

New research demonstrates more effective method for measuring impact of scientific publications

November 20 2023



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Newly published research reexamines the evaluation of scientific findings, proposing a network-based methodology for contextualizing a publication's impact.

This new method, which is laid out in an article co-authored by Alex Gates, an assistant professor with the University of Virginia's School of Data Science, will allow the [scientific community](#) to more fairly measure the impact of interdisciplinary scientific discoveries across different fields and time periods.

The findings are [published](#) in the journal *Proceedings of the National Academy of Sciences*.

The impact of a scientific publication has long been quantified by citation count. However, this approach is vulnerable to variations in citation practices, limiting the ability of researchers to accurately appraise the true importance of a scientific achievement.

Recognizing this shortcoming, Gates and his co-authors—Qing Ke of the School of Data Science at City University of Hong Kong and Albert-László Barabási of Northeastern University—propose a network-normalized impact measure. By normalizing [citation](#) counts, their approach will help the scientific community avoid biases when assessing a diverse body of scientific findings—both going forward and retrospectively.

In addition to the published findings, the authors have also implemented the method in [an open-source package](#) where anyone who is interested can find instructions on how to try this approach themselves on different examples of scientific [research](#).

Gates joined UVA's School of Data Science in 2022.

More information: Qing Ke et al, A network-based normalized impact measure reveals successful periods of scientific discovery across discipline, *Proceedings of the National Academy of Sciences* (2023). [DOI: 10.1073/pnas.2309378120](https://doi.org/10.1073/pnas.2309378120)

Provided by University of Virginia

Citation: New research demonstrates more effective method for measuring impact of scientific publications (2023, November 20) retrieved 29 April 2024 from <https://phys.org/news/2023-11-effective-method-impact-scientific.html>

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