TECHNISCHE UNIVERSITÄT DRESDEN

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CrowdFilter

Client-side Filtering of Web Content

Großer Beleg // Dresden, 19th June, 2018

The Problem

- Websites and platforms host user-generated content
- Content needs to be regulated
  - Regional laws, illegal content, copyright claims
  - Community rules, discussion moderation
- Users might leave if community is unmoderated
- States pressure companies to act:
  fines (NetzDG), hosting illegal content is legal risk
- Content regulation gets outsourced to third-parties and algorithms

Current consequence

No regulation-control mechanism. Premature deletion of content.

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- Content should not be deleted by the platforms → client-side „overlay“
- Needs tools to classify, detect and handle content inside the browser

CrowdFilter

Creating classifications for text.

1. Platform independent, no implementations on web servers needed
2. Balanced data flows, crowdsourced input, no false positives
3. No central authority, client-side options empower users

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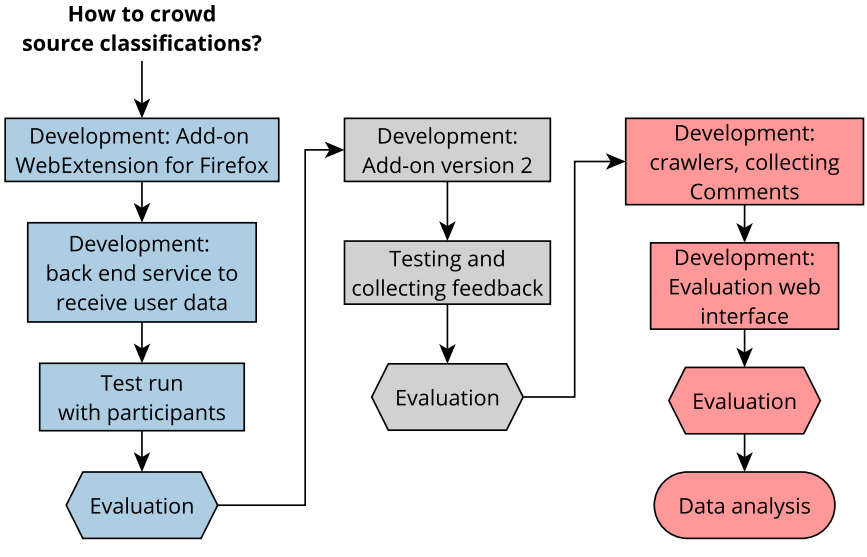

Figure 1: Project development iterations

Version 1: Button for specific sites

- Websites use DOM elements for content: paragraphs, forum board posts, Tweets
- Idea: inject a button into these elements with a list of classifications → clicking on a classification sends it to the back end server
- Three platforms for testing:
  Github, Twitter and Heise Forums

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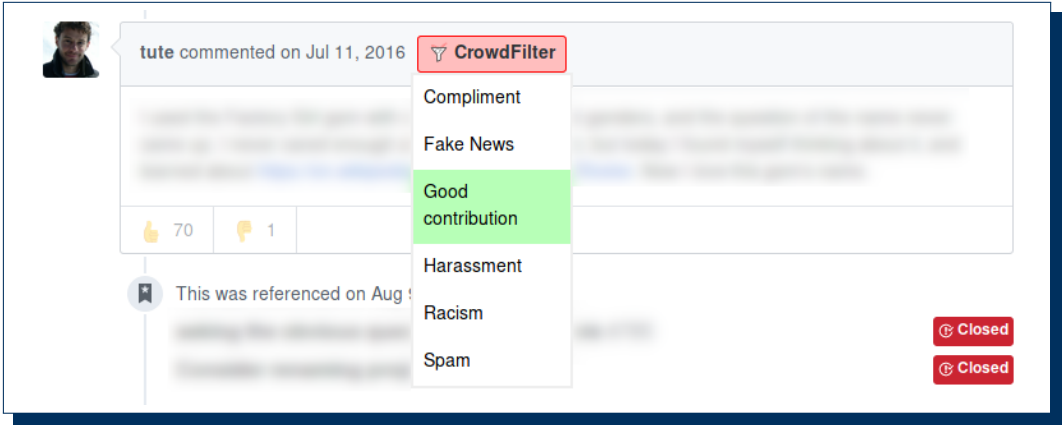

Figure 2: Add-on version 1 on github.com

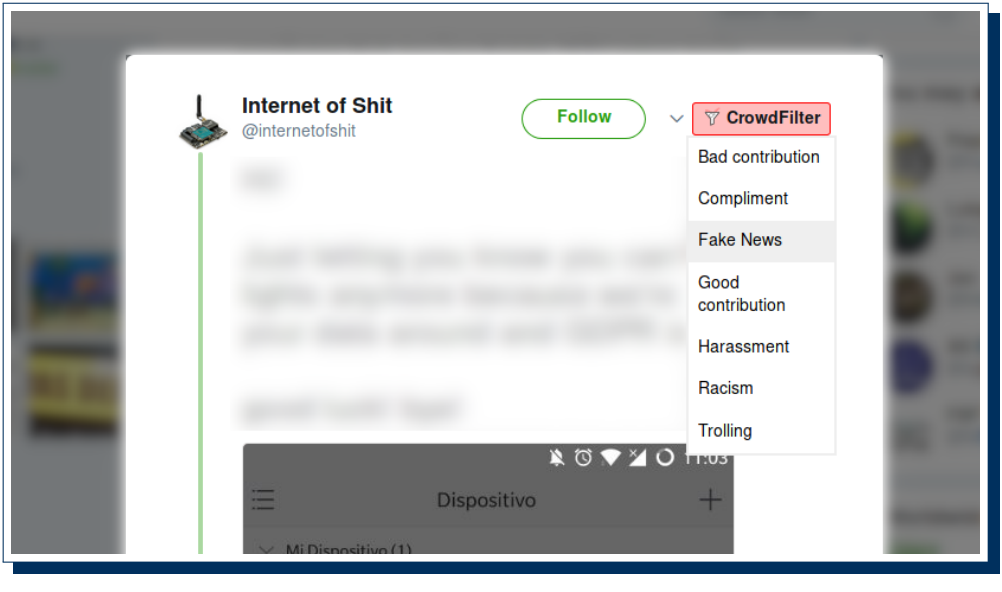

Figure 3: Add-on version 1 on twitter.com

Evaluation add-on version 1

1. DOM elements known: meta data can be extracted
2. Drop down classifications list visible in view
3. Needs script for each website the add-on is used on
4. Updates necessary if website changes layout
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- The WebExtension API offers handling of text selection and the context menu
- Implementation: list of classifications as context menu
- Introduction with a video appeared after add-on installation

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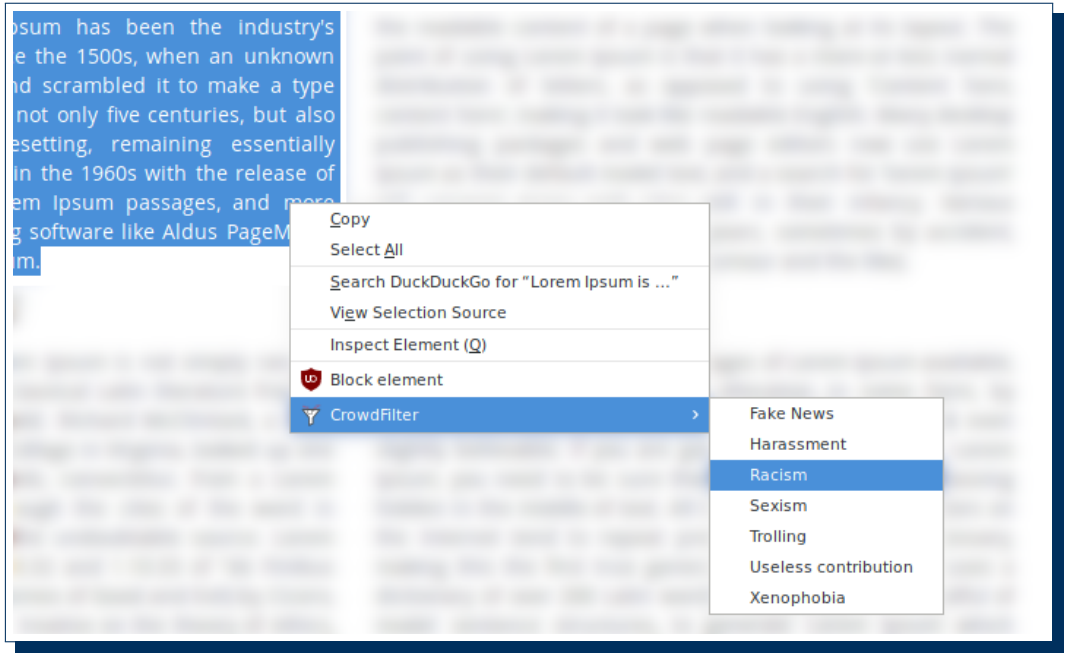

Figure 4: Add-on version 2 with generic text selection

Evaluation add-on version 2

1. Works on every website by default
2. No visual injections, easy to use
3. Does not ask for any permissions during installation

4. Usage might not be clear without introduction
5. Only collects the selected text, no meta data except URL → nearly no context

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The back end: Collector

- Written in Python (Flask, PostgreSQL), hosted at TUD
- Offered a HTTPS and Tor Hidden Service endpoint
- Display of live data during the collection phase

Conclusion

- Implementation dependent on many diverse users
- Incentives for participation key feature
- Both versions have their pros and cons
- Regarding push back: starting with empty database makes generation of first results difficult

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- But the participation showed weaknesses of this approach
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The aim remains

Finding an applicable way to populate a database with classified text content.

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- Sources for text content: Reddit */r/The_Donald*, */r/funny* and */r/worldnews* and the 4chan */pol/* board.
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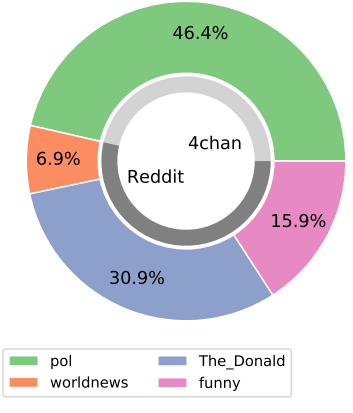
Crawled Comments sources



Source	Comments	Share
4chan /pol/	105.427	46,4%
Reddit	121.707	53,6%
▷ funny	36.008	(15,9%)
▷ the_donald	70.074	(30,9%)
▷ worldnews	15.625	(6,9%)
Total	227.134	

Figure 5: Shares of Comment sources from Reddit and 4chan

Web interface for crowd-source evaluations

- Based on the collected Comments pool
- Cleans up Comment text
- Presents the user with Sampleset with 10 Comments:
  3 from 4chan, 4 from Reddit and 3 recycled
- Identification with 4-digit PIN, reusable to continue evaluating

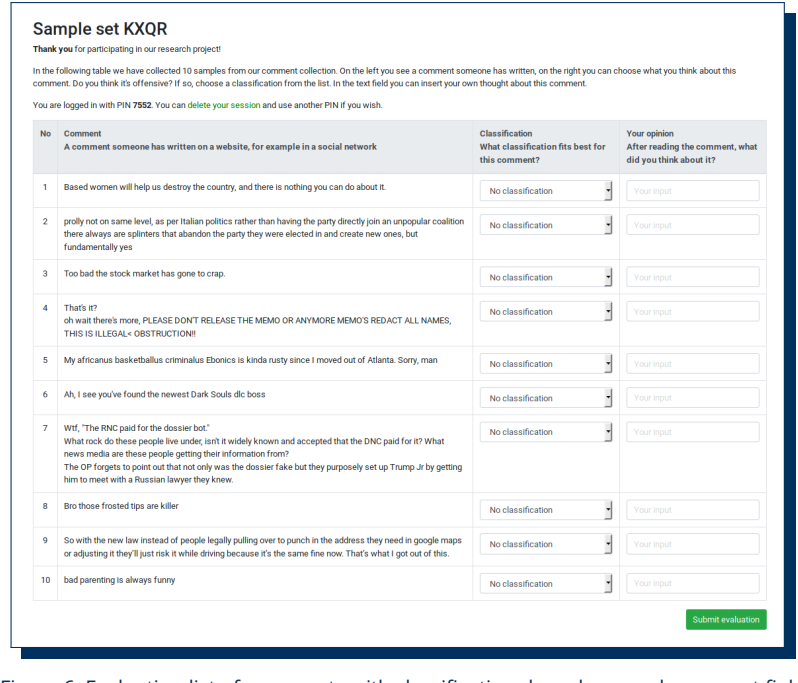


Figure 6: Evaluation list of comments with classification drop down and comment field

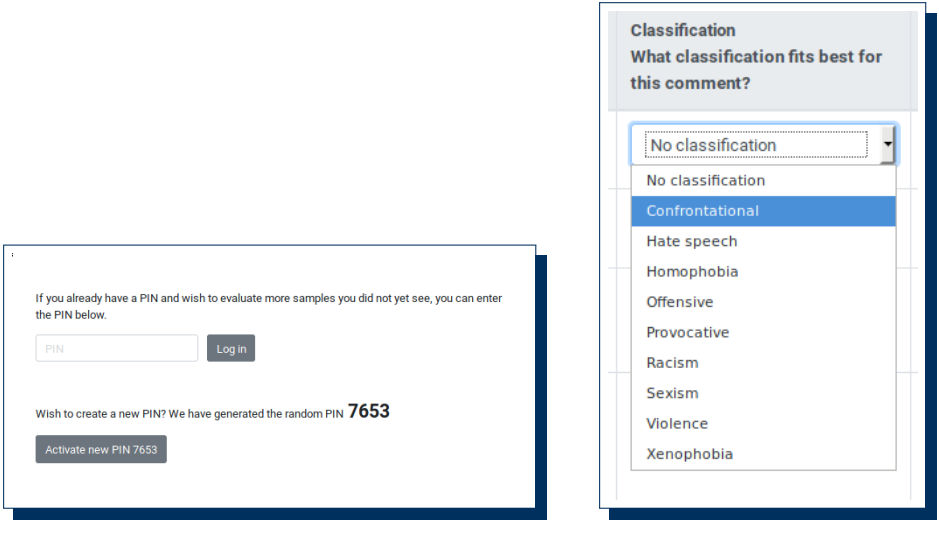


Figure 7: Screenshots of (a) the PIN login form and (b) the classification drop down

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- Tool seems more approachable, resulting in more Classifications than in iteration 1 and 2
- Feedback received from participants
  1. Interface is simple enough to be understood instantly
  2. Automated loading of new comments encourages continuing
  3. Classification without context difficult (irony, satire)
  4. Using labels without explanation unclear
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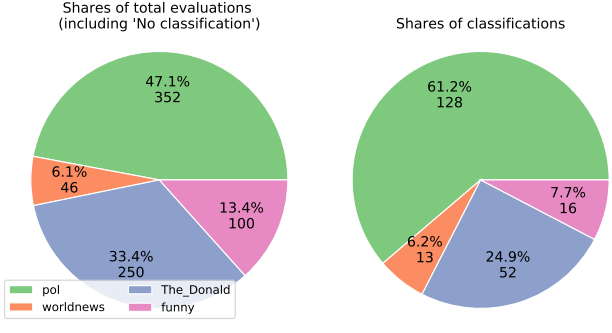

Figure 8: Classification usage shares by comment source

Usage of labels in Classifications

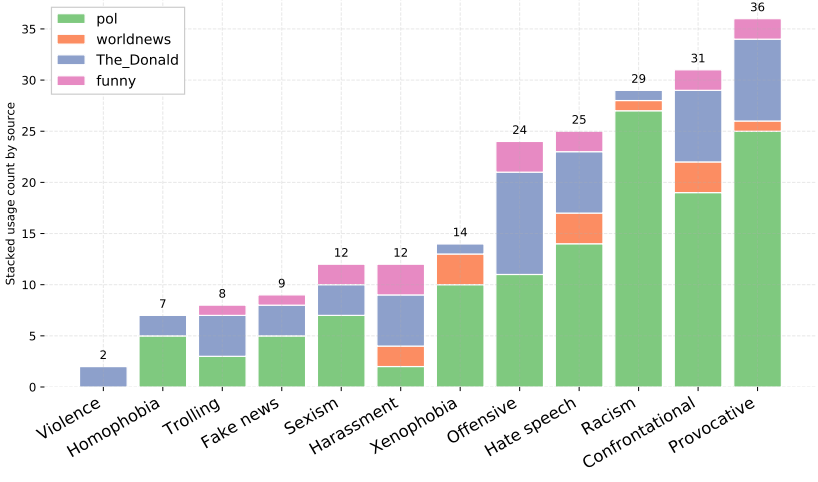

Figure 9: Classification label usages

Looking at meta data

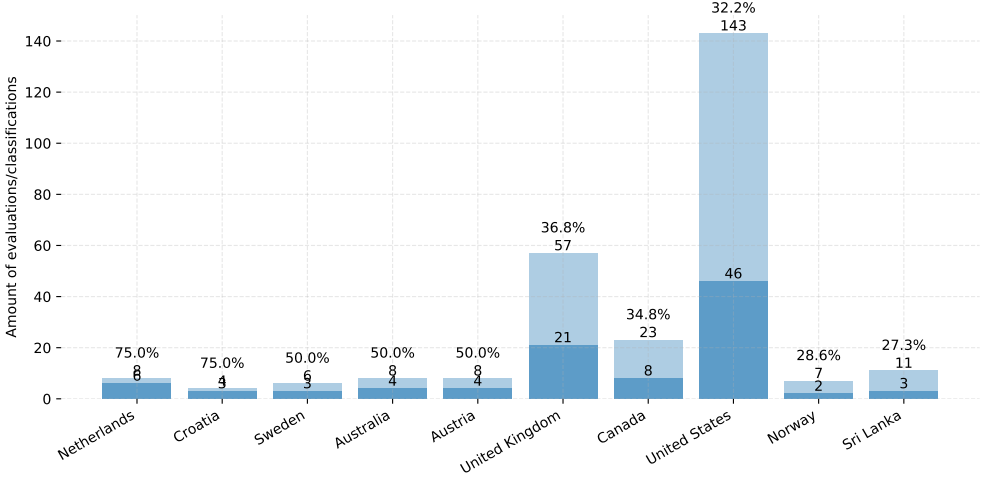

Figure 10: Percentage of Evaluations versus Classifications on 4chan /pol/ by country meta tag

Deciding on a list of non-binary labels

1. What labels should be used?
2. Should positive labels be included as well?
3. If labels are more generic than others, should they be visualised in a hierarchical structure?
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Related projects

- Add-ons against Fake News:
  FiB (Princeton 2016), Open Mind (Yale 2017)
- Social Bots: „Social Bots, Fake News und Filterblasen“ (Michael Kreil, 34C3)
- Platforms: Twitter and Facebook roll out UI features for reporting bad content (2017/2018)
- Hate speech: real time analysis of Tweets (Antwerp and Hildesheim, 2018)
- Hiding instead of deletion: Github rolls out „minimized comments“ (2018)

Sources, references and additional information

These slides and the associated report with further references will be published on my website `https://dpataky.eu` and can be used under the CC BY-SA 4.0 license.