machines and they needed to know what order to run the loaded punched cards for maximum efficiency. I am cognizant of the fact that it was probably a lot of work, but at the end of the day, using 10 pages to prove that scheduling is a planning task and not a parroting task fails to earn any consideration in my books.

Attention, Memory, and Wearable Interfaces

Well, it's hard to disagree with such good sense, so time to switch to agreement mode. I think that people have a hard time grasping the fact that wearable interfaces aren't more constrained than desktop interfaces, they are in fact nothing like desktop interfaces at all. This is abundantly clear in today's mobile devices. Take Windows CE for example: nothing but a low-res low-resource copy of Windows XP. Wearable interfaces are special purpose by definition, and even when they can switch between a lot of purposes, each

purpose requires special consideration and a design that takes into consideration the important nuances and limitations of the particular task. Unlike on the desktop, there is really no general set of tools that fits all tasks well.

Additionally, people really are not that good at parallel processing. Obviously, the brain is a massive parallel processing system. However, most of the parallel processing is done not in the prefrontal cortex where our intelligence and cognition rests, but in the rest of the brain that is far older, better specialized, and well evolved than the relatively new prefrontal regions. This is exemplified in the research done by Allport, where the participants performed better when doing image recognition (something that has existed since proto-humans were able to see) vs. using reading or speaking (both requiring language, which is a much more recent innovation). This presents a considerable challenge because we also know that iconography only works when you have a pre-recognized icon. Language, on the other hand, works all the time, but interrupts the normal processing of high-level actions. Matching the tension between using text and iconography is not trivial, and may lie at the root of why there are so many bad mobile and wearable interfaces. At the end of the day, it may very well be partly answered by mass acceptance. With early training, the human mind may prove malleable enough to handle the divergent attention challenge. Now, who's going to be first to offer up their firstborn to the Borg?

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

I think this paper is a great overview over many social network issues beyond merely caring of the elderly. Particularly, the issue of cognitive loading in computer-based and computer-assisted communities is very interesting to me. When we look at current Internet communities, there exists a dual façade of searching and exhibitionism that defines the experience and produces the high “maintenance load” associated with participation. However, these stressors do not exist within CSCC, and it is interesting to see how the community and social network evolved under these conditions.

There is, obviously, also a large barrier to uptake. By definition, elders during their prime will always have different, less evolved technologies available than are common during their final years. This automatically injects a level of confusion and dislike into the interaction via computer mediation. Additionally, as the authors pointed out, the most important member of the network is the one who has made the most significant changes in their lives to support the elder. This is a precept of our society, and given its long reign, I am certain it will be difficult to unseat. CSCC makes the cost of contribution (and thus the dissatisfaction of the person who provides the care) much less, but at the same time, it makes the perceived level of caring appear much less. As in many cases in psychology, it is not the actual condition, but the perception of the condition, that is relevant. Even though it is a background factor (according to the authors, and I agree it is hardly even expressly expressed), it nonetheless contains the ability to seriously damage the relationships within the social network. While CSCC might, all things considered, work better for all sides concerned, the initial dysphoria observed in its use may cause the undoing of any such technology before it can reach critical mass and truly show its

strengths. As care and computing moves closer, it will be interesting to see who comes out on top between necessity and perception.