

# A Data Analysis and Modelling Framework for the Evaluation of Interactive Information Retrieval

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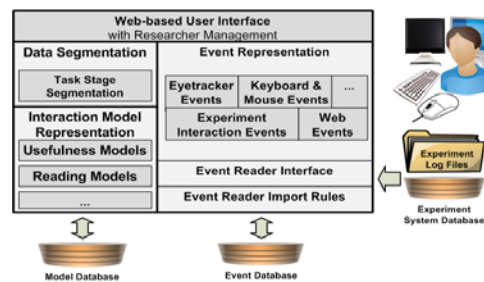


Fig. 1. System components of the data analysis and modelling framework

Over the last two decades, Interactive Information Retrieval (IIR) has established a new direction within the long tradition of IR that introduces the user at its center and poses new challenges for system evaluation. IR systems can improve performance by utilizing information about the entire interactive process of search. This approach has so far only been initially explored [1,2] with much potential for the future. This demonstration describes an extensible data analysis and modelling framework that enables researchers to integrate, explore and analyze interactive experiment data obtained from task-based IIR experiments and build and test models of interactive user behavior. Figure 1 shows the framework components: The *Event Representation* integrates experiment data through the *Event Reader Interface* through a configurable set of *Event Reader Import Rules* into a unified and extensible event data structure. An extensible list of event types ensures that researchers can adapt and extend the framework to process data from a variety of IIR experiments on a single platform. *Data Segmentation* divides experiment data into semantic units guided by research hypotheses. A segmentation can for example differentiate interaction data based on users' current stage in the search task. The *Interaction Model Representation* processes (segmented) event sequences to test specific research hypotheses (e.g. identifying users' perceived usefulness of content or determining reading behavior). The *Web-based User Interface* extends the system to an online service where researchers can generate, inspect and share event representations and create data segmentations and interaction models. The framework is currently applied for the analysis of three IIR experiments in our research project. It will become an open source project that allows for wider public access within the research community.

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## References

1. Belkin, N., Keynote: Some(what) Grand Challenges for Information Retrieval. In: 30th European Conference on Information Retrieval Research. Glasgow, Scotland, 2008.
2. Belkin, N., Bierig, R., Buscher, G., Van Elst, L., Gwizdka, J., Jose, J., Teevan, J.,: Workshop on Understanding the User. In: 32nd Annual ACM SIGIR Conference, Boston, USA, 2009.

## Requirements

The Demonstration requires an internet connection and a large screen (19" or higher) to show the user interface in one-to-one discussions. A projector would be beneficial for larger audiences. A notebook is provided by the demonstrator.

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