



Playing it Smart with AI in Proposal Writing and Review

By Karen M. Markin

Some faculty who seek to relieve the burden of writing and reviewing grant proposals are looking at artificial intelligence (AI) as a tool to help with those tasks. Research administrators have an opportunity to caution them about the judicious use of this technology. Major federal funding agencies in the United States currently prohibit the use of AI in the peer review process. ChatGPT was released to the general public in December 2022 by Open AI, a San Francisco artificial intelligence company (Roose, 2022). In the following year, both the National Institutes of Health and the National Science Foundation issued notices prohibiting the use of generative artificial intelligence in the merit review process.

These models are trained on vast quantities of material to learn the semantic relationships between words (Marr, 2023). The performance of the model depends on the quality of the data used to train it. Training data can include information publicly available from the internet or downloading databases such as Wikipedia (Register of Copyrights, 2025). When users share material with a tool such as

ChatGPT, they lose control over its disclosure. Thus, federal agencies' key concern about the use of AI concerns the breaching the confidentiality of the proposal under review.

"AI tools have no guarantee of where data are being sent, saved, viewed, or used in the future," according to the NIH policy (2023). NSF noted that tools may incorporate the information into their datasets and use it to train for future users (NSF, 2023). In response to these concerns, NSF issued a notice in December 2023 stating that "sharing proposal information with generative AI technology via the open internet violates the confidentiality and integrity principles of NSF's merit review process. Any information uploaded into generative AI tools not behind NSF's firewall is considered to be entering the public domain" (NSF, 2023).

Similarly, NIH issued a notice in June 2023 titled, "The Use of Generative Artificial Intelligence Technologies is Prohibited for the NIH Peer Review Process," and it remains in force (NIH, 2023). "The use of generative AI tools to output a peer review critique on a specific grant application... requires substantial and detailed information

inputs. AI tools have no guarantee of where data are being sent, saved, viewed or used in the future,” it states. Reviewers are thus prohibited from using AI tools to analyze and critique grant and contract proposals.

NIH values the expertise and originality of thought that scientists put into their proposal reviews. “We take this issue seriously,” wrote Mike Lauer, former deputy director for extramural research at NIH. “Applicants are trusting us to protect their proprietary, sensitive, and confidential ideas from being given to others who do not have a need to know” (NIH, 2024).

The U.S. Department of Agriculture’s National Institute of Food and Agriculture also prohibits the use of generative AI in peer review. “NIFA cannot protect non-public information disclosed to a third-party generative AI system from being accessed by undisclosed third parties,” according to the agency’s website (2021). “If information from the peer review process is disclosed without authorization through generative AI or otherwise, NIFA loses the ability to protect it from further release. This loss of control creates a significant risk to researchers and their ideas.”

Some observers think this prohibition won’t last, because some AI models work offline and therefore don’t pose problems with confidentiality (Kaiser, 2023). But it’s in place for now, and investigators need to know that.

“We have a crucial role to play in guiding our colleagues through the emerging world of AI.”

Indeed, there is concern internationally about the role of AI in the scientific research enterprise. In guidelines released in April 2025, the European Commission recommended that researchers “refrain from using generative AI tools substantially in sensitive activities that could impact other researchers or organizations (for example, peer review, evaluation of research proposals, etc.)” (European Commission, 2025). This approach will protect unpublished work from potential exposure in an AI model. Down under, the Australian Research Council banned generative AI for peer review after discovering reviews that apparently were written by ChatGPT (Kaiser, 2023).

Regarding the use of AI in proposal preparation, NIH issued a policy July 17, stating it “will not consider applications that are either substantially developed by AI, or contain sections substantially developed by AI, to be original ideas of applicants. If the detection of AI is identified post award, NIH may refer the matter to the Office of Research Integrity to determine whether there is research misconduct” (NIH, 2025).

Agencies that don’t prohibit the use of AI in proposal preparation warn investigators that they will be held responsible for any problems that result from use of the technology. For example, plagiarism, fabrication and falsification are research misconduct for which the principal investigator is responsible, even if it was generated by an AI tool. Hallucinations, or

presentations of false information as true, remain a problem with AI. Some reports indicate they are getting worse (Hsu, 2025).

However, the use of generative AI in grant proposal preparation remains appealing to scientists. A robotics lecturer in the United Kingdom stated what many principal investigators probably think: “I’ve always hated writing grants.” He used AI to write sections of a proposal and edited the results before submitting the document. He said the use of ChatGPT reduced his workload from three days to three hours (Parrilla, 2023).

Scientists are forging ahead with advice on how to use AI to prepare proposals and chatbots to assist with the process. A 2024 article in *PLOS Computational Biology* discussed how to use large language models (LLMs) such as ChatGPT to assist with grant writing (Seckel, Stephens, & Rodriguez, 2024). They advise against using AI to write a grant. Instead, they suggested using it to evaluate different sections of the proposal. “In our experience, we found that LLMs excel when provided with instructions to narrow down their focus to a specific task or section, which you can achieve by using custom prompts” (Seckel et al., 2024). The authors then recommend that the grant writer fact check everything to guard against the danger of a hallucination. They also recommend using AI-generated text as an inspiration rather than copying it verbatim.

Meanwhile, computer scientists are working to construct a chatbot to assist with the writing of proposals to NSF. A team at North Carolina State University is developing a tool to provide tailored writing templates for each section of an NSF proposal, adhering to agency guidelines (Kasierski & Fagnano, 2024).

AI is making its way into workplaces of all kinds, and universities and laboratories are no exception. Faculty likely will want to use it to reduce what they see as the drudgery associated with grant writing. Research administrators can support them by familiarizing them with agency policies and best practices for avoiding pitfalls. ■

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