Beyond Generic Summarization: A Multi-faceted Hierarchical Summarization Corpus of Large Heterogeneous Data

TECHNISCHE UNIVERSITÄT DARMSTADT

AIPHES
ADAPTIVE PREPARATION OF INFORMATION FROM HETEROGENEOUS SOURCES

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Summary

- New approach for creating hierarchical summarization corpora
- First, extract relevant content using crowdsourcing,
- Second, ask expert annotators to order relevant information hierarchically

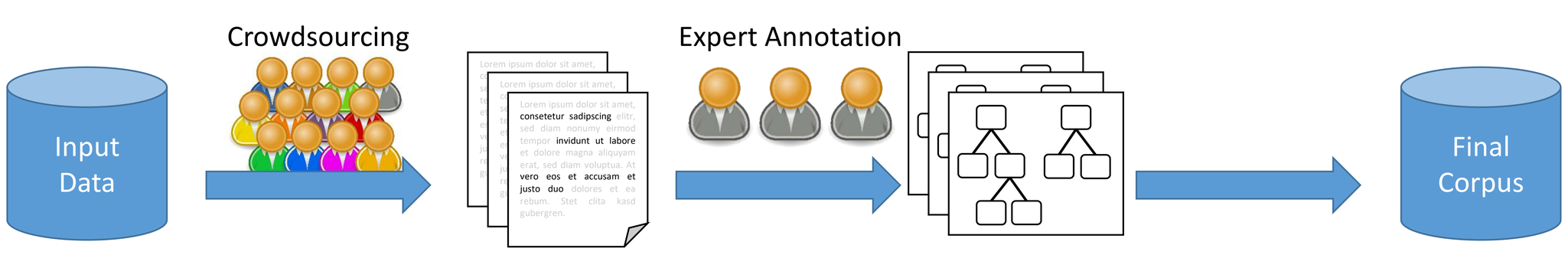
Motivation

- Automatic summarization so far focused on small datasets
- Automatic systems could analyze documents from huge document collections

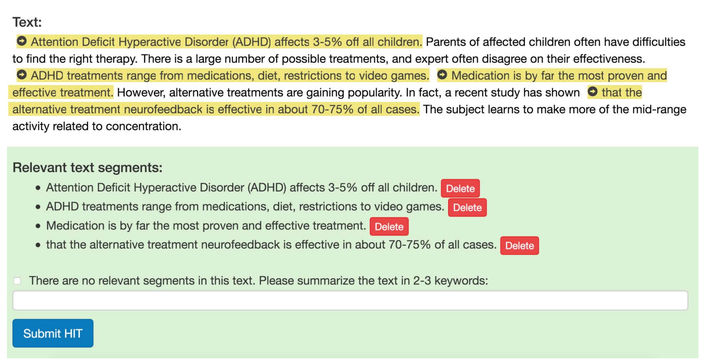
Results

- Highly heterogeneous corpus
- Crowdsourced information nuggets
- Tree structures covering the specific facets discussed in a document collection
- Can be used to develop and evaluate hierarchical summarization systems

Workflow



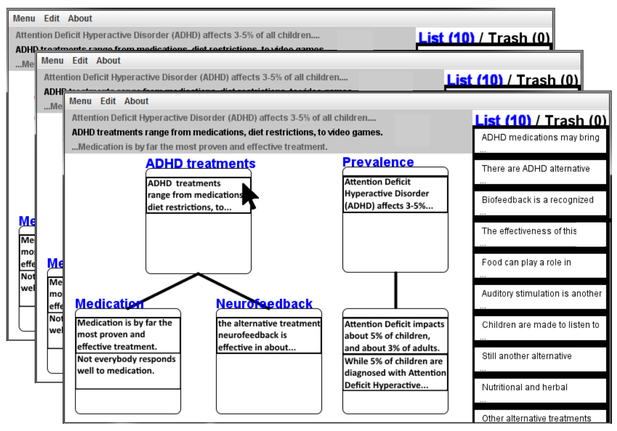
Content Selection



HITs on Amazon Mechanical Turk

- Information Nuggets Include all facts, opinions, hypotheses/statements and claims to include in a summary on given topic
- Select nuggets marked by 3+ workers

Hierarchical Ordering

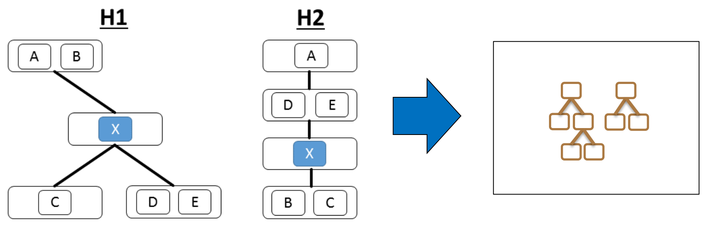


Hierarchy Annotation Tool

- Three expert annotators create hierarchy
- Hierarchies have multiple facet trees and no shared root node

Structural Analysis / Gold Standard

$$HO(H_1, H_2) = a \cdot TO(H_1, H_2) + b \cdot SupO(H_1, H_2) + c \cdot SubO(H_1, H_2)$$



Hierarchy Overlap (HO) → Gold Standard

- Compute Gold Standard with a newly developed measure
- Consecutively add each information to empty nugget hierarchy
- Successively remove each information nugget and insert it again at best possible position

https://github.com/AIPHES/HierarchicalSummarization

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