



Fig. 1: Web interface of Content Blaster

CONTENT BLASTER

GIVING PEOPLE STUFF THEY LIKE, ANYTIME, ANYWHERE

As of today, the web is suffering from an information overload, and people can't rely only on their filtering skills anymore.

The surge of user-generated content that happened with the Web 2.0 made clear that search engines were not enough and recommendation systems became popular.

Recommendations

Recommendation systems automate a natural process known as *word of mouth*, something people do all the time when suggesting a book or a movie to friends, just because they may like it. Just like everyone else, these systems *understand* what people like and help them find content of their interest, by recommending what other people with similar tastes or preferences have liked in the past.

These kinds of systems have grown increasingly popular, and are now featured in applications or services such as Amazon, Netflix, iTunes, Last.fm and StumbleUpon. But most of these systems have one common problem: people need to be sitting at their computers to use them.

At the same time, the market growth of internet capable devices such as smartphones and netbooks are evidence that people do not only use their computer to get online. However, they don't have a proper way to get recommendations on such devices they carry everywhere, so there's a chance to improve people's lives.

Contact

Rua Alfredo Allen 455
4200-135 Porto, Portugal

Phone +351 220 408 300
Fax +351 226 005 029
info@fraunhofer.pt
www.fraunhofer.pt

Project Details

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Technology

Content Blaster uses the Ruby on Rails framework, and a MySQL database. The recommendation algorithm was developed in Ruby but may be ported to any other language capable of connecting to a MySQL database.

Requirements

Users need a modern web browser to use Content Blaster on the web. Requirements for third-party clients depend on their specific features.

Content Blaster

Content Blaster tries to fill this gap, striving for recommendation ubiquity across devices and locations. Content Blaster is a platform, a recommendation system for webpages. Content Blaster is a web-based system but features an API, so that any device can take advantage of it, as long as it can get online.

On the computer, Content Blaster works with two simple buttons added to any modern browser's toolbar. With one of them, a user may mark any webpage as liked or disliked by himself. Using this feedback on visited webpages, the system learns users' preferences, creating a list of recommended webpages for each user. Pushing the other button, a user is redirected to a recommended webpage.

Algorithm

Content Blaster works by computing webpage similarity and recommending webpages similar to those the user has liked in the past. This similarity is calculated with an item-to-item heuristic for each pair of webpages, which takes users' ratings into account. It then uses those deviation values to create a list of webpages that a user has not rated yet, considering his average rating and the deviations between the pages he has rated and those which he has not yet.

Tagging

One problem with the aforementioned algorithm is that very few pairs of webpages were rated by a common user. This way, recommending recently added webpages will take time, and recent users will suffer with poor recommendations.

To overcome this problem, Content Blaster uses bots, intelligent agents acting as

pseudo-users in the system. Each one of these bots represents a tag, a keyword describing the webpage. If some webpage is tagged "music" and "video" the video and music agents will mark it as *liked*.

This way, pages with the same tag will have at least one common user, which leads to enhanced recommendations for new webpages or users.

Ubiquity

Content Blaster supports third party applications with a simple REST API available both in XML and JSON formats. This API provides two endpoints corresponding to the two buttons on the browser. Users need to provide their API Key to third-party clients, but other authentication methods such as OAuth may be developed in the future.

Innovations

What Content Blaster is doing differently is the way it is conceived as a platform for ubiquitous recommendations instead of a normal web application. With its API, recommendations can now be anywhere, be it on a smartphone, a set-top-box, a flat panel display on a waiting room or any other internet capable device, adapting recommendations to a modern lifestyle, with people having many devices used in multiple locations for different purposes.

One of the other innovations of Content Blaster is the way it takes advantage of the popularity of tagging in Web 2.0 websites and platforms. Content Blaster fetches its tags from other websites such as Delicious or StumbleUpon to describe its webpages even without any input from its users. This way, Content Blaster can reuse the knowledge that people have put on the web, improving recommendations for those same people.