

Intention Prediction in Search Engines Using Causal Bayesian Networks

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The focus of this project is to apply the use of Causal Bayesian Networks to predict user intent within the context of search engines. User intent prediction is used in many aspects of internet searching including but not limited to Google's auto-complete functionality and Amazon.com's suggested Products feature.

This project will be taking sample data from search engine logs from Excite, Altavista, and Alltheweb. These logs will be parsed and a sorting algorithm will be used to associate words that are frequently used together to build a Causal Bayes' Network. A database of images will be used to represent concepts tied to these search terms and will be ranked with causal inference values to return an appropriately related image.

Testing should show that Causal Bayes' Networks are a viable method to use with large-scale intention prediction, such as that needed in a search engine. This is in contrast to the relatively small samples that CBNs have been used for in the past for intention prediction. Success will be determined through accuracy and speed. Both of these factors will be compared to other methods used in intention prediction.

While Causal Bayes' Networks are currently being used in intention prediction, all of the previous uses have been in very small and controlled environments. If successful, this could pave the way for more aggressive uses of CBNs in the field of artificial intelligence as it would potentially allow for an agent to adapt to novel stimuli based off of current data.

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