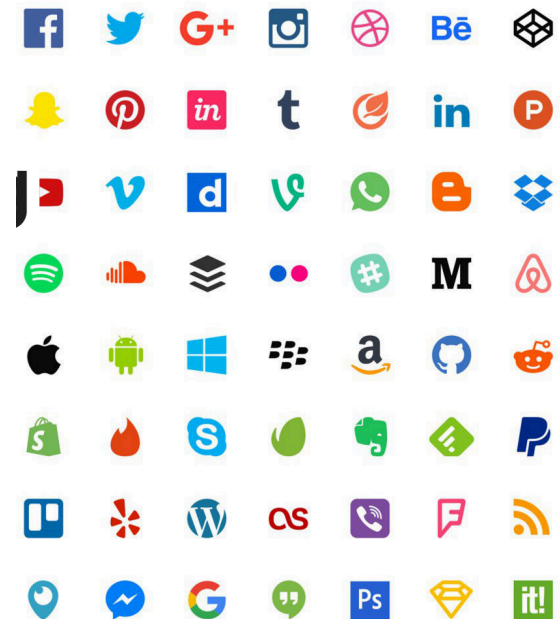

WTP: Web-Tracking Plugin for Real-time Automatic AOI Annotations

Duc Nguyen
Hana Vrzakova
Roman Bednarik

presented by
Ana Gebejes



Eye-tracking on web sites is...

- Challenging
- Time consuming
- Tiresome
- Exponentially difficult with number of web-pages

The image shows a Google search interface for the query "presidential candidates". The search results are annotated with eye-tracking data, represented by red and blue lines and circles. The annotations highlight specific elements of the search results, such as titles, URLs, and snippets, indicating where users spent time or moved their gaze. The search results include:

- 2016 Presidential Candidates (Presidency 2016) - Politics1**
www.politics1.com/p2016.htm | Kaanna tämä sivu
List of potential presidential candidates, grouped by political party, with links to their websites and social media networks
Election Calendar · Political Parties · The Presidency
- Your guide to the 2016 presidential candidates | Washington Examiner**
www.washingtonexaminer.com/presidential-candidates/256495 | Kaanna tämä sivu
As the fight to win the 2016 presidential election heats up, here is a guide to who may be the next president of the United States: Presumptive Republican ...
- United States presidential election, 2016 - Wikipedia, the free ...**
https://en.wikipedia.org/United_States_presidential_election_2016 | Kaanna tämä sivu
Siirry kohtaan **Withdrawn candidates** - Presidential candidates in 2012. Suspended campaign on February 3, 2016, and endorsed Marco Rubio.
Republican Party presidential ... · Bernie Sanders - Democratic Party presidential ...
- 2016 Presidential Candidates: Fact and Comparison**
presidential-candidates.insider.com | Kaanna tämä sivu
Compare all candidates in the 2016 presidential election on campaign finance, polling, key issues such as immigration, jobs, and gun control, and more
- Presidential candidates, 2016 - Ballotpedia**
https://ballotpedia.org/Presidential_candidates_2016 | Kaanna tämä sivu
The following candidates are running for the Democratic, Republican, Libertarian or Green Party ...

Current status of AOI tagging

1. Pick a shape of AOI
2. Draw a bounding box
3. Name the AOI
4. Add it to the group of AOIs

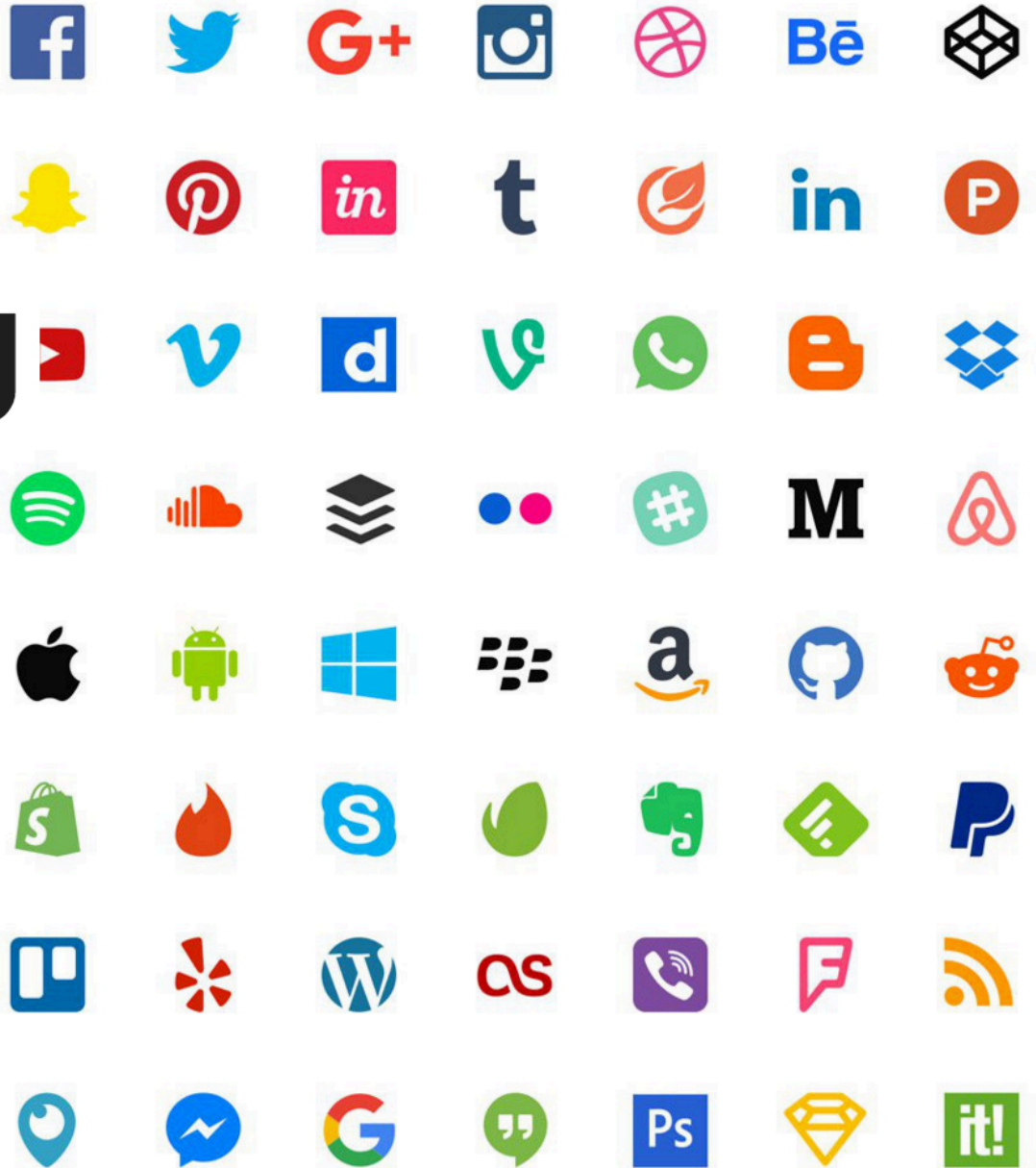


<http://www.tobiipro.com/learn-and-support/learn/steps-in-an-eye-tracking-study/data/digging-into-areas-of-interest/>

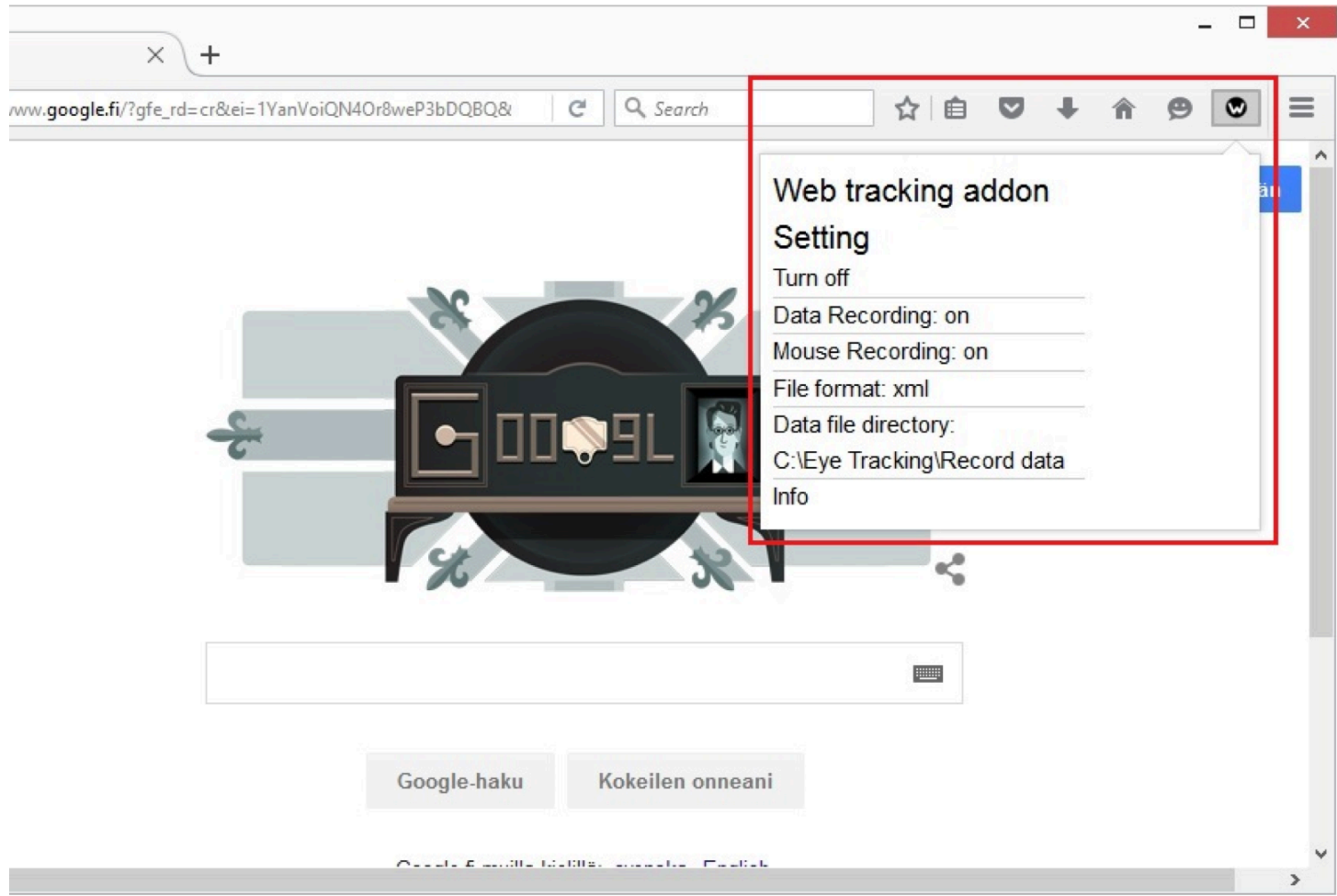
5. Repeat if the stimulus changed the size or position

DUC
NGUYEN

Web Tracking Plugin (WTP)



WTP in the web-browser



WTP: Plugin architecture



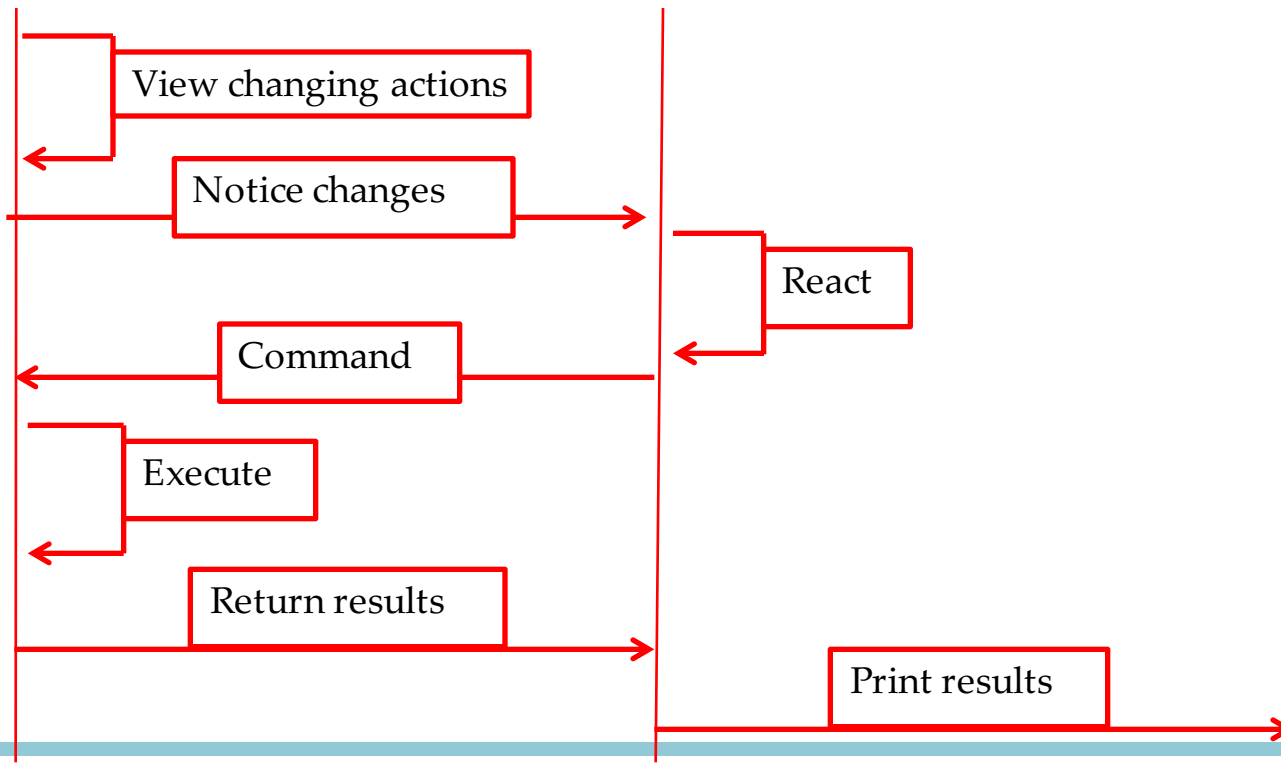
Webpage



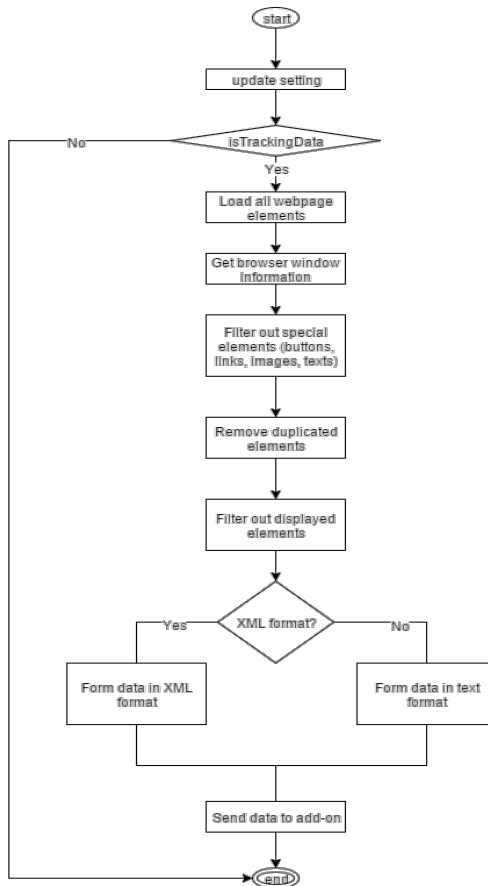
Plug-in



Output folder



Extraction of webpage elements



- DOM-based model
- Elements recognition
 - buttons
 - images
 - texts
 - links
- Easily extendable

Output: record_data_extended.xml



mouse_data.txt

record_data.xml

record_data_extended.xml

```
<recordData id="2016-1-26 18:53:7.740"  
domain="https://www.google.com" scrollX="0"  
scrollY="0">>  
<event time="2016-1-21 17:36:21.636"  
side="Left" type="click" x="275"  
y="340"></event>  
<element id="link661193424" type="link"  
clickable="true" visible="true" width="34"  
height="24" documentX="661" documentY="19"  
browserX="653" browserY="19" screenX="768"  
screenY="201"></element>  
<element ...></element>  
<element ...></element>  
</recordData>  
...  
<recordData id="2016-1-26 18:53:7.740"  
domain="https://www.google.com" scrollX="0"  
scrollY="0">  
...  
</recordData>  
<recordData id="2016-1-26 22:11:33.734"  
domain="https://www.google.com" scrollX="0"  
scrollY="250">  
...  
</recordData>
```


Case study: Daily clicking

Task	Description	Goal
Summarization of website	Participants visit 3 pre-assigned randomly shuffled websites and write summary about them	Reading and skimming behavior
Search for specific information	Participants were about to answer a simple fact question (for example, Name the current wives of members of "New Kids on the Block" band (skip if divorced)) and they were allowed to use search strategy of their choice.	Search behavior
Quiz	Participants were asked to choose 2 quizzes from a quiz database available online and go through the quiz	Decision making and search
Shopping	Participants do 1 shopping task on Amazon and 1 vacation planning task	Search, decision making, multiple data comparison, purchase behavior
Free browsing	Participants engage in 10 minutes of anonymous browsing	Self-driven browsing

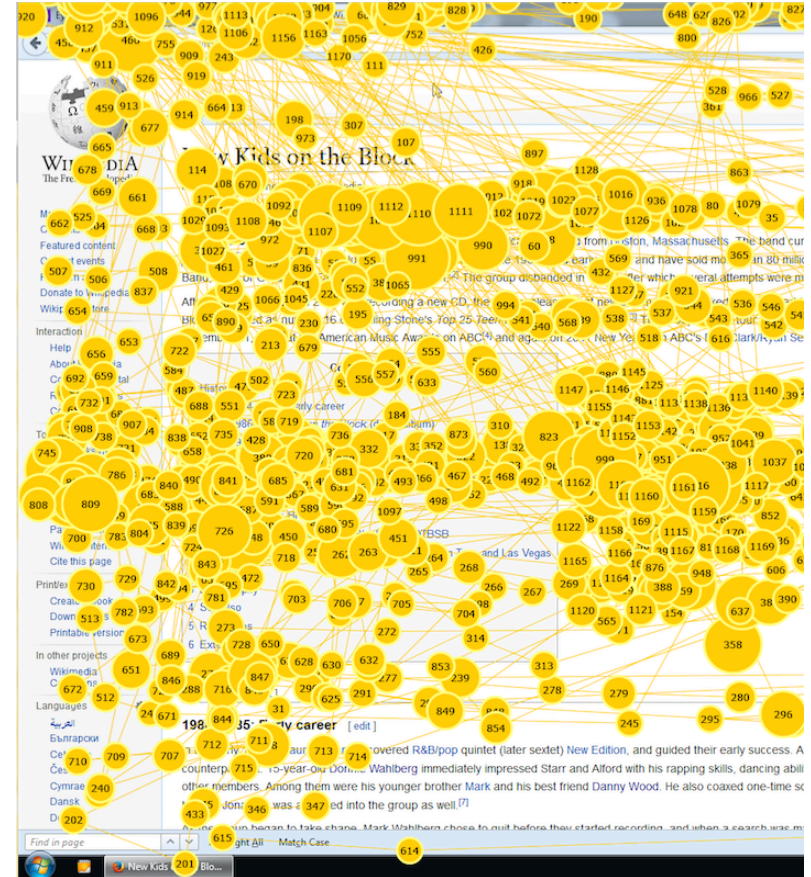
Task 1: Summarization of a website

- Visit 3 web-pages
- Write a short summary about them in the online answer form.



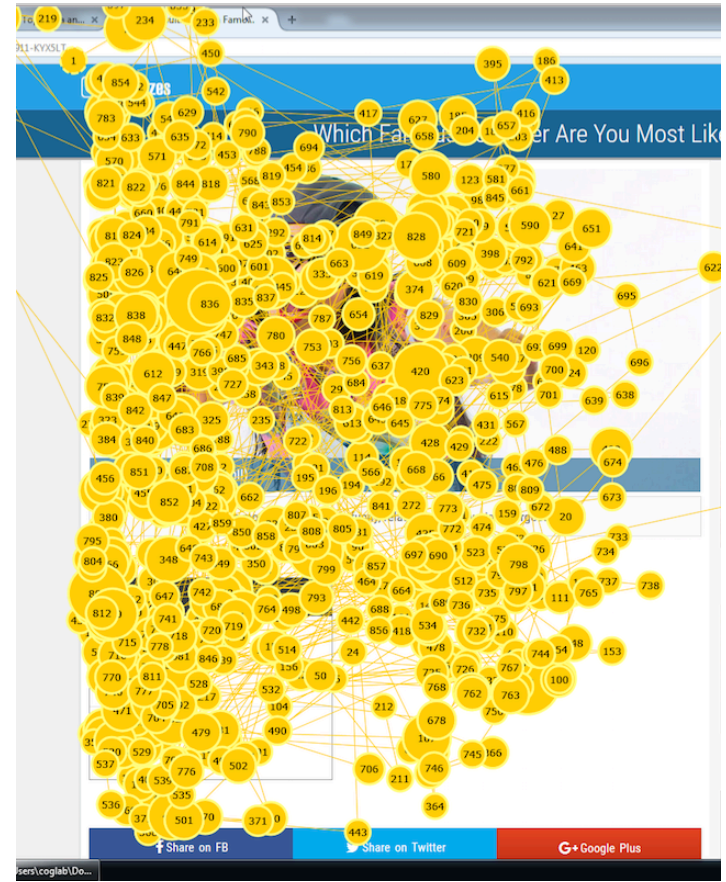
Task 2: Web search

- Answer simple questions - search for correct answers if necessary.
- For example, name the current wives of members of the band “New Kids on the Block”



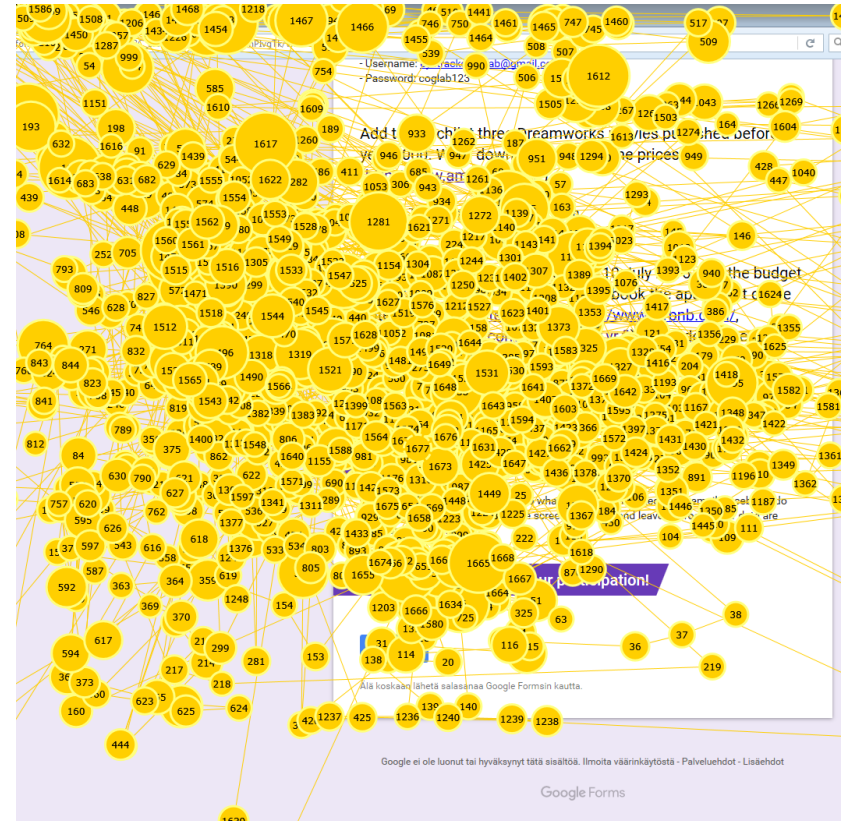
Task 3: Quiz

- Choose 2 quizzes from the quiz database, and go through the quiz.



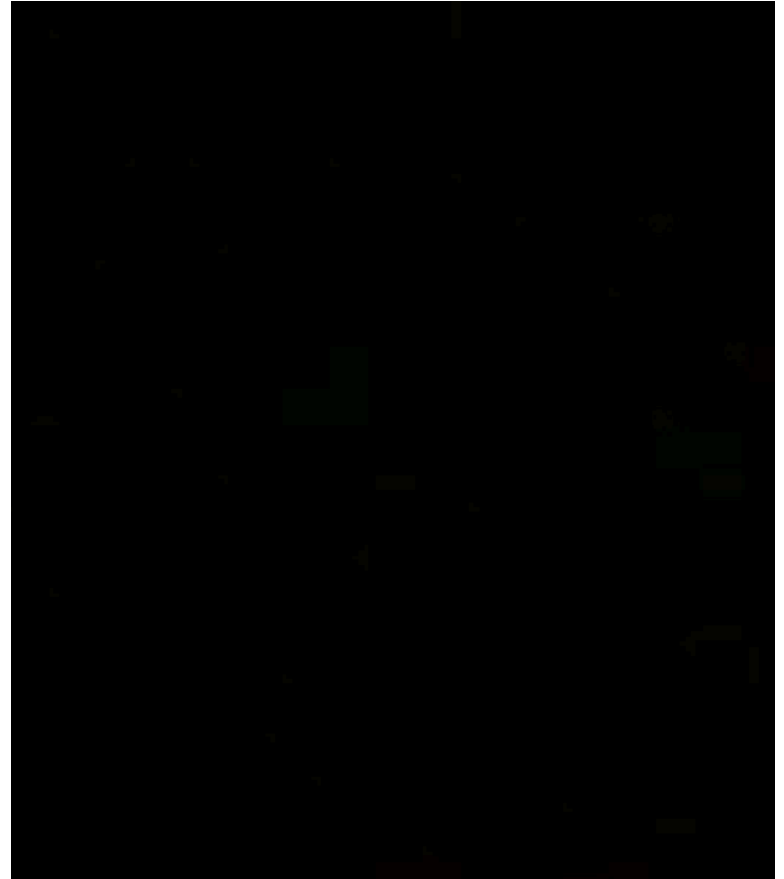
Task 4: Shopping

- Do shopping with a given budget
- Arrange a vacation under a given budget



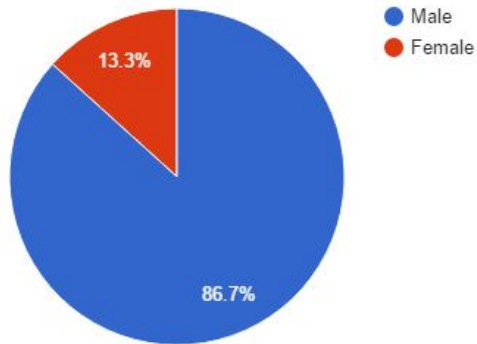
Task 5: Free-browsing

- You have 10 minutes to do whatever you want
- We will turn-off the screen recording, your personal search stays private.

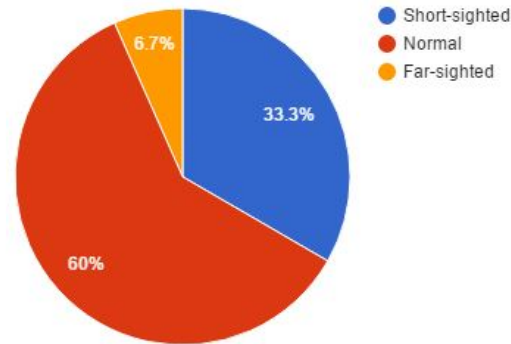


Participants and Dataset

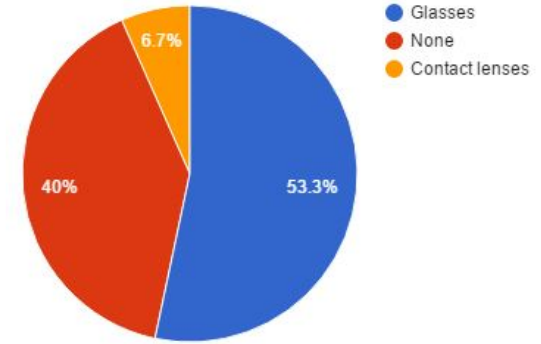
Gender



Eye Condition



Eye adjustment tool



- 13 hours of recording, 337 opened domains, 691260 detected AOIs, 8150 clicks, 105561 detected fixations

	button		link		image		text		All recorded fixations
	fixations	clicks	fixations	clicks	fixations	clicks	fixations	clicks	
Free browsing	763	86	3535	151	3415	55	5973	179	23419
Search	198	6	2844	204	1296	34	7272	309	27444
Quiz	2926	289	792	181	3329	110	2350	90	8502
Shopping	857	110	3988	271	2527	99	8013	392	34070
Summarization	1150	73	1884	122	2932	57	3196	91	12126

Summary

- WTP plugin available for [DOWNLOAD](#):

<http://ducnq301.wixsite.com/webtrackingplugin>

<http://bit.ly/2bK7YHY>

- Dataset is available - [CONTACT US!](#)