

## Mirror mirror on the wall, tell me what I'm looking for: Ontology-based user modelling, and behavior and personality analysis for predicting users' intentions

**Keywords:** Human-Machine-Interaction (HMI), User Modeling, Behavior and Personality Analysis, Personalization, Semantics, Proactivity.

In order to achieve higher levels of performance and quality of service, today's systems and applications interacting with users place great value on some kind of intelligence that makes them among other capable of learning and thereby highly adaptable to their users, their personal needs and their environment. To autonomously acquire and model such context-aware knowledge and reason about it, various artificial intelligent based technologies have been applied, like machine and statistical learning, pattern recognition and semantic-based knowledge graphs to mention a few, with considerably satisfying results as far as human-machine-interaction is concerned.

However, there is still space for improvement. One way to build better systems would be to give them the feature of proactivity on the basis of which such systems would be able to provide users the right service, at the right place and always at the right time even before the user consciously asks for it. To accomplish such a thing and be in other words able to predict the intention of a person, a more sophisticated user model is required. One that takes also the personality of the user in consideration.

Within the scope of *Praxis der Forschung*, it shall be on the one hand investigated whether an autonomously, un- or semi supervised acquisition, representation and analysis of the user's behavior and personality is possible in the first place. On the other hand, it shall be examined whether and to what degree does this knowledge of the user's personality provide significant support to an intelligent system in predicting his intentions. The Hypothesis shall be tested and evaluated, inter alia by conducting a user study, within a concrete use case.

**Requirements:** Applicant should be generally interested in A.I., have good Java and/or Python programming skills and some first experience in programming semantic web applications (RDF, JSON-LD). Additional experience in machine learning and OWL are major plus points.

**Language:** German or English

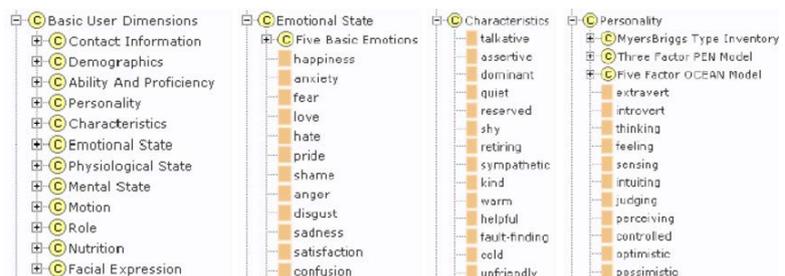


Abbildung 1: Source: <http://blog.digiti.be/article/5-ways-to-optimize-knowledge-graph-for-your-brand/>

Abbildung 2: GUMO (Dominik Heckmann et al)

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