

# HyperHistory

## A Better Browser History

HyperHistory is a Firefox extension that provides a context-oriented history representation and an adaptive personal recommendation system.

We present a combination of both existing and new ideas to solve urgent problems people have browsing the internet.

HyperHistory's goal is to mend the browser's shortcomings and add more useful ways to support hypertext navigation and information retrieval.



## Introducing Episodes

Episodes are clusters of pages that share a semantic context, based on links and their temporal proximity.



### BETTER ACCESS

Fast recognition of single pages and associated episodes.

### CONSISTENT BEHAVIOUR

Links are captured across browser tabs and windows.

### SEMANTICALLY AWARE

Relationships between pages are established based upon the user's actual path, resulting in episodes reflecting a user-created hypertext structure.

While the user is browsing, HyperHistory records each page and its referrer, thus the context is built by tracking the user's way through the web. The emerging structure is solely based on the user's actual path, as opposed to applications that only extract link structures from the documents regardless.

By using this user-constructed structure, we avoid problems stack-based history lists have.

In addition, capturing links across browser windows and tabs ensures the consistency of the episode - opening links in a new window does not disrupt the history's ability to aid the user. Parallel episodes are supported, e.g. when a user performs different tasks at the same time.

Episodes are the back-bone of the HyperHistory's adaptive history system, allowing other parts of the application to gain knowledge about how resources are semantically related.

## AutoBookmarks & Weight

AutoBookmarks adaptively predicts the user's most probable targets of revisitation, based on his previous browsing patterns.

### PAGE WEIGHT

Considers detailed and user-oriented factors (memory decay, visit duration). Page ranking resembles how the user remembers it.

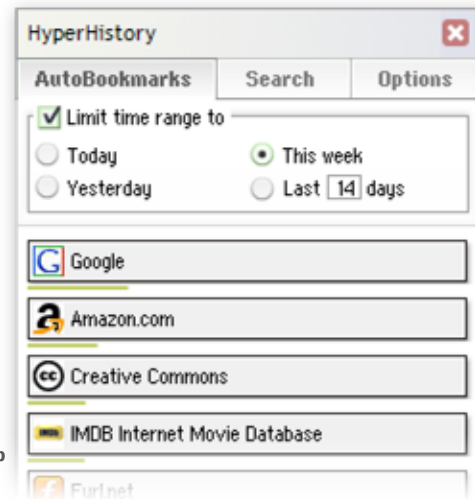
### REFLECTING THE USER'S PERSONAL FAVOURITES

Derives a page's subjective relevance to the user.

The page weight calculation is based on the factors visit date and visit frequency, duration of each visit, and the existence of user-added information such as dog-ears. As visits lose importance over time, a decay function approximating the forgetting curve is applied to each single visit to account for this decay of the level of activation of a memory.

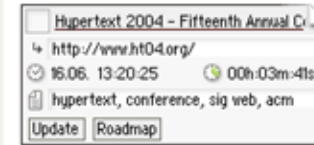
Through this approach, HyperHistory mimics the way the human brain handles information, and is able to present resource lists with a ranking that resembles how the user remembers it.

AutoBookmarks provide the user with a list of links he most likely wants to visit again, by using dynamic models of previous inputs to predict subsequent ones.



## Meta Information

Combining automatic meta gathering with manual emphasis lessens the effort the user has to put into maintaining a bookmark list to revisit.



Although HyperHistory automatically collects information about a page, it is beneficial to allow further classification.

To accommodate manual emphasizing, HyperHistory uses the metaphor of dog-earing as a way to easily flag pages as important.



The user can add additional information such as tags and clippings to the current page via the browser's context-menu.

## Compact View

Two variations on the linear history list create jump-pads for going back and forwards.

### RECENTY-BASED HISTORY LIST

The Recent History offers a more efficient episode-based recency list of related documents, circumventing consistency problems stack-based history lists often have. Its compact view provides shortcuts to recently visited pages, encouraging direct access.

### A PERSONAL ROADMAP

The personal roadmap recommends a selection of pages the current page refers to. Pages are ordered by weight to predict the most probable targets of revisitation, thus lessening the affordance to rediscover these pages, answering the user's question "Where did I go from here?"



## Future Work

HyperHistory attempts to mend the rift between the user's mental model and the context-less representation the browser's history provides.

The HyperHistory project is a building block for a number of different applications serving a multitude of needs.

Future work on the HyperHistory will focus on increasing the scope and quality of adaptiveness, and address topics such as

collaborative use of episodic information (rating a page's relevance and giving it meaning in task-oriented episodes), full text index, and thumbnails.

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