Exploratory Analysis of Research Publications With Human Steerable Black-Box Models

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**Abstract**

Not possible to read the constant release of publications and those that came before.

**Motivation**

Automated approach to synthesize knowledge into model decision preferences.

**Problem**

Novel approach for sharing “black-box” models, allowing direct adjustment of complex required pipelines.

**Value**

Visual interaction with external controls.

**Main Contributions**

- Approach to embed user knowledge and questions into the models of a visual analytic system.
- General Approach to perform back and forward computations in semantic interaction Pipelines.
- Presented approach improves explainability of “black-box” textual pipelines models.
- A prototype system Zexplorer to explore large document collections of research papers.

**Direct adjustment of Parameters**

Requires deep knowledge about models

- Not intuitive
- Only applicable to linear models

**Model Manipulation**

Direct adjustment of the visualized elements.

- Automatic changes in the model parameters

**External controls**

Requires deep knowledge about models

- Not intuitive

**Visual Interaction**

- Direct adjustment of the visualized elements.
- Automatic changes in the model parameters

**Zexplorer Prototype**

- Input models are updated by modifying model decision parameters.
- Model needs to be reversible to include new model parameters.

**Semantic Interaction Requirements**

- Input models are updated by modifying model decision parameters.
- Model needs to be reversible to include new model parameters.

**Summary**

- Substantial research
- Limitations
- Main Contribution
- Prototype

**Main Contribution**

A general approach in Semantic Interaction to provide Inverse Computations for black-box models has not been previously discussed in the literature.

**Prototype**

As an example of use, we apply this approach to share the original conditional model to the user.