

Evaluation with Clinical Experts: Questionnaire

Name:

Colorblind: Yes/No

Background:

Computer Expertise Level:

Normal vision: Yes/No/Glasses

Duration of Interview: 45 - 60 minutes

First Phase: Usage scenario - Framework Usability

The framework has been designed and implemented, in order to enable users to perform four main tasks:

1. Uncertainty quantification and exploration: It supports quantifying and exploring imaging-induced uncertainty and its effect on TCP modeling.
 - *2D Colormap*: Which regions “suffer” from ADC-inherent uncertainty? Which regions “suffer” from CD-calculation uncertainty?
 - *Probing and Linking*: Can you recognize specific locations with interesting/suspicious behavior, e.g., misdelineations or “cold spots”?
 - *TCP Uncertainty visualization*: How is the TCP modeling affected by this imaging-induced uncertainty?
2. Parameter sensitivity exploration and analysis: It facilitates exploring and analyzing the sensitivity of TCP models to different common assumptions.
 - *Adding TCP parameter sets*: How much is the TCP affected by different choices in the parameter sets (assumptions)?
 - *Probing TCP/Dose and Linking*: What is the TCP achieved with a given dose? What is the dose required to achieve a specific TCP?
 - *Variability*: For a given dose and for a number of different assumptions, how much might the achieved TCP vary? For a given TCP and for a number of different assumptions, how much might the dose vary?
3. Cohort partitioning: It enables identifying and clustering intra-patient response patterns and variability.
 - *Clustering patients*: How many different patient response patterns can be identified?
 - *Variability*: How much do patients belonging to the same cluster differ? How much does the response of these patients vary across TCP assumptions? How much do these sub-categories of patient responses vary?
4. Reversing the workflow: It allows performing the analysis workflow in a reverse way, starting from the desired treatment outcome to identify the treatment strategy to achieve it.
 - *Reversing the workflow by drawing*: How can a specific outcome be achieved, i.e. which assumptions should be made? Is this plausible?
 - *Uncertainty*: Which TCP assumptions introduce less/more uncertainties in the analysis workflow?

For each one of the previously mentioned four tasks answer and grade based on the perceived usability (ISO9241):

- *Effectiveness*: the accuracy and completeness with which the user can achieve the task.
- *Efficiency*: the resources expended in relation to the accuracy and completeness of tasks achieved.
- *Satisfaction*: the comfort and acceptability of the system to the user.

Task Objectives	Perceived Effectiveness	Perceived Efficiency	Perceived Satisfaction
(1) <i>Uncertainty quantification and exploration.</i>			
Open answer:			

(2) <i>Parameter sensitivity exploration and analysis.</i>			
Open answer:			
(3) <i>Cohort partitioning.</i>			
Open answer:			
(4) <i>Reversing the workflow.</i>			
Open answer:			

Second Phase: Open questions – The framework overall

1. What are you *currently using* to do this analysis? Can you *compare* the proposed tool to the state-of-the-art?
2. Did the tool *help* you analyze the previous tasks? Can it help you *explore* the TCP modeling process better/easier, after reasonable training? If yes, how? If not, why?
3. Is the tool overall *understandable* and *easy to learn*, after reasonable training?
4. Is the tool *suitable* for....? (tick the ones you agree with)
 - ... Data Exploration?
 - ... Knowledge Discovery?
 - ... Hypothesis Generation?
 - ... Decision Making?
5. Which tool features are seen as *useful*? Which tool features are *missing*? How can tool features be *reworked* to improve the supported work processes? What kind of *limitations* do you see in the current system?
6. Is there a visualization component that you particularly *liked* or *disliked* and why?