

CSE494/598 Mobile Health and Social Networking (Sp2009)

Homework 3

Due on Thursday, February 26, 2009

Submission procedure: email to cse494sp09@impact.asu.edu before Thursday's class

[100 Points] This homework is about extending your application in Homework 2 by applying the Human-Centered Design principles in the “Designing Human-Centered Distributed Information Systems” paper¹, as we discussed in class on Thursday, February 19. Specifically, perform the following tasks (using the description in the paper):

1. [30 points] User analysis
 - **User analysis:** Identify characteristics of users such as expertise and skills, knowledge base, age, education, cognitive capacities and limitations.
 - **Distributed user analysis:** Analyze division of labor, overlap of knowledge and skills, pattern of communication, and social interaction perceptual variations, and so on.
2. [30 points] Functional analysis
 - **Functional analysis:** Identify top-level domain structure and ideal task space independent of implementations.
 - **Distributed functional analysis:** Analyze top-level interrelations and constraints of human and artificial agents in the domain.
3. [25 points] Task analysis.

Pick two (2) functions and from step 2 and task-analyze them.

 - **Task analysis:** Identify system functions that must be performed, procedures and actions to be carried out, information to be processed, pattern and dynamics of information flow, input and output formats, constraints that must be considered, communication needs, and the organization and structure of the task.
 - **Distributed task analysis:** Analyze space and time distributions of activities, information flow dynamics across human and artificial agents, and compatibilities between agents.
4. [15 points] Representational analysis.

Pick one (1) analyzed task and proceed with representational analysis.

 - **Representational analysis:** Identify the best information display and the best information flow structure for a given task such that the interaction between users and systems is in a direct interaction mode.
 - **Distributed representational analysis:** Analyze how the same information can be distributed across human and artificial agents in different ways under different implementations, and find out which implementation is most efficient for which task.

Notes:

1. If, at some of the 4 levels, you believe that your application does not have distributed characteristics, provide arguments why it is so.
2. You may retain the grouping of Homework 2 or submit individual reports.

¹ <http://impact.asu.edu/cse494sp09/Designing%20Human-centered%20Distributed%20Information%20Systems.pdf>