

UPDATE ON THE INFORMATION DOMAIN

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Search Engine Optimisation – or Manipulation?

What is Search Engine Optimisation (SEO)?

1. Search Engine Optimisation are the techniques used to improve the visibility of websites in Search Engine Results Pages (SERPs). Organisations and individuals use SEO to drive traffic to their websites by aligning content with the search engines' algorithms. SEO techniques target requests on major search engines to increase the likelihood that their website appears more prominently in search results. Originally developed for commercial purposes, SEO techniques have become an integral part of online business and digital marketing. At the same time, the rise of mis/disinformation has been amplified by SEO techniques, as search engine rankings can influence what information users consume. Search engine algorithms are trained to show such information via relevant feedback derived from users' past searches, website authority, and the user's previous search histories. Legitimate SEO practitioners leverage on SEO techniques to enhance accessibility to their websites. However, similar techniques can also be weaponised by malicious actors to manipulate search engines to artificially inflate a website's search result ranking, or to amplify false or misleading narratives.

How SEO can be Manipulated to Spread Disinformation

2. SEO involves optimising various aspects of a website, including content quality, keyword usage, backlinks, and technical structure, to

ensure higher rankings in SERPs. Search engines like Google, uses sophisticated algorithms to evaluate these factors and to determine a website's relevance and level of authority. This may include: (a) sources based off what users originally input; and (b) similar predictions based on what other users select from previous searches. While this was originally intended to scope searches to what users are interested in, it also has the unintended effect of reinforcing misinformation. A study by think tank DisinfoLab on GPT-3 and Google Search found that both search algorithms organically showed "negative bias" (43.83% and 30.15%) across their combined text predictions over 1,645 search queries . This "negative bias" appeared in search queries involving largely controversial political issues, which were affected by existing searches for those topics, and subsequent searches had reinforced the organically created bias.

3. Search engines can organically amplify misinformation, by the inherent nature of their algorithms and search function. A study by the Turkish-based Journo News Watch reported that during the 2023 Turkish Presidential elections, Google displayed content supporting the incumbent President Recep Erdogan 81% of the time over the opposition content in searches related to the Turkish Elections. This favourable coverage gave greater amplification to misinformation perpetuated by right-wing nationalist groups often favouring the incumbent government. This algorithmic bias also stymied fact-checks on these platforms by independent Turkish fact-checkers, whose fact checks would appear less often than the misinformation. For instance, several deepfake videos involving Kurdish fighters continually surfaced in Google searches despite independent fact-checking efforts already listing it as false. This does not suggest that fact-checkers will be constantly fouled by SEO. Nonetheless, as fact checkers rely on search engines to investigate and deliver corrections, misinformation, if seeded early in the information space, will have first-mover advantage over subsequent attempts to correct it.

How SEO can be Manipulated to Spread Disinformation

4. Malicious actors can use SEO to spread disinformation, taking advantage of search engine algorithms to amplify false narratives while

disguising it as an organic search result. A study by the Harvard Kennedy School Misinformation Review showed that websites of Kremlin-aligned think tanks have been found to have their narratives heavily amplified by a ring of low-quality websites. These websites, while themselves not necessarily convincing, used similar conspiratorial key phrases to ensure that search results would reinforce the narratives of the Kremlin-aligned think tanks, and thus help provide traction for their disinformation. By flooding the content on their website with specific key phrases, they manipulate search engine algorithms to rank their websites higher. Users that searched for certain key phrases would enter the pro-Kremlin media ecosystems via the search engine algorithms favouring these think tanks and websites.

5. Such tactics were employed to amplify the narrative that there were US biolabs in Ukraine researching the COVID-19 virus. By establishing websites that amplified Kremlin-aligned narratives, the pro-Kremlin Internet Research Agency (IRA) was able to ensure that these narratives gained traction in search engines. These techniques were also used to establish false experts reporting from those websites, that would gain currency over time as the narrative was amplified and gained traction. Similarly, as reported by the Guardian, malicious actors from Syria attempted to influence search results on the humanitarian organisation Syrian Civil Defence Force by conflating their colloquial name “White Helmets” with terrorist activities. The Syrian Civil Defence Force was also portrayed as an insurgency against the Syrian government of Bashar al-Assad, in what appeared to be an attempt to scope them as a legitimate target for reprisal.

Exploitation of Data Voids

6. Beyond what malicious actors might seek to do, the self-reinforcing nature of search engines unintentionally supports the creation and spread of false narratives. This can occur when there is a “data void”. In a bid to not help broadcast conspiracies and harmful narratives, mainstream media and government sources do not use certain keywords and search terms. As a result, this makes it easier for harmful narratives to fill the “void” of data, seeding such sensitive search terms automatically with disinformation. For example, a

Microsoft study showed that the search “did the Holocaust happen?” tended to turn up Holocaust-denial content because the only people posing and answering such questions were Holocaust sceptics and deniers. Further studies showed that this also took place for other controversial topics including vaccine denial and climate change.

Digital Literacy and Mitigating the Risks of SEO Manipulation

7. Digital literacy remains a key tool in combating disinformation when faced with manipulative SEO practices. SEO takes advantage of such activity to cluster misleading articles to corroborate each other. This creates a situation where an online environment may be astroturfed by sites mimicking legitimate news sources, and over time shift the online discourse. A study in Nature said that encouraging internet users to rely on search engines to verify questionable online articles can make them more prone to believing false or misleading information. Such search results easily led people down “digital rabbit holes”, where they could end up reinforcing the original first piece of disinformation they encountered. To deal with this, groups such as the Stanford University History Education Group has recommended techniques such as lateral reading, where a person is encouraged to leave an unknown website to consult other sources to evaluate the information at the original website.

8. Search engines are also continuously enhancing their algorithms to identify and penalise websites that engage in manipulative practices. Advanced AI models can assist in detecting behaviours and patterns associated with disinformation campaigns.

CONCLUSION

9. SEO is an important internet tool, and plays an important role in many sectors, from companies that promote their goods and services to scholars using it to carry out research. On the flip side, it can be misused by malicious actors to push false narratives and weaken our countries’ resilience. To counter the threat posed by bad actors using these techniques, governments can carry out pre-bunking by teaching internet users to check the sources alongside corroborating the content of the information. This will help pre-empt users being caught in a self-

reinforcing loop of viewing articles and websites which show mis- and disinformation.

10. Governments can also work together with technology companies by alerting them when their search engines unwittingly reinforce mis/disinformation. For example, Google and Microsoft already keep track of mis/disinformation, work with fact-checking agencies to debunk online falsehoods and myths, and remove offending content from their platforms. In the first 18 months of the COVID-19 pandemic, YouTube removed over one million videos related to COVID-19 misinformation, which significantly reduced the spread of dissemination of misinformation via their website. Lastly, while malicious actors can use SEO to spread narratives, governments can also use SEO techniques to disseminate credible sources of information. A better understanding of how SEO works will allow states to better reach out to their citizens and build resilience both during a crisis to counter information campaigns as well as to guard against the dissemination of online falsehoods. In the long term, this allows us to continue democratising access to information through connecting users with accurate and relevant content in the digital space, while safeguarding the internet as a reliable resource for truth and knowledge.

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All reports can be retrieved from our website at www.acice-asean.org/resource/.

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REFERENCES

News Articles

1. It's Not Just a Social Media Problem: How Search Engines Spread Misinformation [Link: <https://theconversation.com/its-not-just-a-social-media-problem-how-search-engines-spread-misinformation-152155>]
2. Search Engine Manipulation to Spread Pro-Kremlin Propaganda [Link: <https://misinforeview.hks.harvard.edu/article/search-engine-manipulation-to-spread-pro-kremlin-propaganda/>]
3. Disinfo Lab Report: How AI Bias in Search Engines Contributes to Disinformation [Link: <https://www.diplomaticourier.com/posts/how-ai-bias-in-search-engines-contributes-to-disinformation>]
4. Turkey Elections: Google's Algorithm Biased Toward Erdogan's Media, Data Shows [Link: <https://journos.com.tr/turkey-elections-google-bias>]
5. #BreakingSyria: Assad's Search Engine Optimization [Link: <https://dfrlab.org/2018/10/18/breakingsyria-assads-search-engine-optimization/>]
6. How Syria's White Helmets became victims of an Online Propaganda Machine [Link: <https://www.theguardian.com/world/2017/dec/18/syria-white-helmets-conspiracy-theories>]
7. Data Voids: Where Missing Data can be Easily Exploited [Link: <https://datasociety.net/wp-content/uploads/2019/11/Data-Voids-2.0-Final.pdf>]
8. Online Searches to Evaluate Misinformation can increase its Perceived Veracity [Link: <https://www.nature.com/articles/s41586-023-06883-y>]
9. How Search Engines Boost Disinformation [Link: <https://www.scientificamerican.com/article/how-search-engines-boost-misinformation/>]

10. Lateral Reading: College Students learn to Critically Evaluate Internet Sources in an Online Course [Link: <https://misinforeview.hks.harvard.edu/article/lateral-reading-college-students-learn-to-critically-evaluate-internet-sources-in-an-online-course/>]
11. Google's Approach to Misinformation Online [Link: https://safety.google/intl/en_uk/stories/fighting-misinformation-online/]