



GOOGLE AS AN INFORMATION GATEKEEPER

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CONTENT OVERVIEW

GOOGLE UNIVERSE

- Google LLC- American multinational technology company
- Monopolist search engine
- Responds to queries with own products
- Keeps users in the “google universe”
- Tries to provide almost all information for every possible query



GATEKEEPING

- Process of controlling information
- Information moves through a gate or filter
- Google is the gate that controls and shapes information
- Selects which information to publish, shape & delete
- Controls the results by using it's own algorithm



LANGUAGE BIAS

- Idea: users favor those who communicate in the same language
- Users try to find information in their mother language
- Bias: Prejudice for a factual situation
- Bias might be towards people who have the same accent or similar slang





CURRENT RESEARCH



Brainstorming process:

- online brainstorming tools (mindmeister mindmap)
- test search queries
- narrowing and reconsidering our topic
- considerations: language bias, algorithmic bias, gender bias, location bias, economic bias



CURRENT RESEARCH



**LANGUAGE BIAS IN GOOGLE
SCHOLAR AND ITS IMPACT ON
ACADEMIC RESEARCH PAPERS**

ROVIRA ET AL. 2021



**POLITICAL BIAS IN GOOGLE
CONSIDERING POLARIZING TOPICS
AND POLITICAL PERSPECTIVE**

**KULSHRESTHA, J., ESLAMI,
M., MESSIAS, J. ET AL. 2019**



**ETHICAL CONCERNS OF
GOOGLE'S SEARCH
TECHNOLOGY**

CANCA. 2021



**GENDER BIAS IN GOOGLE'S
IMAGE SEARCH RESULTS
FOR OCCUPATIONS**

FENG, Y., & SHAH, C. 2022

GOOGLE SCHOLAR: CASE STUDY

 Rovira C., Codina L., Lopezosa C. Language Bias in the Google Scholar Ranking Algorithm. 
Future Internet. 2021; 13(2):31. <https://doi.org/10.3390/fi13020031>

"In multilingual searches, is the language in which a document is written a factor in Google Scholar's ranking algorithm?"



GOOGLE SCHOLAR: CASE STUDY

- visibility: academic search engine optimization
- Google Scholar's ranking algorithm
- reverse engineering research

RESULTS



DOCUMENTS IN ENGLISH FAVOURED BY RANKING ALGORITHM



---> CITATIONS



MULTILINGUAL SEARCH RESULTS VIRTUALLY INVISIBLE

GOOGLE SCHOLAR: CASE STUDY

Application to our approach:

- check relevance ranking of Google Scholar using a grounded theory approach
- advance knowledge on academic search engines by sampling three countries' language queries and received citations
- analyze multilingual searches conducted in Google Scholar to showcase dominance of English articles



PRACTICAL INSIGHTS



- Searching for the same prompt 'covid 19 vaccine' on Google Scholar
- Entering the prompt in English as well as in vernacular languages (Bosnian, German, Hindi, Bengali)
- Comparing results received in both languages

BOSNIA AND HERZEGOVINA



SELECTING THE "PEER REVIEWED" OPTION DOESN'T CHANGE THE RESULTS ON ENGLISH SIGNIFICANTLY, BUT IT DOES DRASTICALLY CHANGE THOSE ON SERBO-CROATIAN



THE ARTICLES ARE 61,5 TIMES MORE CITED THAN THOSE ON SERBO-CROATIAN AND CONTAIN NO MULTILINGUAL OPTIONS FOR VIEWERS.

Search results for "covid-19 vaccine" on a search engine. The search bar shows "covid-19 vaccine" and a magnifying glass icon. Below the search bar, it indicates "Oku 2 200 000 rezultata (0,96 s)".

The first result is titled "The COVID-19 vaccine development landscape" by T. Li, Z. Andreadaki, A. Kumar, and R. G. Roman, published in *Nat Rev Drug* in 2020. The abstract mentions "the most promising vaccine candidates. COVID-19 vaccine R&D landscape As of 6 April 2020, the global COVID-19 vaccine R&D landscape includes 115 vaccine candidates (Fig. 1), of ...". It has 1403 citations and 10 related items.

The second result is titled "Immunological considerations for COVID-19 vaccine strategies" by M. Jayaraman, S. Akhavan, F. Small, and M. S. Miller, published in *Nature Reviews* in 2020. The abstract mentions "efficacy testing and what to expect from the global vaccine effort over the next few years ... design of COVID-19 vaccine strategies and analyses the current COVID-19 vaccine landscape ...". It has 905 citations and 13 related items.

The third result is titled "COVID-19 vaccines" by D. N. Brindley and C. S. Wysocki, published in *Current opinion in immunology* in 2021. The abstract mentions "nucleic acid vaccines. By mid-2021 three billion doses of COVID-19 vaccine have been administered around the world, mostly in high-income countries. COVID-19 vaccination provides ...". It has 151 citations and 12 related items.

The fourth result is titled "Determinants of COVID-19 vaccine acceptance in the US" by A. A. M. M., S. M. McFadden, J. E. Hruska, and S. E. Omer, published in *EClinicalMedicine* in 2020. The abstract mentions "COVID-19 vaccine. 2) unemployed participants reported lower influenza uptake and lower COVID-19 vaccine ... lower influenza vaccine uptake and lower COVID-19 vaccine acceptance ...". It has 1105 citations and 12 related items.

BOSNIA AND HERZEGOVINA



FIRST TWO SOURCES ARE BILINGUAL BUT ON A FOREIGN DOMAIN AND COUNT AS MOST CITED



ARTICLES OFFER BILINGUAL APPROACH EITHER IN FULL TEXT OR JUST WITH THE COMMON THREE: ABSTRACT-KEYWORDS-TITLE

Search results for "covid-19 vakcine" on a search engine. The search bar contains "covid-19 vakcine" and a search icon. Below the search bar, it shows "Oko 1.620 rezultata (0,03 s)".

The first result is a PubMed article titled "Total anti-SARS-CoV-2 antibodies measured 6 months after Pfizer-BioNTech COVID-19 vaccination in healthcare workers" by GL Salvagno, BM Henry, L Fijth, et al. The abstract is in English, but the title and authors are in English. The snippet shows: "... su primili dve doze od 30 mg **vakcine** Pfizer-BioNTech protiv COVID-19, u razmaku od 3... **vakcine**, neposredno pre druge doze **vakcine**, a zatim 1, 3 i 6 meseci nakon druge doze **vakcine**...".

The second result is a PubMed article titled "Anti-spike S1 IgA, anti-spike trimeric IgG, and anti-spike RBD IgG response after BNT162b2 COVID-19 mRNA vaccination in healthcare workers" by GL Salvagno, BM Henry, G Di Piazza, et al. The abstract is in English, but the title and authors are in English. The snippet shows: "... Većina studija imunog odgovora nakon oboljenja koronavirusom (COVID-19) i **vakcinacije**... nakon mRNA COVID-19 **vakcinacije** kod SARS-CoV-2 seronegativnih zdravstvenih radnika...".

The third result is a MedRxiv article titled "Similarities and differences of cardiovascular complications of COVID-19 infection and COVID-19 vaccination" by A Đenić. The abstract is in English, but the title and author are in English. The snippet shows: "... nakon aplikacije **vakcine**. Najčešće aritmije koje se javljaju nakon COVID-19 **vakcinacije** su... Odnos korist-rizik COVID-19 **vakcinacije** na pojavu kardiovaskularnih komplikacija značajno...".

The fourth result is a PubMed article titled "Immunogenicity and safety of the BNT162b2 mRNA COVID-19 vaccine in healthcare workers" by B Bekarić, D Horvat, S Čičak, B Šušter, J Đukić, et al. The abstract is in English, but the title and authors are in English. The snippet shows: "...".

INDIA



SEARCH RESULTS ARE WELL-
CITED AND RELEVANT TO
THE QUERY PROMPT

Search results for "covid 19 vaccine" (About 27,20,000 results (0.06 sec))

The COVID-19 vaccine development landscape
[TL Li, Z Andreiadakis, A Kumar, RG Roman](#) - Nat Rev Drug ... - 2020 - nature.com
... the most promising **vaccine** candidates. **COVID-19 vaccine** R&D landscape As of 8 April 2020, the global **COVID-19 vaccine** R&D landscape includes 115 **vaccine** candidates (Fig. 1) of ...
☆ Save 📄 Cite Cited by 1402 Related articles All 10 versions

[HTML] Immunological considerations for COVID-19 vaccine strategies
[M Jeyanathan, S Alkhair, F Small, MS Miller](#) - Nature Reviews ... - 2020 - nature.com
... efficacy testing and what to expect from the global **vaccine** effort over the next few years ... design of **COVID-19 vaccine** strategies and analyses the current **COVID-19 vaccine** landscape ...
☆ Save 📄 Cite Cited by 602 Related articles All 13 versions

COVID-19 Vaccine: A comprehensive status report
[SP Kaur, V Gupta](#) - Virus research, 2020 - Elsevier
... the outbreak of novel **coronavirus** erupted and then world-... **COVID-19 vaccine** before September, 2020 as per very optimistic estimates. This is because a successful **COVID-19 vaccine** ...
☆ Save 📄 Cite Cited by 850 Related articles All 12 versions

[HTML] Determinants of COVID-19 vaccine acceptance in the US
[AA Malik, SAM McFadden, J Ebatake, SB Omer](#) - EClinicalMedicine, 2020 - Elsevier
... **COVID-19 vaccine**; 2) unemployed participants reported lower influenza uptake and lower **COVID-19 vaccine** ... lower influenza **vaccine** uptake and lower **COVID-19 vaccine** acceptance ...
☆ Save 📄 Cite Cited by 1102 Related articles All 12 versions

INDIA HINDI



3/8 RESULTS ARE IN
ENGLISH



ONLY THE FIRST RESULT
IS A RESEARCH PAPER



MOST RESULTS LEAD TO
WEBSITES VAGUELY
RELATED TO COVID-19

कोविड-19 वैक्सीन

About 26 results (0.02 sec)

Tip: Search for **English** results only. You can specify your search language in Scholar Settings.

कोरोना वायरस डीजीज-19 (कोविड-19)
डा. सुयसिन्धु - ... Medicos Organisation Journal (एम एम जौ ... 2020 - mmjournal.org
संघर्ष ही जीवन है। इस संघर्ष से जो जीत पाया प्रकृति उसे ही स्वीकार
करती है, डॉक्टिन में भी योगदान की उत्तरणीयता की बात कही थी। इसी ...
☆ Save ⓘ Cite Related articles All 2 versions ⓘ

[BOOK] COVID-19 (कोविड-19) थलधंत्र से समाधान तक)
BR Chowdhury - 2020 - books.google.com
... पहल है, किन्हीं 500 से अधिक इन्सुलिन देश-रेख विशेषज्ञों का नेतृत्व
देश भर में आईएलआई-कोविड-19 सेगिपी की देख-रेख और विकिता कर रहा ...
☆ Save ⓘ Cite Cited by 1 Related articles All 2 versions ⓘ

**[HTML] भारत की दशकों पुरानी संघीय व्यवस्था (फेडरल सिस्टम) को कोविड-19 महामारी की
चुनीती**
N.Sando AK.Ghosh - orfonline.org
दुनिया के अलग-अलग हिस्सों में, सरकार की संघीय प्रणालियां अब तक के
सबसे बड़े परीक्षण से गुजर रही हैं। यह परीक्षण है कोविड-19 की महामारी ...
☆ Save ⓘ Cite Related articles All 2 versions ⓘ

[CITATION] कोविड-19 mRNA टीका: यह कैसे काम करता है?
अईएसआरसी - अई संहर रीटिस्क्रिप्टिंग - 2021 - azimpremjuniiversity.edu.in
कोविड-19 mRNA टीका - यह कैसे काम करता है? / Anuvada Sampada Repository
Covid-19 mRNA vaccine How Does It Work.pdf - COVID-19 mRNA vaccine How Does It Work? ...
☆ Save ⓘ Cite All 2 versions ⓘ

INDIA BENGALI



**ONLY 1 SEARCH RESULT
FOUND, LEADS TO A RIP-OFF
OF THE WIDELY KNOWN
WIKIPEDIA SITE**

কোভিড ১৯ চিকিৎসা

1 result (3.05 sec)

Tips: Search for **English** results only. You can specify your search language in Scholar Settings.

[HTML] ফর্মিডার-বায়োটেক COVID-19 ভ্যাকসিন [HTML] wikipedia.net

\$ America - wikipedia.net

Pfizer-BioNTech COVID-19 ভ্যাকসিন (INN: Ixmiriviran), Comirnaty গ্রাফ নামে বিক্রি
যা [একটি mRNA-ভিত্তিক COVID-19 ভ্যাকসিন যা জার্মান বায়োটেকনোলজি কোম্পানি
☆ Save | ❌ Cite | Related articles: 10

GERMANY



SEARCH RESULTS ARE WELL-CITED AND RELEVANT TO THE QUERY PROMPT

covid 19 vaccine

Ungültig: 2.840.000 Ergebnisse (6,84 Sek.)

The COVID-19 vaccine development landscape [PDF] basis-mettrmann.info
TT Le, Z Andradóttir, A Kumar, RG Roman... - Nat Rev Drug... 2020 - nature.com
... the most promising vaccine candidates. **COVID-19 vaccine** R&D landscape As of 8 April 2020, the global **COVID-19 vaccine** R&D landscape includes 115 vaccine candidates (Fig. 1), of ...
☆ Speichern 15 Zitieren Zitiert von: 1402 Ähnliche Artikel Alle 50 Versionen

COVID-19 Vaccine: A comprehensive status report [HTML] nih.gov
SP Katz, V Gupta - Virus research, 2020 - Elsevier
... the outbreak of novel **coronavirus** erupted and then world... **COVID-19 vaccine** before September, 2020 as per very optimistic estimates. This is because a successful **COVID-19 vaccine** ...
☆ Speichern 16 Zitieren Zitiert von: 896 Ähnliche Artikel Alle 12 Versionen

[HTML] immunological considerations for **COVID-19 vaccine** strategies [HTML] nature.com
M Jawarneh, S Akhrami, F Small, MS Miller... - Nature Reviews... 2020 - nature.com
... efficacy testing and what to expect from the global vaccine effort over the next few years. ... design of **COVID-19 vaccine** strategies and analyses the current **COVID-19 vaccine** landscape ...
☆ Speichern 19 Zitieren Zitiert von: 902 Ähnliche Artikel Alle 13 Versionen

[HTML] Determinants of **COVID-19 vaccine** acceptance in the US [HTML] sciencedirect.com
AA Malik, SM McFadden, J Elharsika, SB Omer - Clinical Medicine, 2020 - Elsevier
... **COVID-19 vaccine**; 2) unemployed participants reported lower influenza uptake and lower **COVID-19 vaccine** ... lower influenza vaccine uptake and lower **COVID-19 vaccine** acceptance ...
☆ Speichern 10 Zitieren Zitiert von: 1102 Ähnliche Artikel Alle 12 Versionen

Ähnliche Suchanfragen

covid 19 vaccine trials	moderna covid 19 vaccine
covid 19 vaccine oxford	covid 19 vaccine candidates
covid 19 vaccine landscape	covid 19 vaccine pfizer
covid 19 vaccine development landscape nature	covid 19 vaccine hesitancy

GERMANY



EVEN THOUGH THE FIRST
SEARCH RESULT IS IN
ENGLISH, THE INFORMATION
PROVIDED IS IN GERMAN



2-4 SEARCH RESULTS ARE
FROM RKI - TRUSTED
SCIENTIFIC SOURCE

covid 19 impfung

Ungefähr 16.700 Ergebnisse (0,18 Sek.)

[HTML] COVID-19: epidemiology and mutations: An update [HTML] springer.com
CJ Hemmer, M Lohmann, EG Reisinger - Der Radiologe, 2021 - Springer
... Die Wirksamkeit der in Deutschland verfügbaren **Impfungen** gegen **SARS-CoV-2** scheint durch diese Mutationen jedoch nur geringfügig beeinträchtigt zu sein. Bei der Beta-Variante (B...
☆ Speichern 0 Zitierten Zitiert von: 29 Ähnliche Artikel Alle 7 Versionen

Welche Impfquote ist notwendig, um COVID-19 zu kontrollieren? [PDF] rki.de
O Wichmann, S Scholz, M Watz, N Behrend-Küpe... - 2021 - edoc.rki.de
... In nicht einmal 12 Monaten gelang es, gleich mehrere sichere und nicht hochwirksame **Impfstoffe** zum Schutz vor **COVID-19** zu entwickeln. Seit Ende 2020 bzw. Anfang 2021 stehen in ...
☆ Speichern 0 Zitierten Zitiert von: 19 Ähnliche Artikel 0

Wie gut schützt die COVID-19-Impfung vor SARS-CoV-2-Infektionen und Transmission? [PDF] rki.de
T Harder, J Koch, S Vigen-Bornel, S Scholz, A Pitt... - 2021 - edoc.rki.de
... **COVID-19**-Impfung bzgl. Schutz vor jeglicher Infektion wie auch vor asymptomatischer Infektionen zwischen 90 und 90 %. Bei Personen, die trotz **Impfung** ... die **COVID-19**-**Impfung** eine ...
☆ Speichern 0 Zitierten Zitiert von: 12 Ähnliche Artikel 0

Beschluss und wissenschaftliche begründung der ständigen impfkommision (STIKO) für die COVID-19-impfempfehlung [PDF] rki.de
S Vigen-Bornel, J Koch, C Beuden, T Harder... - 2020 - edoc.rki.de
... einen gleichberechtigten Zugang zu einer **Impfung** gegen **COVID-19** anbieten zu können. ... zu einer **Impfung** gegen **COVID-19** anbieten zu können. Da initial der **COVID-19**-**Impfstoff** nur ...
☆ Speichern 0 Zitierten Zitiert von: 07 Ähnliche Artikel Alle 22 Versionen 0

[HTML] ... MIT entzündlich-rheumatischen Erkrankungen im Rahmen Der SARS-CoV-2/COVID-19-Pandemie einschließlich Empfehlungen Zur COVID-19-Impfung [HTML] springer.com
C Specker, P Ales, J Braun, G Burmester... - Zeitschrift für ... - 2021 - Springer
... Grundsätzlich gilt zwar eine Empfehlung, selektive **Impfungen** nicht während eines Schubes zu verabreichen, ob man eine **Impfung** gegen **COVID-19** von der aktuellen ...
☆ Speichern 0 Zitierten Zitiert von: 11 Ähnliche Artikel Alle 2 Versionen

CONCLUSION

- Search results for four languages were compared with English
- Relevant documents are displayed in English
- Hardly any differences on comparing German-English results
- Many irrelevant results for both Indian languages
- The algorithm is strongly focused on English papers only

BIBLIOGRAPHY

FAIR SEARCH (2011):GOOGLE'S TRANSFORMATION FROM GATEWAY TO GATEKEEPER: HOW GOOGLE'S EXCLUSIONARY AND ANTICOMPETITIVE CONDUCT RESTRICTS INNOVATION AND DECEIVES CONSUMERS. AVAILABLE AT:[HTTPS://WWW.FAIRSEARCH.ORG/WP-CONTENT/UPLOADS/2011/10/GOOGLES-TRANSFORMATION-FROM-GATEWAY-TO-GATEKEEPER.PDF](https://www.fairsearch.org/wp-content/uploads/2011/10/GOOGLES-TRANSFORMATION-FROM-GATEWAY-TO-GATEKEEPER.PDF)

ROVIRA C.;CODINA L.; LOPEZOSA C. (2021): LANGUAGE BIAS IN THE GOOGLE SCHOLAR RANKING ALGORITHM. FUTURE INTERNET 13(2):31.AVAILABLE AT: [HTTPS://DOI.ORG/10.3390/FI13020031](https://doi.org/10.3390/fi13020031)

LIDLAW, E (2010): FRAMEWORK FOR IDENTIFYING INTERNET INFORMATION GATEKEEPERS. IN: INTERNATIONAL REVIEW OF LAW, COMPUTERS & TECHNOLOGY, VOL. 24, NO. 3, 2010, AVAILABLE AT SSRN: [HTTPS://SSRN.COM/ABSTRACT=2667902](https://ssrn.com/abstract=2667902)