From Bibliometrics to Altmetrics: Examining the Relationship Between Citation Count and Altmetric Score in Publications on Artificial Intelligence

Yasser Maatouk
Computer Science Department
King Abdulaziz University
Jeddah, Saudi Arabia
ymaatouk@kau.edu.sa

Abstract. in this research work, we studied two main research questions. First, we explored how artificial intelligence (AI) publications are seen on various altmetric platforms. Second, by looking at publications in the field of AI, we examined whether bibliometrics and altmetrics are correlated. For each of the 8000 AI publications on the Web of Science (WoS) database with altmetric scores, we recorded the citation counts and altmetric scores. Pearson's correlation for the two lists of variables was found to be 0.2. This result is near to zero, indicating that there is weak correlation between citations and altmetric attention score. Further, in the two top lists of publications according to citation count and altmetric score, respectively, we found only one paper in common. For the time being, altmetric scores are weakly correlated with citation in the AI publications. In terms of research impact, altmetrics should be regarded as complementary to traditional bibliometrics rather than as a replacement measure. Beside these results, this article gives an overview of this area of research (scientometrics and informetrics). All related terminologies are defined, and for the purpose of this study we focus on bibliometrics and altmetrics.
Keywords— Bibliometrics, Altmetrics, Artificial Intelligence

I. INTRODUCTION

This section discusses whether the terminology differs between the areas of scientometrics and informetrics. There are five related terminologies: scientometrics, informetrics, bibliometrics, webometrics/cybermetrics and altmetrics. All are mainly in the category of Library and Information Science and, when we consider big data and the data-mining methods to obtain useful and meaningful knowledge, relate also to computer science. Fig. 1 below gives an overall view of these terminologies.
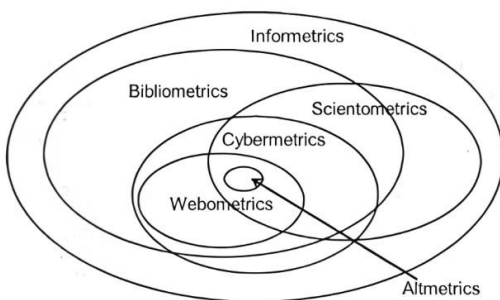

Fig. 1. Overview of related terminologies

According to the literature [1], the most important definitions of the related terminologies are that informetrics is the quantitative study of any form of information; it is not simply a bibliographic record or any social group, or is it limited to scientists. Scientometrics is the quantitative study of various kinds of intelligence processes in the development of science, and it uses quantitative methods to evaluate scientific research activities and thus guide science policy. Bibliometrics is the quantitative study of physically published or bibliographic units. All three have evolved to share many objectives, and have many methods and tools in common. They can be used interchangeably by authors; however, they can also differ between disciplines. For example, scientometrics is associated with the science of science, informetrics with information science and bibliometrics with library and document science [1].

In addition to the above terminologies is the science of webometrics, known also as cybermetrics. This tries to assess the worldwide web to obtain useful knowledge, such as type and count of hyperlinks [2]. In addition there is

altmetrics, an alternative method that complements traditional measures of the impact of scholarly articles, mainly in the social web ecosystem. By using altmetrics scholarly articles' impact is seen not only in the number of citations but also, in real time and immediately, in the number of visitors, readers, likes, links shared, mentions, conversation, saves, downloads, adaptations, reviews and other social media quantifiable [3].

In this study, we shift the focus from traditional bibliometrics to altmetrics, designed by Priem and Hemminger in 2010 in their work on article-level metrics as an alternative [4]. Altmetrics tracks and captures the mentions, views and saves afforded to a scientific article on the various online platforms. These platforms can be classified as academic websites, social media, news websites and reference managers, for example ResearchGate, Twitter, CNN and Mendeley [5].

A. The Main Conference and Journal

The international conference most closely related to this area is that of the International Society for Scientometrics and Informetrics (ISSI). The last was held virtually by Belgium in 2021. It was an open forum for professors and researchers around the world to discuss the current status and advancements in informetrics and scientometrics theories and their deployment. Further, it included related topics and practical applications, such as information retrieval, data mining, information science, history of science and much research, especially on the COVID-19 pandemic [6].

The main leader journal in this area is Scientometrics, an open-access journal by Springer. It started in 1978 with monthly issues. Its journal impact factor (JIF) increased from 3.238 in 2020 to 3.801 in 2021, with the position of Q2 in both the library and computer science categories. The journal is concerned with the quantitative characteristics and features of science. Its articles emphasize conducting research on the development of science through statistical methods [7].

B. Moving from Bibliometrics to Altmetrics

Bibliometrics is a type of data source and measurement that is widely used, mainly to evaluate an article's quality and research impact. Bibliometrics has various indicators, the most important of which are a scientific article's citation count, which is the count of occurrences of a study in the references of other scientific publications, the author's H-index, which is created to be an indicator for the researcher outputs, and JIF, which ranks the journal in a specific category [8].

Traditional bibliometric indicators had been used for some time to study the impact of the academic research; however, with the advent of digital technology and social media platforms, the interaction with scientific publications changed. This led to an accelerated rate of participation in and sharing of knowledge. A need arose for a new, alternative metrics to evaluate the research impact, one that that has a comprehension vision of the utilization and dissemination of the published research [9]. For the reasons discussed, the term 'altmetrics' (alternative metrics) was coined for this new way to evaluate every individual scientific publication's research impact by measuring and capturing the attention that it attracts. Altmetrics includes mentions of specific parts of a scientific publication's contents, such as its datasets or its results. Although it is designed for the scholarly publication level, it can be applied also to authors and journals [10][11][12].

Online altmetric platforms include ResearchGate, considered as a familiar scientific website to record authors' achievements, and Mendeley, considered as a reference manager for saving scientific publications. Additionally, Twitter is a social media network which is considered as a main source of comments, or 'tweets', relating to new scholar documents. It is used widely for sharing and disseminating scientific publications [13][14].

C. Data Providers for Bibliometrics and Altmetrics

Many sources provide bibliometrics and altmetrics with the raw data for analysis to obtain useful knowledge. For bibliometrics, the best-known databases are Scopus, Web of Science (WoS), Google Scholar, Dimensions and Microsoft Academic. Many researchers have discussed their importance and revealed the differences in terms of data quantity and quality [15][16][17]. Likewise, there are several providers of altmetrics data. The following is a brief description of the most important and the platforms. There is no comparison of providers, as many have already done this for both data accuracy and coverage [18][19].

- Altmetric.com is a data science company that started in 2012 in the United Kingdom. It

provides services mainly to publishers, universities and researchers to track and monitor their activities. A range of sources such as blogs, public policy documents, online reference managers, Wikipedia, social media networks are tracked for all types of scientific research. The algorithm is designed to count tracked objects such as publications, datasets and images. The Altmetric Attention Score (AAS) and the doughnut shape summarize a weighted count of the amount and type of attention that a research output has attracted [20].

- CrossRef Event Data is a service that began in 2017. This provider collects data from sources such as Twitter, Wikipedia, Reddit, and so on. Note that this service gives the sequence of events rather than calculated metrics; in other words, it tracks the connections between objects as they are made rather than creating a database. The main reason is to allow users to decide their own representations, such as to construct a relational database or create a knowledge base ontology [21].

- Lagotto is an open-source application developed in 2009. It started by giving mentions on social media networks for just PLOS scientific publications. Later, it started to collect and retrieve data from various external sources on articles by other publishers. The metrics are calculated for categories of impact such as views, shares, discussions and recommendations. Examples of the sources are Twitter, Mendeley, F1000Prime, CiteULike, Wikipedia and Reddit [22].

- Plum Analytics was established in 2012. Since 2017 it has been owned by Elsevier. For several types of research outputs, such as books and articles, five types of metrics are provided, categorized to enable analysis by comparing and contrasting. These types are social media, mentions, captures, usage and citations [23].

- Impact Story is a free open-source tool designed in 2011 to help researchers around the world to explore and share the online impact of their research output. It uses APIs to look for metrics. The sources could be a popular social media such as Twitter or an online reference manager such as Mendeley [24].

D. Research Questions

In this study, we used as a case study publications on AI, since AI is considered an important area in research to have been applied extensively to many other areas, and it is becoming increasingly popular due to its ability to be part of the solution of many complex problems [25][26]. According to the WoS, AI research has increased significantly over the past 10 years, as shown in Fig. 2 [27].

Our focus in this study is the correlation between bibliometrics and altmetrics, using AI publications to determine whether they can be used as interchangeable measures of research impact. Many studies have investigated the use of online altmetric platforms and their role. Most show that altmetrics is not tightly correlated with bibliometrics, as we show in the related works section. To best of our knowledge, there is no previous studies have evaluated the relationship between altmetrics and traditional bibliometrics for publications in the field of AI. Thus, we pose two research questions that have been discussed previously by several studies yet in other research fields:

- Can AI publications be seen across the various altmetric platforms?

- What is the relationship between bibliometrics and altmetrics?

The rest of this article covers recent related works in section 2, and in section 3 the extraction process and method used. Presenting and discussing the results is covered in section 4. Finally, section 5 concludes the study and gives directions for future work.
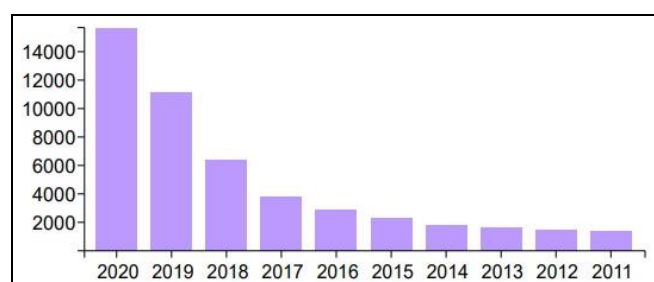

Fig. 2.   Annual increase in AI publications according to WoS database

II. RELATED WORKS

The objective of this research [28] is to decide whether, in the orthopaedic area, the AAS correlates to traditional bibliometrics such as the JIF and citations. We collected publications in this

field from the top 15 journals on the basis of their JIF. The top 10 cited publications in each were selected for the period from 2014 to 2017. Each publication's AAS was obtained from Altmetric Bookmarklet Application, whereas citations were obtained from the Scopus bibliographical database. JIFs were also collected from journal citation reports. Statistical measurements were performed, such as Spearman's and Pearson's correlation coefficients. All 600 scientific publications in the field of orthopaedics were used to perform this analysis, and the conclusion drawn was that, for the time being, AAS and bibliometrics are only weakly correlated [28].

Some authors [29] have shown a relationship between traditional bibliometrics, such as citations and altmetric indicators, in the field of anaesthesiology. The top ten papers on the basis of their citations were identified in the top five journals, based on the impact factor in the period 2016 to 2018. The information recorded was the citation count, altmetric score, number of tweets, and so on. Further, the authors undertook many descriptive statistics and the Pearson correlation test. A hundred articles were evaluated, and the result was that there is a weak correlation between bibliometrics and altmetrics [29].

Other authors [30] have worked on publications in the field of implantology, testing whether altmetrics and bibliometrics are correlated. The top five journals in this area were chosen on the basis of their impact factor. Their top ten articles, selected on the basis of their citations in 2013 to 2016, were used to undertake this analysis. Descriptive analysis and Pearson's correlation compared their altmetric score, citation count and impact factor. The result revealed no correlation between bibliometrics and altmetrics, in general, in both 2013 and 2016. The authors suggest that at this time altmetrics was insufficient to replace traditional bibliometrics; however, altmetrics can be helpful in giving an immediate impression about an article's dissemination. Further, it can serve as a complementary measure [30].

The point that others [31] studied is whether altmetrics is related to the quality of a scientific publication. They analysed the underlying dimensions of measurement for bibliometrics and altmetrics using both principal component analysis and factor analysis. Further, using regression analysis, they tested the relationship between the dimensions and quality of articles appearing on the F1000 system. The results show that altmetrics in general can be used as a new dimension. Mendeley was shown to be the platform relating most strongly to citations. Moreover, citations are significantly more closely related to quality than altmetrics in general [31].

The main point of a further study [32] was to examine the correlation between altmetrics and the H5-index. The authors used journals in the field of library and information science. The bibliometrics data were collected from Google Scholar, while the altmetrics data were collected from altmetric.com. The results show the independence of altmetrics from the H5-index. Further, they reveal the possibility that articles in journals with a low H5-index attract a greater number of altmetric mentions [32].

A contrasting study[33] used publications from the field of big data as a case study to explore how academic topics shift during discussion between the audiences of altmetric platforms such as Twitter, Blogs and News. Data were collected from both altmetric.com and WoS, and keywords for big data articles and terms from online events were obtained. Various measures were used to explore the similarities and dissimilarities in the author's keywords and the audience's terms. The results revealed notable differences, in general, between these two sources of big data expressions [33].

III. EXTRACTION PROCESS AND METHOD

AI articles were selected to be used in this study for the reasons discussed in the introduction. The extraction process was conducted on two different sources to get related data about bibliometrics and altmetrics. For the purpose of this study, as our source of bibliometrics we used the WoS database. WoS is considered an essential bibliographical databases, containing valuable information about publications dating back to 1900 in both soft and hard sciences. We downloaded the AI publications in CSV file format on the basis of their journal category, and for each AI publication including all bibliometric indicators like citations.

By contrast, the altmetrics data used in this research work were obtained from altmetric.com. This provider includes several attributes to represent online platforms from the web, as shown in Fig. 3, clarifying how specific scientific publications are used and discussed over the world. The data from altmetric.com were collected

in JSON format. For the purpose of our study, the main attributes were extracted defining each AI publication, such as the DOI number, title of the paper, journal in which the paper was published, altmetric attention score and the most important altmetrics platform scores. Finally, to obtain the final dataset, we matched the sources using the DOIs of approximately 8000 AI publications that have at least one citation and one altmetric mention.
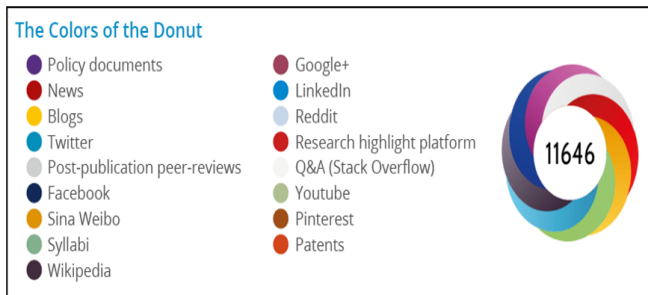

Fig. 3. Altmetrics platforms

IV. RESULTS AND DISCUSSION

A. Answering First Research Questions

From the data that we gathered, AI scientific publications are seen across altmetric online platforms such as Facebook, Twitter, News, Patents, Google Plus, Blogs and Wikipedia. These seven platforms are the most important and represent about 98.5% of all altmetric data. The platform Twitter alone is responsible for more than 75% of all altmetrics data, as seen in Table 1. Moreover, News, Blogs, Patents and Wikipedia are weighted more heavily than other platforms, as seen in Table 2. This clearly answers the first research question about seeing AI publications on several altmetric platforms.

TABLE I. MOST IMPORTANT ALTMETRIC PLATFORMS

Twitter	75.2%	Google+	1.6%
Patents	12.2%	Wikipedia	1.9%
News	2.7%	Blogs	1.1%
Facebook	3.8%	Other	1.5%

TABLE II. DEFAULT WEIGHTING OF ALTMETRIC DATA SOURCES

Source	Weight	Source	Weight
News	8	Blog	5
Policy document	3	Patent	3
Wikipedia	3	Syllabi	1
Peer review	1	Weibo	1
Google+	1	F1000	1
Twitter	0.25	LinkedIn	0.5
Facebook	0.25	Reddit	0.25
Pinterest	0.25	Q&A	0.25

Source	Weight	Source	Weight
YouTube	0.25	Mendeley	0

B. Answering the Second Research Question

In addition, we undertook an analysis to present the correlation between the citations and altmetric attention score. This helps us to understand the relationship between the two variables. The Pearson correlation of the two lists of variables was found to be 0.2. This result indicates that there is a weak correlation between citations and altmetric attention score.

Further, we created two lists of the top 10 publications on the basis of the highest number of citations (Table 3) and of the highest altmetric scores (Table 4). There was just one publication in common, a paper entitled "Deep learning in neural networks". This publication is regarded as a review paper, and it summarizes briefly and clearly all the relevant and recent work on machine learning, deep learning and pattern recognition. To conduct the survey the author include more than a thousand publications in the references list.

For a research paper such as this, a huge number of sources and information are bound to fall in the top list of both bibliometrics and altmetrics. The Neural Networks Journal that publishes this paper has a JIF of 5.785 at that time, which is not considered significantly higher than others in this field; however, in the computer science field the journal is in Q1 (the top 25%). The author's H-index for this publication is 31, considered to be better than that of other authors in the field.

TABLE III. TOP 10 AI PUBLICATIONS BASED ON CITATIONS

	Title	Citations	Altmetrics
1	LIBSVM: A library for support vector machines	15721	29.644
2	Speeded-Up Robust Features (SURF)	6282	21
3	ImageNet Large Scale Visual Recognition Challenge	5041	28.85
4	A Fast Iterative Shrinkage-Thresholding Algorithm for Linear Inverse Problems	4142	15
5	Deep Learning in Neural Networks: An overview	3353	481
6	The Pascal Visual Object Classes (VOC) Challenge	3231	9
7	Data Clustering: 50 years beyond K-means	2991	21.758
8	The Split Bregman Method for L1-Regularized Problems	2271	3
9	Top 10 Algorithms in Data Mining	1880	29.15
10	Selective Search for Object Recognition	1612	1.25

TABLE IV.   TOP 10 AI PUBLICATIONS BASED ON AAS

	Title	Citations	Altmetrics
1	Deep Learning in Neural Networks: An overview	3353	481
2	Brainprint: Assessing the uniqueness collectability and permanence of a novel method for ERP biometrics	53	363.394
3	Playing Counterstrike Versus Running: The impact of leisure time activities and cortisol on intermediate-term memory in male students	1	196.8
4	Information Systems and Task Demand: An exploratory pupillometry study of computerized decision making	9	179.5
5	Turing Learning: A metric-free approach to inferring behavior and its application to swarms	6	177.646
6	Unsupervised Real-Time Anomaly Detection for Streaming Data	62	134.15
7	Gradient Boosting Machines: A tutorial	189	114.63
8	Should I Send This Message? Understanding the impact of interruptions social hierarchy and perceived task complexity on user performance and perceived workload	32	114.58
9	Computer Analysis of Similarities Between Albums in Popular Music	5	107.25
10	Integrated Local Binary Pattern Texture Features for Classification of Breast Tissue Imaged by Optical Coherence Microscopy	15	101.43

In answer to the second research question, in the area of AI publications altmetric scores are weakly correlated to citations; the two top 10 lists had only a single article in common. In terms of impact indication, bibliometrics and altmetrics should be regarded as complementary rather than substitutes.

Bibliometrics is mainly a metrics based on publications citing other publications, and it is associated mostly with journals or conferences. The most important bibliometric indicators are citation count, journal impact factors and authors' H-indexes. These are the traditional data points that have been used for quite a long time, and can be obtained through sources like WoS, Google Scholar and Scopus, and many organizations still depend on them as key measures.

Altmetrics is a metrics based on engagement beyond citations, usually focused on online platforms. This includes news, patents, social media and other data sources, such as the number of views and downloads, and reference management tools. Altmetrics can provide indicators not covered by bibliometrics. They can be used to discover the opinions of a wide range of people outside of the narrow academic environment. Further, as well as what they are saying, through the various platforms altmetrics can demonstrate who is talking about a specific work, ranging from the general public to news agencies to academic researchers. Unlike bibliometrics, which needs time to wait for a research work to cite another research work, altmetrics can give an immediate impression of a specific scientific article.

V. CONCLUSION AND FUTURE WORK

The aim of this study is to determine whether bibliometrics and altmetrics are correlated. We examined the relationship between citation counts and altmetric scores in the field of AI. The bibliographical WoS database and altmetric.com provider were used as our sources of data on AI publications. We matched the two data sources using DOI and obtained about 8000 publications in the field of AI for use as a case study. Citation counts and altmetric scores were recorded for each AI publication. The two variables were analyzed in Microsoft Excel, using Pearson's correlation testing. The result of the correlation test between altmetric scores and citation numbers was 0.2.

At this point in time, for AI publications the altmetric score is only weakly correlated to citation count. We need to consider altmetrics as a measure that is complementary to traditional bibliometrics. This can reveal a big picture of how specific research is being read and discussed. Moreover, altmetrics gives an immediate sign about the impact of a specific scientific article, while citations take years to be acquired.

As part of future work, further research is needed to understand altmetrics over time in more detail, also the qualitative aspects of a publication with a high altmetric score. Many research ideas could be investigated using altmetrics to undertake research filters in academic search engines, authors' academic promotions and funding big projects. Moreover, we need to have these data in a single repository with better representation that is deeply concerned with the meaning of these numbers and indicators, such as semantic web technology. Reengineering the data and combining both data sources in a single knowledge base widely will lead to better visualizations, understanding and new indicators relating to the AI field.

REFERENCES

[1] Yang Siluo and Yuan Qingli, "Are scientometrics, informetrics, and bibliometrics different?" Proceedings of 16th International Conference on Scientometrics & Informetrics, August 2017.

[2] P. Chellappandi and C.S. Vijayakumar, "Bibliometrics, scientometrics, webometrics/cybermetrics, informetrics and altmetrics – An emerging field in library and information science research", Shanlax International Journal of Education 7, no. 1, 5–8, 2018. DOI: http/doi.org/10.5281/zenodo.2529398 Full Paper: https://files.eric.ed.gov/fulltext/EJ1245286.pdf

[3] Nuning Kurniasih, "The Implementation of altmetrics in library as an alternative measurement method for scholarly article impact in social web ecosystem", Proceedings of International Conference on Science Mapping and the Development of Science, Library and Information Management Graduate School, Gadjah Mada University pp. 63–73, Yogyakarta, April 2016.

[4] J. Priem and B.H. Hemminger, "Scientometrics 2.0: New metrics of scholarly impact on the social web", First Monday 15, no. 7, 2010.

[5] Guo Ying and Xiao Xiantao, "Altmetrics system for the evaluation of Chinese scholars", Proceedings ISSI, 1477–1478, 2021.

[6] http://www.issi-society.org/ the conference.

[7] https://www.springer.com/journal/11192/ the journal

[8] L. Bornmann and Loet Leydesdorff, "Scientometrics in a changing research landscape: bibliometrics has become an integral part of research quality evaluation and has been changing the practice of research", EMBO Reports 15, no. 12, 1228–1232, 2014. doi:10.15252/embr.201439608

[9] J.S. Butler, I.D. Kaye, A.S. Sebastian, S.C. Wagner, P.B. Morrissey, G.D. Schroeder, C.K. Kepler and A.R. Vaccaro, "The evolution of current research impact metrics from bibliometrics to altmetrics?", Clinical Spine Surgery 30 June, no. 5, 226–228, 2017.

[10] S.-U. Hassan, M. Imran, U. Gillani, N.R. Aljohani, T.D. Bowman and F. Didegah, "Measuring social media activity of scientific literature: An exhaustive comparison of Scopus and novel altmetrics big data", Scientometrics 113, no. 2, 1037–1057, 2017.

[11] M. Thelwall and T. Nevill, "Could scientists use Altmetric.com scores to predict longer-term citation counts?", Journal of Informetrics 12, no. 1, 237–248, 2018.

[12] Saeed-Ul Hassan, Mubashir Imran and Alesia A. Zuccala, "Alt-Index: A proposed index for measuring the social activity of scientific research", In Proceedings of the 23rd International Conference on Science and Technology Indicators, STI Leiden, pp. 750–756, 2018.

[13] H. Yu, S. Xu, T. Xiao, B.M. Hemminger and S. Yang, "Global science discussed in local altmetrics: Weibo and its comparison with Twitter", Journal of Informetrics 11, no. 2, 466–482, 2017.

[14] S. Haustein, T.D. Bowman, K. Holmberg, A. Tsou, C.R. Sugimoto and V. Larivière, "Tweets as impact indicators: Examining the implications of automated "bot" accounts on Twitter", Journal of the Association for Information Science and Technology 67, no. 1, 232–238, 2016.

[15] Vicente P. Guerrero-Bote, Zaida Chinchilla-Rodríguez, Abraham Mendoza and Félix de Moya-Anegón, "Comparative analysis of the bibliographic data sources dimensions and Scopus: An approach at the country and institutional levels", Frontiers in Research Metrics and Analytics, 2021 https://doi.org/10.3389/frma.2020.593494

[16] A. Martín-Martín, M. Thelwall, E. Orduna-Malea et al., "Google Scholar, Microsoft Academic, Scopus, Dimensions, Web of Science, and OpenCitations' COCI: A multidisciplinary comparison of coverage via citations". Scientometrics 126, 871–906, 2021. https://doi.org/10.1007/s11192-020-03690-4

[17] C. Rovira, L. Codina, F. Guerrero-Solé and C. Lopezosa, "Ranking by relevance and citation counts, a comparative study: Google Scholar, Microsoft Academic, WoS and Scopus", Future Internet 11, no. 9, 202, 2019, doi: 10.3390/fi11090202. [online]. Available: http://dx.doi.org/ 10.3390/fi11090202

[18] J.-L. Ortega, "Altmetrics data providers: A meta-analysis review of the coverage of metrics and publications", El profesional de la información 29, no. 1, e290107, 2020 [online]. Available: https://doi.org/10.3145/epi.2020.ene.07 Full Text: https://digital.csic.es/bitstream/10261/217725/1/Altmetrics%20data%20providers.pdf

[19] J.-L. Ortega, "Reliability and accuracy of altmetric providers: A comparison among altmetric.com, PlumX and Crossref event data". Scientometrics 116, 2123–2138, 2018. https://doi.org/10.1007/s11192-018-2838-z

[20] Altmetric. https://www.altmetric.com. Accessed 2022.

[21] Crossref Event Data. https://www.eventdata.crossref.org. Accessed 2022.

[22] Lagotto. https://www.lagotto.io. Accessed 2022.

[23] Plum Analytics. https://plumanalytics.com. Accessed 2022.

[24] Impactstory. https://profiles.impactstory.org. Accessed 2022.

[25] A. Mellitand and S.A. Kalogirou, "Artificial intelligence techniques for photovoltaic applications: A review", Progress in Energy and Combustion Science 34, no. 5, 574–632, 2008.

[26] Y. Lei and Z. Liu, "The development of artificial intelligence: a bibliometric analysis, 2007–2016", Journal of Physics: Conference Series 1168 022027, 1168, no. 2, 2019.

[27] Web of Science [https://clarivate.com/webofsciencegroup/]

[28] Christine S. Collins, Nikhi P. Singh, Shivani Ananthasekar, Carter J. Boyd, Eugene Brabston and Timothy W. King, "The correlation between altmetric score and traditional bibliometrics in orthopaedic literature", Journal of Surgical Research 268, 1–758, 2021. DOI: https://doi.org/10.1016/j.jss.2021.07.025 Full Text: https://www.journalofsurgicalresearch.com/article/S0022-4804(21)00488-1/fulltext

[29] Lisa Q. Rong, Alexandra J. Lopes, Irbaz Hameed, Mario Gaudino and Mary E. Charlson, "Examining the correlation between Altmetric score and citation count in the anaesthesiology literature", 2020. DOI: https://doi.org/10.1016/j.bja.2020.04.086 Full text: https://www.bjanaesthesia.org/article/S0007-0912(20)30341-X/fulltext

[30] Victor T. Warren, Bhumika Patel and Carter J. Boyd, "Analyzing the relationship between Altmetric score and literature citations in the Implantology literature", 2019. https://doi.org/10.1111/cid.12876 Full text: https://onlinelibrary.wiley.com/ doi/epdf/10.1111/cid.12876

[31] Lutz Bornmann and Robin Haunschild, "Do altmetrics correlate with the quality of papers? A large-scale empirical study based on F1000 prime data", Plos One, 2018 https://doi.org/10.1371/journal.pone.0197133

[32] Nkosingiphile Zungu, "Correlating altmetrics and h5-Index using Google Scholar metrics for journals in library and information science", Library Philosophy and Practice (e-journal), University of Lincoln-Nebraska, 2021, https://digitalcommons.unl.edu/libphilprac/6435/

[33] X. Ylu and R. Costas, "How do academic topics shift across altmetric sources? A case study of the research area of big data", Scientometrics 123, no. 7, 2020. DOI:10.1007/s11192-020-03415-7

من القياسات الببليومترية إلى المقاييس البديلة: فحص العلاقة بين عدد الاقتباسات والمقاييس البديلة في المنشورات المتعلقة بالذكاء الاصطناعي

ياسر معتوق [1]

[1] *قسم علوم الحاسبات ، كلية الحاسبات وتقنية المعلومات، جامعة الملك عبدالعزيز،*
جدة ، المملكة العربية السعودية

مستخلص. في هذا العمل البحثي، قمنا بدراسة سؤالين بحثيين رئيسيين. أولاً، دراسة وجود منشورات الذكاء الاصطناعي على منصات المقاييس البديلة المختلفة. ثانيًا، من خلال النظر في المنشورات في مجال الذكاء الاصطناعي، قمنا بفحص ما إذا كانت القياسات الببليومترية والمقاييس البديلة مترابطة. لكل من منشورات الذكاء الاصطناعي البالغ عددها ٨٠٠٠ على قاعدة بيانات شبكة المعلومات، قمنا بتسجيل عدد الاقتباسات ودرجات القياس البديل. تم العثور على ارتباط بيرسون لقائمتين من المتغيرات ليكون ٠,٢ . هذه النتيجة قريبة من الصفر، مما يشير إلى وجود ارتباط ضعيف بين الاقتباسات ودرجات المقاييس البديلة. علاوة على ذلك، في القائمتين الرئيسيتين من المنشورات وفقًا لعدد الاقتباسات ودرجات القياس البديل، وجدنا ورقة علمية واحدة مشتركة فقط. في الوقت الحالي، ترتبط درجات المقاييس البديلة ارتباطًا ضعيفًا بالاقتباس في منشورات الذكاء الاصطناعي. لذا يجب اعتبار المقاييس البديلة مكملة للقياسات الببليومترية التقليدية بدلاً من اعتبارها مقياسًا بديلاً. بجانب هذه النتائج، تقدم هذه المقالة لمحة عامة عن هذا المجال من البحث، حيث قمنا بتعريف جميع المصطلحات ذات الصلة، ولأغراض هذه الدراسة تم التركيز على المقاييس الببليومترية والمقاييس البديلة.

الكلمات المفتاحية. المقاييس الببليومترية، المقاييس البديلة، منشورات الذكاء الاصطناعي