CS 7460 Collaborative Computing:
Distributed Cognition

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Project/Paper Proposal Presentations

- Together with the 1-2 page document on proposal, the presentations would constitute 5% of your overall grade.

- Total 9 groups.

- 8-9 minutes per group.
  - 5-6 minutes of actual presentation and remaining Q&A

Main idea – sharing and exchange of information between people (cognition) in order to allow better communication in collaborative tasks.

Distributed Cognition

- Distributed cognition (Hutchins) argues that "in many situations cognition involves social aspects: the coordination between individuals (e.g., their social interactions and their social relationships), and how people coordinate their interactions between themselves and the artifacts within their collective environment."

- Distributed cognition is fundamentally embodied, where the body and the world are central to cognition aspects.

- It is also part of a cultural context where people accumulate partial solutions to situations over time and are able to use these in new situations

Desjardins et al 2014 – avalanche rescue practices in backcountry – how recreationists and experts use beacons for the purpose

Hutchins 1995 -- analysis of a memory task in the cockpit of a commercial airliner – examination of how the cognitive properties of such a distributed system is distinct from those of its inhabitants

What are the key requirements for distributed cognition to work well in a collaborative system?

Do you distributed cognition as a theoretical framework is key to all collaborative systems?

In what contexts, is it important for success of the system?

We covered two major domains of collaboration/communities of practice – FLOSS and Wikipedia. Could we explain their characteristics in the light of DCog? How?

Are recommendation and reputation systems be described as DCog models?

In RR: "shared search browser" – explain how we could think of it as a DCog system?

Transparency and visibility is key to the Dcog framework. However not always we can ensure transparency, e.g., to secure privacy of individual participants. Does it mean Dcog based frameworks are inappropriate for such domains?

Some of you pointed out about the limiting design implications provided in the avalanche rescue paper. How would you have expanded on them more concretely?

A perhaps important aspect of DCog frameworks is that they are best suitable to a set of experts. What would be the challenges if a DCog based collaborative system was given to novices?

Both the scenarios we study in the papers – avalanche rescue and cockpit information sharing are time critical and synchronous in certain ways. Could there be other domains which are not time critical or synchronous, but where DCog may be considered as a powerful lens for design?

Crowdsourcing is an interesting case – while participants may not be coordinating, we often pool their "cognitive" abilities to collaborative on a task (e.g., spotting a ship in a large dataset of ocean satellite imagery). Does it mean that good coordination is possible even without obvious distribution of cognition?

Certain collaborative systems may have a machine in the loop that takes decisions. What would it mean to apply DCog as a framework to such mixed frameworks of humans and machines?

How can we explain the lack of adoption of DCog as a theoretical framework for the collaborative systems we studied yet?