

2026-T2 Visual Analytics and Classification of Big Interaction Datasets

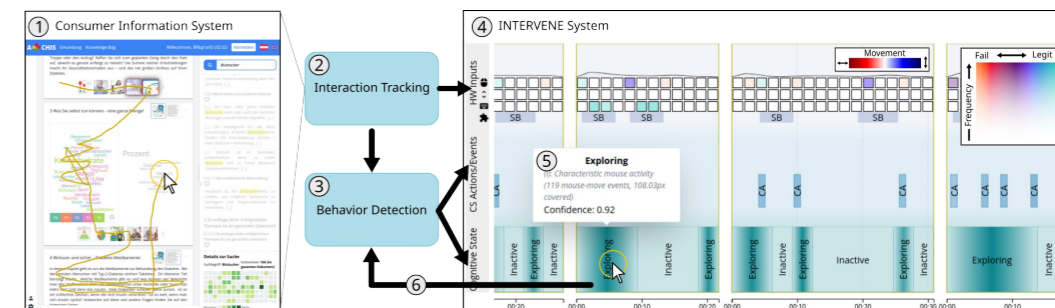
Bachelor Thesis Master Thesis Project

In an large-scale user study on cognitive load experienced in consumer health information systems, an encompassing and faceted interactions dataset of 253 users solving three distinct information retrieval tasks was collected^[1]. It comprising 3.5 million mouse/keyboard events, corresponding to almost 50h of pure exploration time. This size renders the analysis of general interaction patterns, outliers, common sequences, etc. a challenging problem. While existing visualization approaches enable us to effectively observe behavioral patterns of individual users, overall trends remain mostly undiscovered.

Open tasks include the implementation of overview visualizations for cohorts of users/IR tasks in an existing prototype^[2] and classification of behavioral patterns at different frequencies.



Saliency Map of Mouse Positions of on selected task of the GUID/ETA dataset. Source: [1]



The INTERActive bEHavior aNalysEr (INTERVENE) for illustrating a user's interactions with a web-based information system. Source: [2]

^[1] Lengauer, S., Götz, S. A., Hoesch, M. T., Steinwider, F., Bedek, M., Schreck, T., "GUID/ETA — A Versatile Interactions Dataset with extensive Context Information and Metadata" *STAG*, 2025. <https://doi.org/10.2312/stag.20251335>

^[2] Lengauer, S., Shao, L., Tytarenko, M., Klaffenböck, M., Schreck, T., "Interaction Visualization for Analysing and Improving User Models" in *32nd ACM Conference on User Modeling, Adaptation and Personalization (UMAP)*, 2024. <https://doi.org/10.1145/3631700.3664877>