ADFILTER

A Firefox plugin to block embarrassing ads
About AdFilter

- AdFilter is a browser plugin which blocks embarrassing image ads belonging to the following categories- dating ads, matrimony ads, nightwear ads, adult site ads.

- The plugin is a modified version of the widely popular Adblock Plus tool (https://adblockplus.org).

- Currently, it is available for Firefox browser and blocks embarrassing image ads only.
Motivation

- Current blocking tools like Ad-block Plus (ABP) block all ads
  - Disadvantage to advertisers, publishers, users.

- People report to be using ABP with the motivation for blocking annoying and embarrassing ads.

- Web-users in India have reported serious concerns regarding the issue of being shown inappropriate online ads.
Bell Labs, India conducted in-depth interview with 57 web users in India in February, 2013 to understand their perceptions of online ads.
Questionnaire

- Gauged users’ overall perception of ads and sensitivity of ad-content
  - View ads? Click on ads?
  - Experienced any embarrassing ad?
  - What kind of ads do they find sensitive?
  - On what kind of websites have they observed such ads?
  - Are these ads more embarrassing at work than at home?
Questionnaire

- Asked them on their requirements of ad-blocking tools.
  - Aware of Ad-block plus (ABP) or any other ad blocking tool?
  - Would they like to use ad blocking software? Why or why not?
# Demographics

<table>
<thead>
<tr>
<th></th>
<th>Females</th>
<th>Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>29</td>
<td>28</td>
</tr>
<tr>
<td>Avg. no. of hours spent online per day</td>
<td>3.2 hours</td>
<td>3.5 hours</td>
</tr>
<tr>
<td>Notices ads</td>
<td>89%</td>
<td>55%</td>
</tr>
<tr>
<td>Click on ads</td>
<td>67%</td>
<td>37%</td>
</tr>
<tr>
<td>Purchased from an ad</td>
<td>17%</td>
<td>11%</td>
</tr>
</tbody>
</table>
Concerns about Embarrassing Ads

- Majority of the participants (42/57, i.e. 74%) had experienced embarrassing/sensitive ads.

- Defined embarrassing ads as graphic ads that either contain sexually explicit content, dating and matrimony ads or else a display of swimwear.
Examples of Embarrassing ads

**DATING ADS**

**MATRIMONY ADS**
Embarrassment via social context

- Majority reported instances in which the embarrassment was caused by being in the vicinity of other people.
Type of website on which embarrassing ads were seen.

- 56% Seen on Normal sites
- 32% Seen on torrents/suspicious sites
- 12% Don't remember the website
Perceptions regarding Ad-Block Plus

- Majority (62%) expressed an interest in using a tool like Ad-block Plus but with a feature which also allows selective blocking of ads.

- 2 participants were explicit in stating that their main motivation to use the tool was to eliminate embarrassing ads.

- Some wanted to use it only in some situations (e.g., only at work) but not others.
A modified version of the Ad-block plus tool blocking only embarrassing ads.
Creating our own filter list

- The first step was to create a filter list to block ads belonging to the following categories:
  - Dating
  - Matrimony
  - Nightwear
  - Adult sites

- Referred to alexa.com, ranker.com and other websites on the web to create a comprehensive lists of such websites.
ABP blocks an ad without looking at the content of the ad.

Modification required to block the ad based on its category.

Used the filter list created to identify such ads.
How does ABP work?

- ABP intercepts the HTTP requests being sent to the server by the browser.

- It matches the source address of the HTTP request to a list of filters to decide if it should be blocked or not.
How does ABP work?

1) HTTP Request to http://adscontent2.indiatimes.com/photo/19031.cms to load the image
How does ABP work?

2) ABP checks if
http://adscontent2.indiatimes.com/photo/19031.cms
matches the list of filters.
How does ABP work?

3) ABP blocks the request if a match occurs
Modifications done to ABP code

- For image ads, added a module to fetch the landing (final) page of the ad using XMLHttpRequest API.

- Allowed iframes to load.

- Performed a matching on the landing page of the ad using the filter list created.
Flat Rs 600 Off on Flight

goibibo.com/Cheap-Flight-Tickets -
Use Code:"gorc" & Get Rs 600 Off.

Ad by Google

2G: DMK ready with dissent note to drag DMK
Mukesh Ambani to get 'Z' security
'Jobless growth' during UPA-1, admits PM
Google celebrates Earth Day with a doodle
Afghan Taliban hold 9 after helicopter crash
Digvijaya questions dual leadership
All military farms to shut shop by 2017
India's milk pouch model appeals to Europe
8 years on, toxic French breast implants still mix
Terror groups luring tech-savvy youth
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Ads by Google
How does Ad-Filter work?

1) HTTP Request to
   http://adscontent2.indiatimes.com/photo/19031.cms
to load the image
How does Ad-Filter work?

2) ABP checks if the request is to load an image. If yes, sends a HTTP Request to http://adscontent2.indiatimes.com/photo/19031.cms to fetch the landing page of the ad.
How does Ad-Filter work?

3) HTTP Response from the server containing the final URL in the response header.

HTTP/1.1 302 Moved Temporarily
Date: Wed, 30 May 2012 04:58:22 GMT
Server: Apache-Coyote/1.1
Content-Type: text/html; charset=ISO-8859-1

Server- indiatimes.com
How does Ad-Filter work?

4) ABP fetches the final URL from Location field in the response header and matches with the list of filters.
How does Ad-Filter work?

5) ABP doesn’t block the request if no match occurs

Server- indiatimes.com
How does Ad-Filter work?

6) HTTP Response from the server to load the image.
Results
Features of the tool

- Allows blocking sensitive image ads.
- Prevents tracking of user’s online behavior on sensitive sites by setting a Do-Not-Tracker field in HTTP request header.
- Allows users to disable/enable the tool according to their needs.
- Allows users to block an ad which is not already present in the list by adding it to the list.
Limitations of the tool

- The tool only blocks image ads. It does not work for flash and text ads.

- The tool contains a predefined list of URLs. There still could be some embarrassing ads which may not be included in the list.
  
  - In such a case, the user will have to manually add that filter to the list using the tool.
Future Work

- Extend the category list to a wider range of topics which also include sensitive categories like health, religion etc.

- Plan to give topical preferences to the users where they can choose the categories from a list for which they want ads to be blocked.

- Use clustering algorithm to block ads based on topics instead of a filter list.
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References


http://cups.cs.cmu.edu/soups/2013/proceedings/a8_Agarwal.pdf


