

Digital Methods SOSGEO2920

SCHEDULE AND SYLLABUS

1) Introduction (Bjørn and Manjana) - *Nb! 4 hour lecture*

The lecture introduces the basic ideas and goals of the course and the semester plan. It introduces the new field of digital methods and discusses how it diverges from conventional (qualitative and quantitative) methods. It also introduces a number of foundational concepts for the course:

- online versus offline groundedness
- natively (or 'born') digital traces versus the 'digitized'
- digital methods versus 'netnography' (offline collection of online data)
- digital methods versus internet based (virtual) methods (or online collection of offline data)
- media research versus internet research versus social research

The lecture also presents some basic digital query services and web-based means for text analysis, such as the Google Word Cloud Generator, Google N-gram and the N-gram search application for books and journals in the national library. The lecture provides an introduction to Gephi, a network analysis and visualisation tool, and some basic network analytic concepts.

Short Twitter brainstorm: Then the class brainstorms regarding possible themes for a Twitter analysis. These themes will be used as queries in the TCAT tool to start building a database of tweets collected during the semester (see lecture 4).

Finally, the instructors will assign the students to study groups, which will remain stable for the whole semester.

Tools:

- Google N-gram: <https://books.google.com/ngrams>
- Google Word Cloud Generator:
https://workspace.google.com/marketplace/app/word_cloud_generator/360115564222
- NB-N-gram: https://www.nb.no/sp_tjenester/beta/ngram_1/
- Voyant tools: <https://voyant-tools.org/>
- Gephi: <https://gephi.org/users/install/>

Videos:

- Gephi: <https://www.youtube.com/watch?v=371n3Ye9vVo&t=680s>
- <https://www.youtube.com/watch?v=SfneKHgEHNI&t=269s>

Readings:

- Rogers, preface (pp xi-xviii) and chapters 1, 2 (pp. 3-39)
- Marres, chapter 1, What is digital sociology? (pp. 7-44)
- @Perriam, Jessamy; Birnbak, Andreas and Freeman, Andy (2019) Digital methods in a post-API environment, *International Journal of Social Research Methodology*, 23(3): 277-290. <https://www.tandfonline-com.ezproxy.uio.no/doi/full/10.1080/13645579.2019.1682840>
- @Eslami, Motahhare; Rickman, Aimee; Vaccaro, Kristen; Aleyasen, Amirhossein; Vuong, Andy; Karahalios, Karrie; Hamilton, Kevin and Sandvig, Christian (2015) 'I always assumed that I wasn't really that close to [her]': Reasoning about Invisible Algorithms in News Feeds, CHI 2015 (Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems): 153-162. <https://dl-acm-org.ezproxy.uio.no/doi/pdf/10.1145/2702123.2702556>

Non-obligatory reading:

- @Gillespie, Tarleton (2010) The politics of 'platforms', *New Media & Society*, 12(3): 347–364. <https://journals-sagepub-com.ezproxy.uio.no/doi/10.1177/1461444809342738>
- @Grusin, Richard (2015) Radical Mediation, *Critical Inquiry*, 42(1): 124-148. https://www-jstor-org.ezproxy.uio.no/stable/10.1086/682998?seq=1#metadata_info_tab_contents

2) From the info-net to the social net: Mapping issue spaces (Manjana)

The Internet has undergone a number of 'evolutionary steps', changing from a 'hyperspace' of connected websites to a space increasingly dominated by social media platforms. Looking at the early and continuous features of the Internet as a space in which actors present themselves on websites and connect with each other using hyperlinks, we explore ways to identify and map actor networks around specific issues. We practice building URL lists using the associative snowballing technique, and we use two tools - Hyphe and the Lippmannian Device - to study networks of websites and their content. This sets the foundations for a number of research approaches, including controversy analysis and historical issue tracing.

Tools:

- Google search engine <https://www.google.no>
- Hyphe, <https://hyphe.medialab.sciences-po.fr/>
- The Lippmannian Device, <https://tools.digitalmethods.net/beta/lippmannianDevice/>

Readings:

- Rogers, chapter 3 (pp. 43-57)
- @Ooghe-Tabanou, B., Jacomy, M., Girard, P., & Plique, G. (2018, October). Hyperlink is not dead!. In *Proceedings of the 2nd International Conference on Web Studies* (pp. 12-18). <https://dl.acm.org/doi/abs/10.1145/3240431.3240434>
- @Munk, A. (2014). Mapping wind energy controversies online: introduction to methods and datasets. Available at SSRN 2595287. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2595287

Non-obligatory reading

- @Rogers, R., & Marres, N. (2000). Landscaping climate change: A mapping technique for understanding science and technology debates on the World Wide Web. *Public Understanding of Science*, 9(2), 141. <https://journals-sagepub-com.ezproxy.uio.no/doi/10.1088/0963-6625/9/2/304>
- @Rogers R. Mapping and the Politics of Web Space. *Theory, Culture & Society*. 2012;29(4-5):193-219. doi:[10.1177/0263276412450926](https://doi.org/10.1177/0263276412450926), <https://journals.sagepub.com/doi/10.1177/0263276412450926>

3) Wikipedia and Web Histories (Manjana)

In this session, we use Wikipedia to explore what kinds of research questions can be answered using a historical approach. We will identify digital traces of Wikipedia pages, explore how Wikipedia can be used to identify and trace over time important actors and topics related to an issue/controversy, and analyze a page history. Using the Internet Archive's Wayback Machine, we demonstrate how the historical approach can illuminate social changes over time (e.g., of institutions, organizations or the media) and the evolution of the web itself.

Tools:

- Seealsology, <https://densitydesign.github.io/strumentalia-seealsology/>
- Wikipedia page statistics
- Google Trends
- Wikipedia TOC Scraper, <https://tools.digitalmethods.net/beta/wikitoc/>, example: <https://tools.digitalmethods.net/beta/wikitoc/?jobid=6139d537a8a2b&json=result&view=renderHtmlResults>
- Internet Archive - Wayback Machine (Link Ripper), <https://tools.digitalmethods.net/beta/internetArchiveWaybackMachineLinkRipper/>
- Screenshot Generator, <https://tools.digitalmethods.net/beta/screenshotGenerator>

Videos:

- Jon Udell (2005), 'Heavy Metal Umlaut', <https://jonudell.net/udell/gems/umlaut/umlaut.html> ;
- Digital Methods Initiative, "Analyzing Wikipedia articles through the back-end" <https://www.youtube.com/watch?v=tY7E8sXCAWw>

Readings:

- Rogers, chapters 5 (pp. 87-106) and 7 (pp. 135-152)
- @Arora, S. K., Li, Y., Youtie, J., & Shapira, P. (2016). Using the wayback machine to mine websites in the social sciences: a methodological resource. *Journal of the Association for Information Science and Technology*, 67(8), 1904-1915. <https://asistdl-onlinelibrary-wiley-com.ezproxy.uio.no/doi/full/10.1002/asi.23503>
- @Harris, Beis, Shreffler. (2021). "The Internet Archive has been fighting for 25 years to keep what's on the web from disappearing - and you can help", *The Conversation*, August 13, 2021 <https://theconversation.com/the-internet-archive-has-been-fighting-for-25-years-to-keep-whats-on-the-web-from-disappearing-and-you-can-help-163867>
- @Moats, D. (2019). Following the Fukushima Disaster on (and against) Wikipedia: A Methodological Note about STS Research and Online Platforms. *Science, Technology, & Human Values*, 44(6), 938-964. <https://journals-sagepub-com.ezproxy.uio.no/doi/10.1177/0162243918815234>

Non-obligatory reading:

- @Brügger, N. (2012). When the present web is later the past: Web historiography, digital history, and internet studies. *Historical Social Research/Historische Sozialforschung*, 102-117. https://www-istor-org.ezproxy.uio.no/stable/41756477?seq=1#metadata_info_tab_contents
- @Rogers, Richard (2013) "The Website as Archived Object", in *Digital Methods*. Cambridge (MA) and London: The MIT press, pp. 61-81. (available online through UB)

4) Researching Twitter (Bjørn)

This lecture introduces the TCAT tool (DMI) for Twitter analysis. It will walk the students through some of the many possibilities of the TCAT as to statistics and network analysis. The lecture will analyse the 'J.K. Rowling's trans-gender debate' on Twitter. It will demonstrate how to visualise this Twitter debate, how to mark out influential voices and references, to find diligent tweeters and trending hashtags, to detect communities or fractions in the debate, to investigate external sources for media and information important in the debate etc. The lecture will also recapitulate and expand the students' knowledge of Gephi (introduced in the intro-lecture).

This way the lecture seeks to prepare the students to analyse and visualise the collections of tweets gathered during the course (collections based on the queries suggested by the students at the twitter brainstorm in the introductory lecture).

Tools:

- DMI-TCAT (Twitter scraper) (access provided by the instructors)
- Gephi: <https://gephi.org/users/install/>

Videos:

- <https://www.youtube.com/watch?v=h2B2CA-btY> (for the people of Iran)
- <https://www.youtube.com/watch?v=ex97eoorUeo&t=1s> (DMI-TCAT)
- <https://www.youtube.com/watch?v=snPR8CwPld0> (Gephi tutorial for Twitter)
- <https://www.youtube.com/watch?v=ngqWjgZudeE> (Co-hashtag and Twitter)
- https://www.youtube.com/watch?v=7gDKbT_l2us&t=132s (Contrapoint on J.K Rowling and the Transgender debate)

Readings:

- Rogers, Chapter 8, project 12 and 13, chapter 10: pp. 153-177 and 203-222.
- @Borra, Erik and Rieder, Bernhard (2014) Programmed Method: Developing a Toolset for Capturing and Analyzing Tweets, *Aslib Proceedings* 66(3): 262-278. <https://www-emerald-com.ezproxy.uio.no/insight/content/doi/10.1108/AJIM-09-2013-0094/full/pdf?title=programmed-method-developing-a-toolset-for-capturing-and-analyzing-tweets>
- @Axel Bruns, Brenda Moon, Avijit Paul and Felix Münch (2016) Towards a typology of hashtag publics: a large-scale comparative study of user engagement across trending topics, *Communication Research and Practice*, 2(1): 20-46. <https://www-tandfonline-com.ezproxy.uio.no/doi/full/10.1080/22041451.2016.1155328>
- @Bruns, Axel; Burgess, Jean and Highfield, Tim (2014) A 'Big data' approach to mapping the Australian Twitter sphere, in Paul Longly Arthur and Katherine Bode (eds) *Advancing Digital Humanities*. Basingstoke: Palgrave Macmillan, pp. 113-129. <https://eprints.qut.edu.au/82986/33/A%2BBig%2BData%2BApproach%2Bto%2BMapping%2Bthe%2BAustralian%2BTwitterSphere.pdf>

Non-obligatory reading:

- @Venturini, Tommaso (2010a) Diving in magma: how to explore controversies with actor-network theory, *Public Understanding of Science*, 19(3): 258–273. <https://journals-sagepub-com.ezproxy.uio.no/doi/10.1177/0963662509102694>
- @Venturini, Tommaso (2010b) Building on faults: How to represent controversies with digital methods, *Public Understanding of Science*, 21(7): 796–812. <https://journals-sagepub-com.ezproxy.uio.no/doi/10.1177/0963662510387558>

5) Facebook (Bjørn)

This lecture presents the Facepager tool and some of its possibilities for Facebook data extraction. Facebook not only presents one of the most important platforms on the personal level in current Western societies, but has also become increasingly important when it comes to political debate, public democratic participation and political (politicians) spin and (direct) contact with citizens.

Regrettably, the access to the facebook API as well as the different forms of data actually offered through it have been severely restricted over the last years. Still, Facepager can be used to extract (some) interaction data and 'comments' text from Facebook 'pages'. Extracting data from

Norwegian politicians' Facebook 'posts', the lecture will look at the different analytical possibilities still open through the Facepager tool for an analysis of the political debate taking place here. It will also introduce to the production and analysis of structures of 'comments' networks in Gephi and demonstrate how network visualisation can be productively combined with (digital) textual analysis (Voyant tools).

Note! Also the Facepager shows instabilities and the continued access to FB is increasingly insecure. The instructors continuously look for possible alternatives. The students should prepare for possible changes, for this lecture, as to software introduced and actual lecture content.

Tools:

- Facepager
- Gephi

Videos: <https://www.youtube.com/watch?v=b2rUxb3X4ho> (Facepager part I)
<https://www.youtube.com/watch?v=hUffKYjI7W8> (Facepager part II)

Readings:

- Rogers, pp. 15-16, chapter 9 and project 14-17: pp. 15-16, 179-201
- @Rieder, Bernhard; Abdulla, Rasha; Poell, Thomas; Wolterin, Robbert and Zac, Liesbeth (2015): Data critique and analytical opportunities for very large Facebook Pages: Lessons learned from exploring "We are all Khaled Said", *Big Data & Society* 2015 (July-December): 1–22. <https://journals-sagepub-com.ezproxy.uio.no/doi/full/10.1177/2053951715614980>
- @Rieder, Bernhard (2018) Facebook's app review and how independent research just got a lot harder, *The Politics Of Systems* blog (11th august). <http://thepoliticsofsystems.net/2018/08/facebooks-app-review-and-how-independent-research-just-got-a-lot-harder/> (ca. 3 pages)
- @Birkbak, Andreas and Carlsen, Hjalmar (2016) The Public and Its Algorithms: Comparing and experimenting with calculated Publics, in Louise Amoore, Volha Piotukh (eds) *Algorithmic Life: Calculative Devices in the Age of Big Data*. Oxford, U.K: Routledge, pp. 21-34. Pre-print accessible at: https://vbn.aau.dk/ws/portalfiles/portal/284940213/2016_Algorithmic_Life_1st_Chap_1_Birkbak_and_Carlsen_The_Public_and_its_Algorithms.pdf

Non-obligatory readings:

- @Madsen, A. K., & Munk, A. K. (2019). Experiments with a data-public: Moving digital methods into critical proximity with political practice. *Big Data & Society*, 6(1), 2053951718825357., <https://journals.sagepub.com/doi/full/10.1177/2053951718825357>
- @Birkbak, Andreas; Carlsen, Hjalmar Alexander Bang (2015) The World of EdgeRank: Rhetorical Justifications of Facebook's News Feed Algorithm, *Computational Culture: A Journal of Software Studies*, 5: 1-30. <http://computationalculture.net/the-world-of-edgerank-rhetorical-justifications-of-facebooks-news-feed-algorithm/>

6) YouTube (Bjørn)

This lecture introduces YouTube studies and some of the many analytical possibilities of the DMI YouTube Data Tools. The DMI tool entails a number of possibilities for extracting and investigating interaction and communication in and around shared content on YouTube.

We shall have a look at how to expose 'channel' networks (YouTube 'channels' linking to each other) and video networks (users linking to the same videos) seeking to detect communities and political fractions on YouTube. Who watches certain popular videos, how do they comment, what

other videos or channels do they share? Working with Jordan B. Peterson and the users of his 'anti-marxist' or 'anti-identity-politics' videos, we shall investigate this network. Which Channels or users are important in distributing Peterson's content (and political views)? How do Peterson's adherents and adversaries group? Which perspectives are present among which groups of users in the comments section (religious, political, economic etc.)?

This way the lecture is meant to suggest how digital studies of YouTube can be used to investigate important communities and debates (e.g. rightwing issue mapping, but also trans-gender debates or the network of Norwegian 'influencers'). Again, the lecture and the analytical work will include the use of Gephi.

Tools:

- DMI's YouTube Tool: <https://wiki.digitalmethods.net/Dmi/ToolYouTubeDataTools>

Videos:

- <https://www.youtube.com/watch?v=sbErTW2MzCY&list=PLKzQwIKtJvv9lwyYxh4708Nqo6YC6-YH4&index=12&t=4s> (Tool introduction)
- https://www.youtube.com/watch?v=7gDKbT_l2us&t=132s (Contrapoint on J.K Rowling and the Transgender debate)

Non-obligatory videos:

- <https://www.youtube.com/watch?v=0k1q74MLU8k> (Hani Farid on detection on deep-fake videos)

Readings:

- Rogers: Chapter 12, project 20: pp. 249-259.
- @Rieder, Bernhard (2015) Introducing the YouTube Data Tools, *The Politics of Systems* blog (posted may 4th): <http://thepoliticsofsystems.net/2015/05/exploring-youtube/>
- @Couturier, Anna; Invernizzi, Michele; Jimenez, Carlos; Sanchez-Querubin, Natalia; Profeta, Giovanni and Werner, Nadine (2018) *YouTube as an archive for the end of life*. DMI Summer School project. (ca. 20 pages)
<https://digitalmethods.net/Dmi/SummerSchool2018YouTubeArchiveEndOfLife>
- @Napoli, Philip (2014) 'Automated Media': An Institutional Theory Perspective on Algorithmic Media Production and Consumption, *Communication Theory*, 24(3): 340-360. <https://onlinelibrary-wiley-com.ezproxy.uio.no/doi/full/10.1111/comt.12039>
- @Counter extremism project (2018) The eGLYPH Web Cravler: ISIS Content on Youtube. Counter Extremism project, pp. 1-18
https://www.counterextremism.com/sites/default/files/eGLYPH_web_crawler_white_paper_July_2018.pdf
- @Counter Extremism Project (2020) Tech & Terrorism: Dr. Hany Farid & UC Berkeley Researchers Release Report On YouTube's Recommendation Algorithm. Report Analyzes YouTube's Role With Disinformation, Supporting Extremist Ideologies (3. pages)
<https://www---new-site-4frzrti-5wuc5j7ssjg4s.us.platform.sh/press/tech-terrorism-dr-hany-farid-uc-berkeley-researchers-release-report-youtubes-recommendation>

7) Text mining (Manjana)

In this session, we introduce the concept of text mining, explore different approaches to the collection and analysis of large bodies of text (incl. concordance and co-location analysis, corpus

comparison, topic modeling, semantic network analysis), and review a set of tools for conducting these kinds of analysis. We will develop a text corpus and use the web-based platform Voyant Tools to analyze this corpus. We also play with the concept of semantic networks. Using the online tool Valence, we will develop and compare semantic maps in small groups and discuss what kinds of research questions can be pursued with this approach.

Tools:

- Voyant Tools - <https://voyant-tools.org/>
- Monkey Learn Word Cloud Generator: <https://monkeylearn.com/word-cloud/>
- N-grams
- Valence (Cognitive-affective mapping) <https://valence.cascadeinstitute.org/>
- Google Topic Modeling Tool <https://code.google.com/archive/p/topic-modeling-tool/>

Videos:

- An Introduction to Topic Modeling:
https://www.youtube.com/watch?v=IUAHUEy1V0Q&ab_channel=SummerInstituteinComputationalSocialScience

Readings:

- @Zanini, N., & Dhawan, V. (2015). Text Mining: An introduction to theory and some applications. *Research Matters*, 19, 38-45. (7 pages)
- @John W. Mohr, Petko Bogdanov, Introduction—Topic models: What they are and why they matter, *Poetics*, Volume 41, Issue 6, 2013, pp. 545-569
- @Kang, G. J., Ewing-Nelson, S. R., Mackey, L., Schlitt, J. T., Marathe, A., Abbas, K. M., & Swarup, S. (2017). Semantic network analysis of vaccine sentiment in online social media. *Vaccine*, 35(29), 3621-3638.

Non-obligatory reading:

- @Drieger, P. (2013). Semantic network analysis as a method for visual text analytics. *Procedia-social and behavioral sciences*, 79, 4-17.

8) Sentiment analysis (Manjana)

Building on lecture 7 on text mining, we learn about sentiment analysis. Starting with theoretical considerations of the role of 'sentiment' (emotions, affect) in language and social interaction, we explore how emotions can be studied online, and what might make this challenging, e.g., when your data consists of very short textual expressions, like those on most social media platforms. We conduct analog sentiment analysis using a Twitter data set developed for previous lectures and use Lingmotif and Sentiment Viz to compare the results of offline and digital methods.

Tools:

- Lingmotif (free Basic account) <https://ltl.uma.es/>
- Sentiment Viz: https://www.csc2.ncsu.edu/faculty/healey/tweet_viz/tweet_app/ (sentiment analysis for tweets)
- <https://monkeylearn.com/>
- <http://text-processing.com/demo/sentiment/>
<https://www.danielsoper.com/sentimentanalysis/default.aspx>

Readings:

- @Cambria, E., Das, D., Bandyopadhyay, S., & Feraco, A. (2017). Affective computing and sentiment analysis. In *A practical guide to sentiment analysis* (pp. 1-10). Springer, Cham. (available through UB)
- @Feldman, R. (2013). Techniques and applications for sentiment analysis. *Communications of the ACM*, 56(4), 82-89.
- @Scrivens, R., Davies, G., & Frank, R. (2018). Searching for signs of extremism on the web: an introduction to Sentiment-based Identification of Radical Authors. *Behavioral sciences of terrorism and political aggression*, 10(1), 39-59.
- @Ceron, A., Curini, L., Iacus, S. M., & Porro, G. (2014). Every tweet counts? How sentiment analysis of social media can improve our knowledge of citizens' political preferences with an application to Italy and France. *New media & society*, 16(2), 340-358.

9) Tool day / project group work shop

This day is a *whole day obligatory group workshop*. The workshop is meant to produce more familiarity with the tools introduced at the course - but also to kick-start collective processes of project formulation. The groups will work in-class with their proper ideas (and possible choices as to division of labor) towards the collective formulation of an exam project. The instructors will be present to facilitate the work of the groups but there will be no lecturing.

Once the formulation of the group exam project - a short synopsis written on location - has been approved by the instructors the group is set for exam. Note that the group needs to have its synopsis approved to be allowed to turn in the exam paper.

Readings: No readings

10) The Ethics of Digital Research (Bjørn)

This lecture treats the many ethical issues connected to digital methods. Even though the SOS2920 course (and digital methods more generally) typically investigate data that users have themselves voluntarily 'posted' on open and publicly accessible digital venues – and that users often even have consented to the use of these data for research purposes – it still seems fair to assume that most users do not expect to be identified by researchers as the poster of this or that 'comment' made by them on a Facebook wall – in particular, not if made under resonant or agitated conditions. Users may forget the public nature of the platform in the heat of the moment; yet the internet does exactly the opposite: it remembers everything. The coming into being of digital platforms the public nature of which often illudes the informants dislocate the border between private and public, create new ethical discussions, new ethical pitfalls and needs for new ethical codes for research.

The lecture discusses possibilities and new requirements for 'anonymization'; it discusses new distinctions such as the shift *from* "privacy by consent" *to* "privacy by accountability"; it discusses situated ethical judgements as well as introduces to the main guidelines by the AOIR (Association of Internet researchers).

Readings:

- Rogers 203-216.
- @Franzke, Aline shakti; Bechmann, Anja; Zimmer, Michael; Ess, Charles and the Association of Internet Researchers (2020) Internet Research: Ethical Guidelines 3.0. <https://aoir.org/reports/ethics3.pdf>

- @Markham, Annette and Buchanan, Elizabeth (2015) Ethical considerations in digital research contexts, *International Encyclopedia of the Social and Behavioral Sciences*, Vol. 12, Second Edition, Elsevier Press, pp. 606–613.
[https://www.researchgate.net/publication/313470218 'Ethical considerations in digital research contexts'](https://www.researchgate.net/publication/313470218_Ethical_considerations_in_digital_research_contexts)
- @Zimmer, Michael (2010) 'But the data is already public': On the ethics of research in Facebook, *Ethics and Information Technology*, 12(4):313-325.
<https://link.springer.com/article/10.1007/s10676-010-9227-5>
- @Joergensen, Rikke Frank (2014) The unbearable lightness of user consent, *Internet Policy Review: Journal of Internet Regulation*, 3(4): 1-14.
<https://policyreview.info/articles/analysis/unbearable-lightness-user-consent>

11) Outro (Bjørn and Manjana)

We will shortly recapitulate the course and the material covered. We will then evaluate the course with the students and discuss possible exam questions.

Readings:

Rogers chapter 13: pp. 261-271.

Syllabus / reading list for Digital Methods SOSGEO2920 – spring 2022

Manjana Milkoreit and Bjørn Schiermer Andersen

Books:

Marres, N. (2017). *Digital Sociology: The Reinvention of Social Research*. Polity Press. (232 p.)

Rogers, R. (2019). *Doing Digital Methods*. Sage Publications Ltd. (328 p.)

(the two books must be bought in Akademika)

Articles and online resources:

@Arora, S. K., Li, Y., Youtie, J., & Shapira, P. (2016). Using the wayback machine to mine websites in the social sciences: a methodological resource. *Journal of the Association for Information Science and Technology*, 67(8), 1904-1915.

<https://asistdl.onlinelibrary.wiley.com/doi/full/10.1002/asi.23503>

@Ceron, A., Curini, L., Iacus, S. M., & Porro, G. (2014). Every tweet counts? How sentiment analysis of social media can improve our knowledge of citizens' political preferences with an application to Italy and France. *New media & society*, 16(2), 340-358. <https://doi-org.ezproxy.uio.no/10.1177%2F1461444813480466>

@Counter extremism project. (2018). *The eGLYPH Web Crawler: ISIS Content on Youtube*. Counter extremism project. pp. 1-18.

https://www.counterextremism.com/sites/default/files/eGLYPH_web_crawler_white_paper_July_2018.pdf

@Counter Extremism Project (2020, 05. March) *Tech & Terrorism: Dr. Hany Farid & UC Berkeley Researchers Release Report On YouTube's Recommendation Algorithm. Report Analyzes YouTube's Role With Disinformation, Supporting Extremist Ideologies*. (ca. 3 pages)

<https://www---new-site-4frzrti-5wuc5j7ssjg4s.us.platform.sh/press/tech-terrorism-dr-hany-farid-uc-berkeley-researchers-release-report-youtubes-recommendation>

@Couturier, A., Invernizzi, M., Jimenez, C., Sanchez-Querubin, N., Profeta, G. & Werner, N. (2018). *YouTube as an archive for the end of life*. DMI Summer School project, (ca. 20 pages).

<https://digitalmethods.net/Dmi/SummerSchool2018YouTubeArchiveEndOfLife>

@Eslami, M., Rickman, A., Vaccaro, K., Aleyasen, A., Vuong, A., Karahalios, K., Hamilton, K. & Sandvig, C. (2015). 'I always assumed that I wasn't really that close to [her]': Reasoning about Invisible Algorithms in News Feeds, CHI 2015 (Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems), 153-162. <https://dl-acm-org.ezproxy.uio.no/doi/pdf/10.1145/2702123.2702556>

@Feldman, R. (2013). Techniques and applications for sentiment analysis. *Communications of the ACM*, 56(4), 82-89. <https://dl-acm-org.ezproxy.uio.no/doi/abs/10.1145/2436256.2436274>

Franzke, A. S., Bechmann, A., Zimmer, M., Ess, C. & the Association of Internet Researchers (2020). *Internet Research: Ethical Guidelines 3.0*. (pp. 9-25). <https://aoir.org/reports/ethics3.pdf>

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