

AMERICAN MEDICAL ASSOCIATION HOUSE OF DELEGATES

Resolution: 506
(A-24)

Introduced by: Medical Student Section

Subject: Screening for Image Manipulation in Research Publications

Referred to: Reference Committee E

1 Whereas, the scientific community has raised alarm regarding research misconduct involving
2 image manipulation, leading some journals to implement AI-based screening tools to detect
3 alterations indistinguishable to humans and sometimes themselves generated by AI;¹⁻² and
4

5 Whereas, the American Association of Cancer Research's AI-based Proofig is now used by
6 multiple journal publishers and has demonstrated improved efficacy in detecting image
7 manipulation compared to human analysts to reject publications;³⁻⁶ and
8

9 Whereas, image screening will likely lag behind advancements in image manipulation, such as
10 generative adversarial networks (GANs), a type of machine learning algorithm specifically
11 designed to deceive or evade other AI tools; and
12

13 Whereas, efforts to improve image screening tools therefore depend on as much data from
14 manipulated images as possible; therefore be it
15

16 RESOLVED, that our American Medical Association support the creation of a nationally
17 collaborative database of manipulated images from retracted publications to provide a test bank
18 for researchers developing augmented intelligence-integrated image screening tools. (New
19 HOD Policy)
20

Fiscal Note: Minimal - less than \$1,000

Received: 4/24/2024

REFERENCES

1. Wang, L., Zhou, L., Yang, W., & Yu, R. (2022). Deepfakes: A new threat to image fabrication in scientific publications? *Patterns*, 3(5), 100509. doi:10.1016/j.patter.2022.100509
2. Qi, C., Zhang, J., & Luo, P. (2021). Emerging Concern of Scientific Fraud: Deep Learning and Image Manipulation. *BioRxiv*, 2020.11.24.395319. doi:10.1101/2020.11.24.395319
3. About Us: Proofig Ltd.: Software image integrity. proofig. (n.d.). Retrieved March 19, 2023, from <https://www.proofig.com/about-us>
4. Jackson S, Williams CL, Collins KL, McNally EM. Data we can trust. *J Clin Invest*. 2022 Aug 1;132(15):e162884. doi: 10.1172/JCI162884. PMID: 35912864; PMCID: PMC9337817.
5. Van Noorden, R. (2021, December 21). Journals adopt AI to spot duplicated images in manuscripts. *Nature News*. Retrieved March 19, 2023, from <https://www.nature.com/articles/d41586-021-03807-6>
6. Gu, J., Wang, X., Li, C., Zhao, J., Fu, W., Liang, G., & Qiu, J. (2022). AI-enabled image fraud in scientific publications. *Patterns*, 3(7), 100511. doi:10.1016/j.patter.2022.100511

RELEVANT AMA Policy

7.1.5 Misconduct in Research

Biomedical and health research is intended to advance medical knowledge to benefit future patients. To achieve those goals physicians who are involved in such research maintain the highest standards of professionalism and scientific integrity.

Physicians with oversight responsibilities in biomedical or health research have a responsibility to ensure that allegations of scientific misconduct are addressed promptly and fairly. They should ensure that procedures to resolve such allegations:

- (a) Do not damage science.
- (b) Resolve charges expeditiously.
- (c) Treat all parties fairly and justly. Review procedures should be sensitive to parties' reputations and vulnerabilities.
- (d) Maintain the integrity of the process. Real or perceived conflicts of interest must be avoided.
- (e) Maintain accurate and thorough documentation throughout the process.
- (f) Maintain the highest degree of confidentiality.
- (g) Take appropriate action to discharge responsibilities to all individuals involved, as well as to the public, research sponsors, the scientific literature, and the scientific community.

AMA Principles of Medical Ethics: I,III,V [Issued: 2016]

Fraud and Misrepresentation in Science H-460.972

The AMA: (1) supports the promotion of structured discussions of ethics that include research, clinical practice, and basic human values within all medical school curricula and fellowship training programs; (2) supports the promotion, through AMA publications and other vehicles, of (a) a clear understanding of the scientific process, possible sources of error, and the difference between intentional and unintentional scientific misrepresentation, and (b) multidisciplinary discussions to formulate a standardized definition of scientific fraud and misrepresentation that elaborates on unacceptable behavior; (3) supports the promotion of discussions on the peer review process and the role of the physician investigator; (4) supports the development of specific standardized guidelines dealing with the disposition of primary research data, authorship responsibilities, supervision of research trainees, role of institutional standards, and potential sanctions for individuals proved guilty of scientific misconduct; (5) supports the sharing of information about scientific misconduct among institutions, funding agencies, professional societies, and biomedical research journals; and (6) will educate, at appropriate intervals, physicians and physicians-in-training about the currently defined difference between being an "author" and being a "contributor" as defined by the Uniform Requirements for Manuscripts of the International Committee of Medical Journal Editors, as well as the varied potential for industry bias between these terms. [CSA Rep. F, I-88; Reaffirmed: Sunset Report, I-98; Reaffirmation I-03; Appended: Res. 311, A-11; Reaffirmed: CEJA Rep. 1, A-21]

Assessing the Potentially Dangerous Intersection Between AI and Misinformation H-480.935

Our American Medical Association will: (1) study and develop recommendations on the benefits and unforeseen consequences to the medical profession of large language models (LLM) such as, generative pretrained transformers (GPTs), and other augmented intelligence-generated medical advice or content, and that our AMA propose appropriate state and federal regulations with a report back at A-24; (2) work with the federal government and other appropriate organizations to protect patients from false or misleading AI-generated medical advice; (3) encourage physicians to educate our patients about the benefits and risks of consumers facing LLMs including GPTs; and (4) support publishing groups and scientific journals to establish guidelines to regulate the use of augmented intelligence in scientific publications that include detailing the use of augmented intelligence in the methods, exclusion of augmented intelligence systems as authors, and the responsibility of authors to validate the veracity of any text generated by augmented intelligence. [Res. 247, A-23]