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CHATGPT RESEARCHERS' INTEREST IN IT TECHNOLOGY: A BIBLIOMETRIC STUDY OF THE SCOPUS DATABASE

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Abstract – *This article examines the current condition of ChatGPT as artificial intelligence (Artificial Intelligence) or AI which is currently viral on social media and worldwide. There are so many users who use this artificial intelligence to make many things in the world of education, medicine, business planning and various other fields. This article examines the current state of ChatGPT written by world authors and published in the journal scopus. The scopus database was used in this study with bibliometric analysis related to ChatGPT or AI. In June 2023, data collection was carried out to retrieve article data in the scopus database of 40 articles. The publication of ChatGPT trends in the world from articles, authors, and themes relevant to ChatGPT is analyzed using VOSviewer. Analysis of publication development trends about ChatGPT in this study was conducted on 40 articles using the VOSviewer application. The results showed that articles with the theme ChatGPT in the scopus database were first published in 2020. Articles with the most ChatGPT themes published in 2023 (28 documents). The journal that publishes the most articles with the theme ChatGPT is "Annals of Biomedical Engineering". The most journal affiliations are from the University of Tennessee Health Science Center, the most published journals from the United States, the most from the subjects of computer science, engineering and social science. Based on the help of indicators, keywords related to ChatGPT include: gpt, task, technology, openai, data and tools.*

Keywords: ChatGPT,Technology, IT.

I. INTRODUCTION

The United States-based intelligence research company in June 2020 introduced ChatGPT (Chat Generative Pre-trained Transformer). The ChatGPT modeling language has evolved since it was first invented. Starting from the base GPT-3, GPT-3.5 and the latest GPT-4. ChatGPT Open AI is currently trending on social media. ChatGPT, a publicly accessible tool developed by OpenAI (https://chat.openai.com). Many use this artificial intelligence to make many things, ranging from the world of education, business, medicine even as a chat buddy and others. ChatGPT was trained using an "unsupervised learning" machine learning technique in which the model was exposed to large amounts of text on the internet. Through this process, the model can understand language structure, syntax, and some level of general knowledge. It allows ChatGPT to function as an intelligent text assistant, help with various questions, provide information, write texts, and more. In several academic studies, ChatGPT-3 is able to produce human-like and original abstracts (Gao et al., 2022). It is reported that medical writing relies heavily on AI and chatbots (Biswas, 2023) and has the potential to support academic research in economics and finance (Alshater, 2022). The use of artificial intelligence (AI) in the era of digitalization has now increased rapidly, even in the Scopus International Journal many researchers began to raise the topic of ChatGPT.

Related to that we will analyze the interest of researchers on the topic of ChatGPT with Bibliometric studies using VOSviewer software. Bibliometric studies are used to evaluate the structure of felds research, the impact of individual articles, trends and the impact of different research groups. A bibliometric review of ChatGPT-related publications can provide insight into the impact and influence of models in the field of natural language processing, as well as trends in research on large language models more broadly that pioneered research into this tool. VOSviewer itself is a software tool for creating maps based on network data and for visualizing network visualizations, overlay visualizations and density visualizations. VOSviewer allows researchers to visualize the relationship between scientific publications, author distribution, and citations in the form of network and cluster maps.

II. STAGES OF DATA COLLECTION METHODS
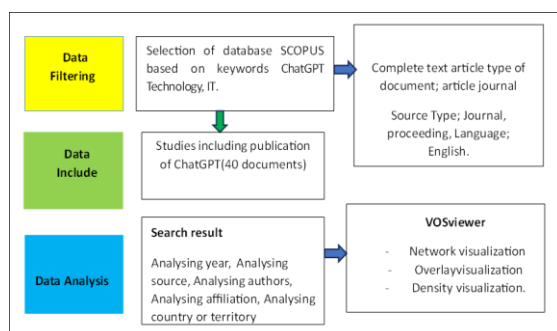
## III. RESULTS AND DISCUSSION

One indicator to determine the trend of researcher interest in the topic of ChatGPT is through the number of documents / articles with the theme ChatGPT. The implications of this technology for science and society are noteworthy, as ChatGPT has the potential to affect a wide range of industries and fields (van Dis et al., 2023). Data on the number of documents with the ChatGPT theme contained

in the scopus database for the period 2019 – 2023 is 40 documents. Being firal and sexy since the introduction of June 2020, the number of ChatGPT-themed documents from 4 documents in 2020-2021 and 3 documents in 2022 increased dramatically in June 2023 to 28 documents. this shows that interest in ChatGPT-themed research is quite high. This shows that the ChatGPT issue is an interesting topic among researchers. If you look at the growth of scopus indexed documents/articles, the contribution of scientific journals to raise the ChatGPT issue as a publishing topic is very large. Over time, ChatGPT has gained widespread recognition and popularity due to its remarkable capacity to generate coherent and realistic responses on a wide range of topics (Lund & Wang, 2023). The implications of this technology for science and society are noteworthy, as ChatGPT has the potential to affect a wide range of industries and fields (van Dis et al., 2023).
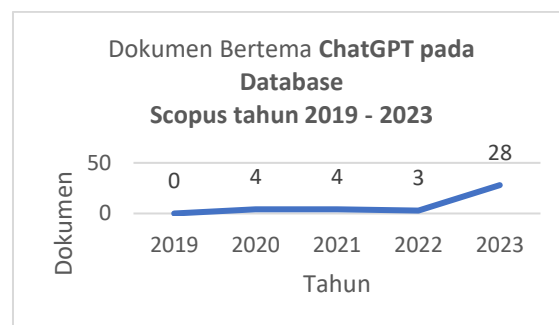

Graph 1. Number of ChatGPT-themed Documents on Dtabase Scopus in 2019 - 2023

Graph 2. shows the top 5 journals that publish articles related to the ChatGPT theme. The journal that publishes the most articles related to ChatGPT is "Annalisis of Biomedical Engineering" with 4 articles.
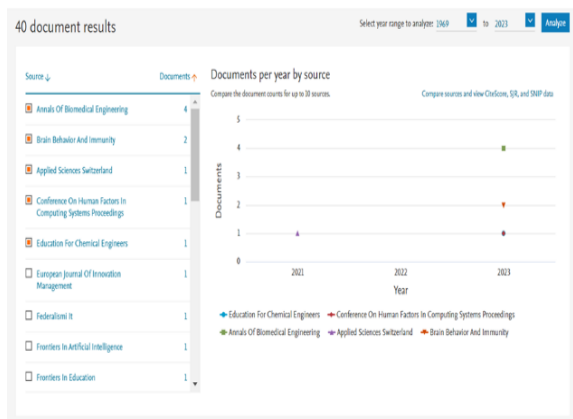
Graph 2. Number of documents per year based on ChatGPT source

The author participated in ChatGPT's research publication from 2019 to 2023. Interestingly, no author has produced more than 2 papers. The only author who wrote 2 documents on behalf of Biswas, S.S.
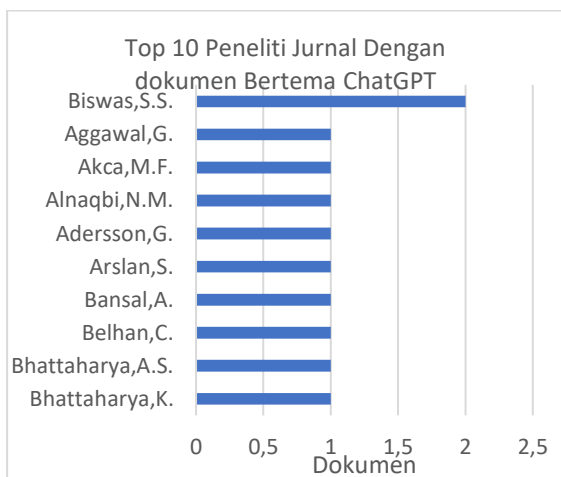

Graph 3. Number of documents by author

Top 9 affiliates in ChatGPT research publications from 2019 to 2023. among others: University of Tennessee Health Science Center (2 Documents), ODU, Nishtha Surgical Hospital and Research Centre, Amsterdam UMC, Garg Fistula Research Institute GFRI, Big Data Advance Analytics Unit, Anandaloke Multispeciality Hospital, Shristi Cosmetic and General and AIIMS Bhopal respectively (1 document).
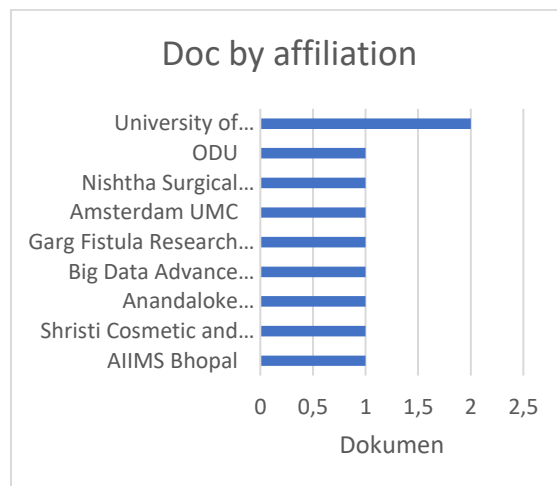

Graph 4. Documents by affiliation

Based on country or region, the United States ranked first in ChatGPT journal publications with 9 documents followed by India with 6 publications, Italy with 4 publications and Australia, Canada, China, Germany, Ireland, Japan and the Netherlands with 2 publications each.
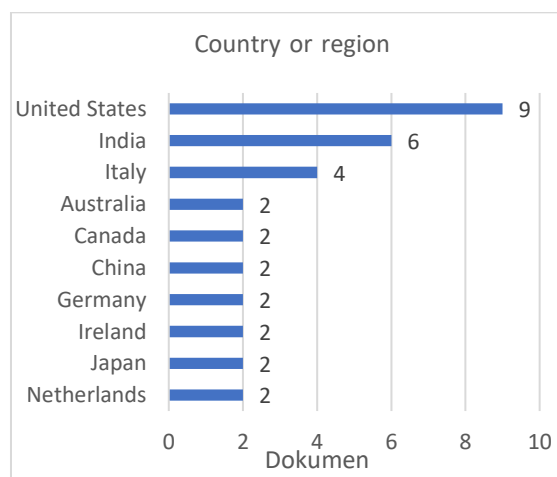

Graph 5. Documents by country or region

ChatGPT-themed research based on document type, in the form of conference paper articles (35%), then Articles (32.5%), Letters (20%), Editorials (5%), Reviews (5%), and Notes (2.5%).
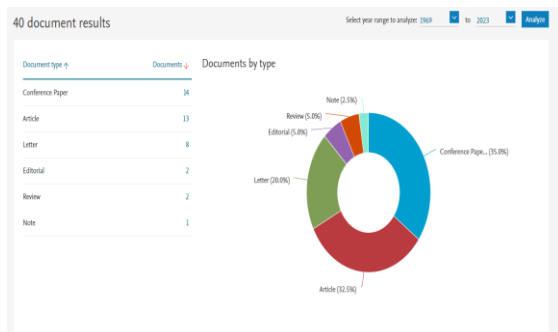
Graph 6. ChatGPT-themed research document types

ChatGPT themed research documents by field of study, the majority of disciplines Computer Science (26.6%), Engineering (12.7%), Social Science (12.7%), Medicine (11.4%), Decision Scienc (5.1%), Energy (5.1%), Mathematics (5.1%), Neuroscience (3.8%), Physics and Ast... (3.8%), Arts and Humanities (2.5%) and other sources (11.4%).
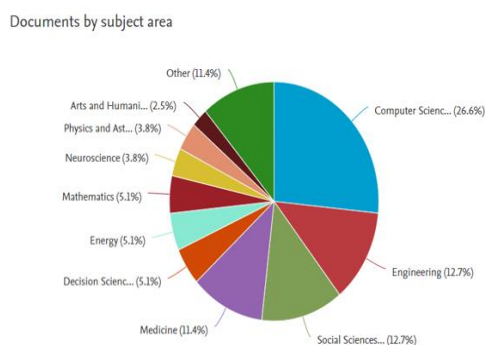
Graph 7. ChatGPT-themed research by field of study

Table 1. Five Articles Based on the Most Number of Citations

Nama Penulis	Judul Artikel	Nama Jurnal	Jumlah Sitasi
Lin, Z., Xu, P., Winata, G.I., ...Shin, J., Fung, P.	CAiRE: An end-to-end empathetic chatbot	AAAI 2020 - 34th AAAI Conference on Artificial Intelligence, pp. 13622–13623	53
Gilson, A., Safranek, C.W., Huang, T., ...Taylor,	How Does ChatGPT Perform on the United	JMIR Medical Education, 9, e45312	41

R.A., Chartash, D.	States Medical Licensing Examination? The Implications of Large Language Models for Medical Education and Knowledge Assessment		
Elkins, K., Chun, J.	Can GPT-3 Pass a Writer's Turing Test?	Journal of Cultural Analytics, 5(2)	35
Biswas, S.S.	Role of Chat GPT in Public Health	Annals of Biomedical Engineering, 51(5), pp. 868–869	15
Boyd, A., Puri, R., Shoeybi, M., Patwary, M., Catanzaro, B.	Large scale multi-actor generative dialog modeling	Proceedings of the Annual Meeting of the Association for Computational Linguistics, pp. 66–84	9

ChatGPT bibliometric analysis in this study, bibliometric analysis was carried out with the VOSviewer application. The keyword used in this study was "ChatGPT Bibliometric Analysis on Scopus Database". In bibliometric analysis with VOSviewer, relationships between themes can be displayed in bibliometric images with visualization of three networks. These visualizations include visualization networks, overlay visualizations, and density visualizations.

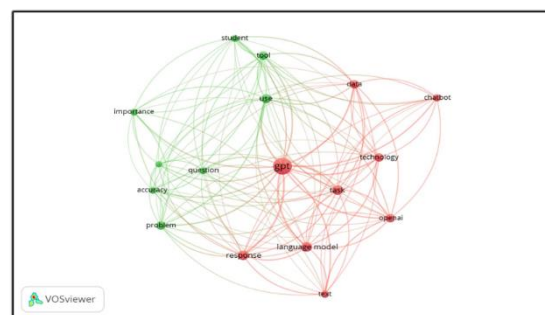Here are the results of the Bibliometric analysis

Figure 1. Keyword Distribution in Network Visualization

Based on figure 1., the keywords most often appear in articles related to "ChatGPT Bibliometric Analysis on Scopus Database". Some keywords appear including GPT, Toll, Technology, Use, Chatbot, Question, Task, Accuracy, Openai, Importance, Langage model, Problem and response. This shows that research with the keywords above has not been done much in previous studies.
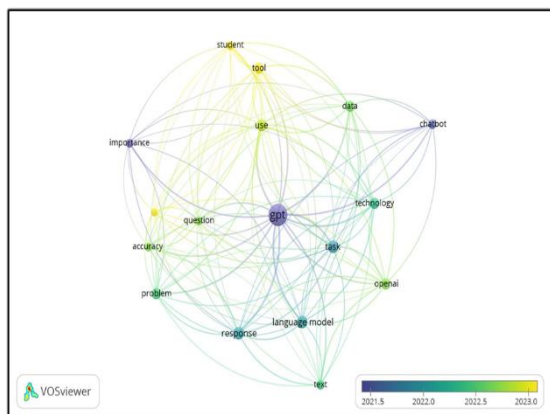

Figure 2. Keyword distribution in overlay visualization

Figure 2. Describes the distribution of keywords in overlay visualization. In the image the circle is incorporated with a color that indicates the period of publication of the article. The darker the color of the circle, the keyword is discussed in publications before 2021. The brighter yellow circles in these keywords indicate that they are discussed in publications published after 2022. Keywords that first appear are visible in circles with a dark gray color. These keywords include: gpt, chatbot and important. This means that at the beginning of the emergence of articles discussing ChatGPT in the Scopus Database is very closely related to GPT, chatbots and important. This means that initially articles discussing ChatGPT in the Scopus Database are more likely to function as the foundation of the term ChatGPT in the Scopus Database.

Figure 3. Keyword distribution in dencity visualization

Figure 3. Describe the distribution of keywords in density visualization. The image shows the distribution of keywords related to "ChatGPT Bibliometric Analysis on the Scopus Database" in Scopus-indexed publications. The yellow color shows the most frequently used keywords, including GPT, Task, Use, Toll, Chatbot, OpenAI, Response, Data and Language Model. From the figure, the novelty of the study associated with "ChatGPT Bibliometric Analysis on the Scopus Database" can be explained. Future research related to "Bibliometric Analysis of ChatGPT on Scopus Databases" may raise topics related to ChatGPT.

IV. CONCLUSION

ChatGPT can indeed function as an additional tool when working, but human creativity is considered to have not been replaced by AI. Basically, ChatGPT is a modern technological innovation that can help human life. Nevertheless, we still need to be careful in using it. In addition to chatbots, of course, there are many other technologies that can be used as tools in the workplace. ChatGPT is considered a promising research direction in chatbot research, although ChatGPT has some limitations and sometimes requires human assistance, it has the potential for a wide range of applications, including answering the questions we want, developing decisions and

support systems, improving discharge summaries, helping to write, translate, simulate interactions between employees and organizations, and support policy decision making. As a result, researchers are actively exploring this research direction within the ChatGPT framework.

Suggestion

Based on the results of bibliometric analysis, not many authors have raised the topic of ChatGPT Bibliometric Analysis on the Scopus Database. It is recommended for future researchers in ChatGPT research to focus on more specific subjects. Be sure to conduct an in-depth study and consultation with an expert or update ChatGPT technology.

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