The Science Library: A Controlled Natural Language driven Science Gateway

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ABSTRACT

The International Technology Alliance in Distributed Analytics and Information Science (DAIS-ITA) is a research program conducting fundamental research across a consortium of organizations from academia, industry and government in the US and UK. A key output of the program are the academic publications, and from these a rich social and topical network between authors and organizations emerges. To capture and convey this we have created the publicly available Science Library as a user-centric, interactive portal. The Science Library is a Controlled Natural Language (CNL) driven research gateway, which allows the community to explore and query the publications and networks through an open, webbased application. The data is represented through interactive visualizations along with the ability for users to query the model using a natural language conversational interface. The CNL based approach models the data through concepts, properties and relationships which are defined using CNL and are therefore both human readable and directly machine processable. This captures complex semantics in a simple format and enables nontechnical users to participate in the continuous improvement of the data model behind the Science Library application. This paper presents the features, implementation and design considerations of the Science Library and the underlying CNL implementation.

Keywords—Controlled English; Human-Computer Interaction; Science Gateways; Science Library; Visualization.

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