Equipping a Conversational Agent with Access to Wikipedia Knowledge

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The online encyclopedia Wikipedia has become a popular source of knowledge and often constitutes the first choice for humans looking up information on the internet. Thereby, additional characteristics like the categorization of articles and the allocation of disambiguation pages support Wikipedia users in their search for the relevant article. By representing this information in an adequate format, machines are already able to process and use these additional hints as well.

In the KnowCIT[1] project we focus on extending the conversational abilities of the embodied conversational agent Max (Kopp et al. 2005) by accessing Wikipedia as an external source of information. This allows Max to look up information on Wikipedia similar to humans and to employ encyclopedic knowledge on request. More precisely, if the human dialog partner asks for information about a term which is not contained in the agent's present knowledge base so far, the system searches for an adequate Wikipeda article. A successful article search leads to the extraction of the most term-descriptive information of the article text and hence to a suitable answer for the user.

The search for the relevant Wikipedia article is implemented by text search rules including a mapping of the user's requested term to the articles. In addition, we endowed Max with topic detection abilities to limit the search for the Wikipedia article depending on the current dialog topic. Thus, ambiguous terms are topically restricted which improves the article discovery. Finally, to present a summarized description of the requested term, the short abstract of the article most conforming is extracted and sent to the agent's behavior generator afterwards.

As a result, the conversational agent Max has access to an external knowledge source containing terminologically classified and collaboratively maintained information ascertainable via look-up abilities. A first informal evaluation of the quality of the search algorithm gave hints on how to improve the search for better performance.

[1] "Knowledge Enhanced Embodied Cognitive Interaction Technologies"

References

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