Amanda, an architecture for adaptive, autonomous searching guided by user behavior

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This thesis presents a research problem regarding the design of a system that will continually present a user with advice that are relevant to the task the user is pursuing during an interaction with a computer.

An answer to the research problem is presented through the specification and partial implementation of an agent based architecture called Amanda. Amanda collects traces left by user behavior in multiple location, transforms these into queries and uses the results from these queries to provide advice to the user. Amanda’s architecture is applicable to many kinds of user interaction, but the implementation is restricted to a case where the user is working on a task in a text editor, and documents are read through a web-browser.

The technical design uses elements from the theory of Information Retrieval and Adaptive Autonomous Agents, but combines them in a somewhat novel manner. Literature studies from a set of works in the fields of “Just In Time Information Retrieval”, search engines and message delivery are used both as sources for design elements used in Amanda, but also to test the architecture to see if the selected works can be implemented in or integrated with Amanda, and by and large they can. This indicates that the architecture is robust with regards to different types of searching, sources of user behavior and user interfaces. og brukergrenssnitt mot brukeren.

The partial implementation demonstrates that the parts of the architecture that was implemented were sound and able to deliver the specified behavior.

In the chapter describing future work, several avenues of work are explored both with regard to scaling in volume, and types of input/output presented to the system. It is indicated that using the architecture to present information to mobile users through their cellular phones might be an interesting direction.