Microsoft

The Academic Researcher's Guide to Generative AI

Methods and Prompting with Microsoft 365 Copilot Chat

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About this guide

AI is reshaping the academic research landscape,[1,2] and researchers are increasingly using generative AI and large language models (LLMs) to optimize operations and workflows. Between 2024 and 2025, the share of researchers using LLMs grew from 57% to 84%.[3] To apply these tools appropriately and robustly, researchers must understand the limitations and strengths of LLMs.

We authored this guide to support the needs of the research community and to help academic researchers build the fluency necessary to consider integrating generative AI tools into their operations and workflows.

> *The goal is to help researchers use AI technologies as assistants, accelerators, and tools for thought, without compromising scholarly integrity.*

This resource synthesizes current guidance, frameworks, and workflows for using Microsoft 365 Copilot Chat in academic research. It emphasizes cognitive and actionable approaches, including robust prompting, transparency, and disclosure. This volume presents use cases that can be executed in Microsoft 365 Copilot Chat at any license level.

Generative AI tools are evolving rapidly, along with recommendations for how to use them. This guide is intended as a starting point for thinking about how to integrate generative AI into research workflows based on current knowledge, which is necessarily non-exhaustive and subject to change. Model behavior is also probabilistic: the same prompt may produce different outputs, and outputs may be incomplete, biased, or incorrect. The examples and prompts provided here are not a guarantee of correctness or suitability for any specific task. We encourage researchers to review outputs carefully, verify key details with trusted sources, and apply their own judgment when using AI-generated outputs.

Each of the three sections of this guide can be used as a standalone reference, or the sections can be read together as a cohesive framework for integrating generative AI into academic research:

Section 1

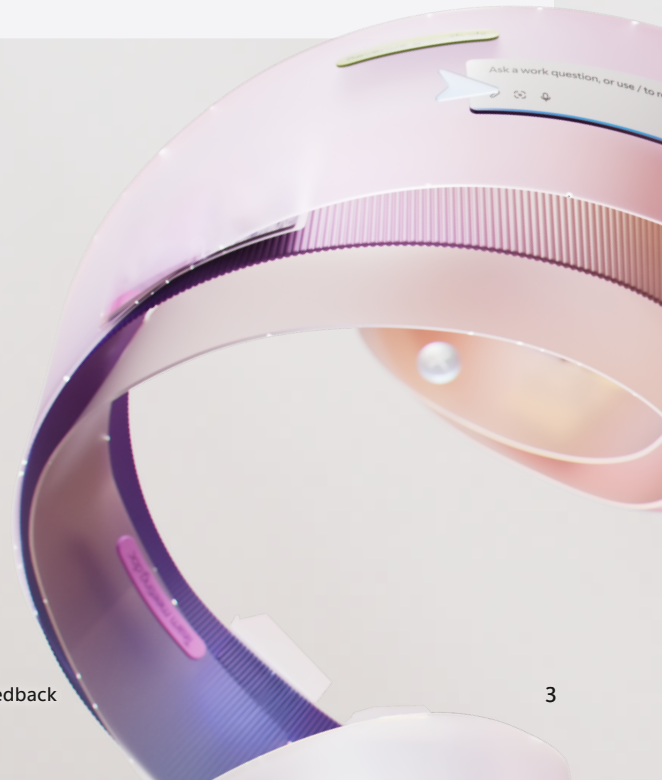
Foundations and limitations of generative AI in research outlines how generative AI models function, explores the implications of their design for research practice, and highlights why informed, critical engagement is essential.

Section 2

Robust prompting for academic research introduces prompting fluency and treats prompt design as a research skill that requires clarity, structure, and documentation.

Section 3

Integrating Copilot Chat into your research workflow applies these principles in real-world research scenarios by providing detailed prompt templates for literature review, idea generation, writing and data support, research administration, and science communication.



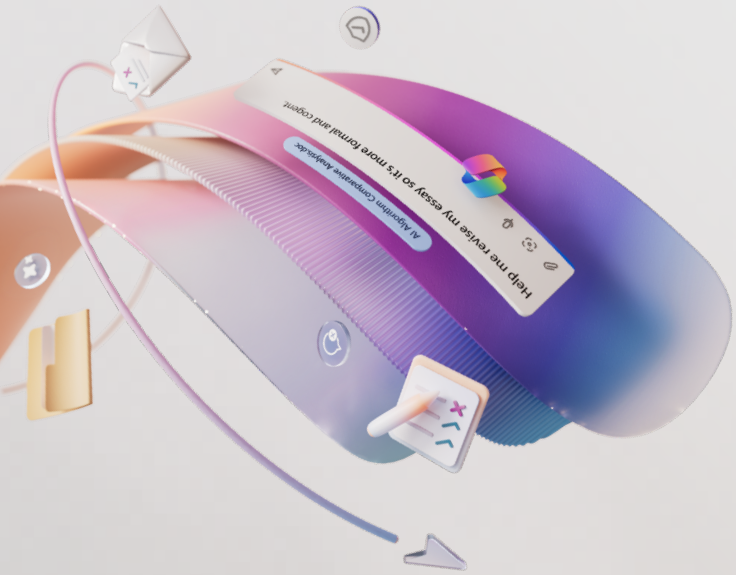
Section 1

Foundations and limitations of generative AI in research

Generative AI tools are transforming research workflows, but their design and limitations require discernment. These models produce probabilistic outputs based on patterns rather than on true comprehension, and this has significant implications for scholarly integrity. To begin to use them responsibly, **researchers need an understanding of three areas:**

1. AI basics
2. A limitations-first lens
3. Appropriate reliance and protecting cognitive skills

Together, these insights provide a foundation for making the most of AI's power, while mitigating risks to accuracy, reproducibility, and cognitive integrity, and they underpin the prompt rubric and disclosure standards described in "**Section 2. Robust prompting for academic research.**"



AI basics: Understanding the tools

What is generative AI?

Generative AI refers to a class of AI systems designed to create new content, such as text, code, images, or summaries, based on patterns learned from existing data. Unlike traditional AI systems that primarily classify, predict, or retrieve information, generative AI produces original outputs that resemble human-created artifacts, guided by user input called a prompt. At the core of many generative AI systems are large language models (LLMs). LLMs are deep learning models trained on large collections of text to learn statistical relationships between words, phrases, and concepts. Rather than storing facts in a database, these models learn how language tends to be structured and used, allowing them to generate coherent responses to new inputs. When an LLM generates text, it's estimating what sequence of words is most likely to follow, given the prompt and the context provided.

The idea of AI has been explored for decades, and the field has advanced as a function of available data, computing power, and practical needs. The term artificial intelligence was introduced in 1956, and early research emphasized symbolic reasoning—systems that followed explicit rules to solve well-defined problems, such as logic puzzles or structured games. By the 1970s and 1980s, this approach was applied in narrow professional domains by encoding human decision-making rules (for example, decision-support tools designed to troubleshoot industrial equipment). These systems could be useful, but they were difficult to maintain and often broke down when real-world situations did not fit the rules as written.

From the 1990s onward, the focus shifted toward machine learning, in which systems learn patterns from examples rather than relying on prescribed rules. This period saw practical AI become widespread with, for example, email spam filters, credit-card fraud detection, search engines that rank results, and recommendation systems that suggest books, movies, or videos based on prior behavior. In the 2010s, deep learning accelerated progress further, especially in areas where large, labeled datasets were available. Deep learning is a form of machine learning that uses multilayer structures, called neural networks, to learn complex patterns directly from large amounts of data, which can be particularly effective for language, images, and speech. Examples include major improvements in image recognition, speech recognition, and machine translation.

Generative AI builds on these advances by focusing not only on recognizing patterns but also on producing new content (for example, drafting text, summarizing documents, writing code, or generating images) based on patterns learned from large collections of data. The recent visibility of generative AI has been driven by LLMs, which can produce fluent responses to prompts and support interactive chat experiences. An LLM is a statistical model of language: it has been trained on large amounts of text so it can predict which words are likely to come next in a given context, and it generates longer responses by repeating that next-word prediction many times. This is why prompts and surrounding context matter—the model's output is shaped by the text it's given and the patterns it learned during training, rather than by consulting an authoritative reference source. A Generative Pre-trained Transformer (GPT) is one widely used kind of LLM; pre-trained indicates that it was first trained on broad text to learn general language patterns, and then it can be further adapted for specific tasks or organizational use.

Taken together, these features explain why generative AI tools can be both powerful and unpredictable in research settings. Because an LLM produces a best-guess continuation from many plausible options, its output can vary across runs and it may present confident-sounding statements that still require scrutiny. In practice, using these models well means treating outputs as provisional drafts: checking important claims against authoritative sources, asking for the assumptions and evidence behind key statements, and iterating with clearer constraints. It also means documenting prompts and outputs when results need to be explainable or reproducible. This guide applies this mental model and suggests practical techniques for getting higher-quality output from generative AI models.

Key terms

AI: A broad field focused on building systems that perform tasks commonly associated with human intelligence, such as reasoning, perception, and language understanding.

Deep learning: A class of machine learning methods based on multilayer neural networks, which underpin most modern generative AI systems.

Generative AI: AI systems designed to generate new content (such as text, images, code, or audio) rather than only for analyzing or classifying existing data.

Large language model (LLM): A deep learning model trained on large-scale text data to generate and analyze natural language.

Machine learning: A subset of AI in which models learn patterns from data rather than relying on explicitly programmed rules.

Neural network: A layered machine learning model that learns patterns in data by adjusting weighted connections between simple processing units. Deep neural networks underpin most modern advances in language, vision, and generative AI.

Prompt: The input (such as text, instructions, examples, or context) provided to a generative AI system to guide its output.

Using generative AI in research: A limitations-first lens

Generative AI tools can significantly streamline research workflows. However, because their outputs reflect statistical regularities rather than grounded comprehension, they should be treated as generative interfaces—not as authoritative sources. Researchers should approach generative AI outputs as starting points to be evaluated and improved, verifying key details with trusted sources and applying domain expertise before incorporating results into scholarly work.

When a colleague presents information or data, it's not typically accepted at face value. Instead, one would expect to understand how the data was obtained, what analyses were performed, and which methods or techniques were applied. This context allows the reader to assess the reliability of the information and determine an appropriate level of confidence in the conclusions drawn.

The use of generative AI should be approached in the same way. Outputs from generative AI tools should be critically evaluated, and any sources or references provided by the tool should be examined. Just as an individual would not publish work under their name without confidence in its accuracy and methodology, AI-generated output should only be used when the user understands and trusts the content it contains.

The following are **key limitations of generative AI** considered for this guide:

- **Accuracy:** Generative AI models can produce outputs that are inaccurate and may include fabricated citations.[4] This phenomenon, known as hallucination, causes errors to appear that can be highly convincing, making it vital for researchers to validate and verify all outputs against authoritative sources before use.[5]
- **Understanding:** Although generative AI can produce fluent responses, it relies on pattern recognition rather than on true comprehension. Researchers should critically interpret and question outputs rather than accept them at face value.[6]
- **Bias:** A model's output reflects the biases present in its training data. Without oversight, these biases can propagate into research outputs. Researchers should actively audit for bias and apply corrective strategies where appropriate.[7,8]
- **Reproducibility and transparency:** Because generative AI outputs are probabilistic, identical prompts can yield different results when rerun on the same model or used with a different model. Documenting prompts and outputs supports reproducibility and aligns with emerging disclosure standards in academic publishing.[9]
- **Cultural inclusivity:** Be alert to Western-centric assumptions and homogenization risks. Consider strategies such as open-generation evaluations (that is, systematically reviewing unconstrained outputs to identify cultural biases and embedded values) to surface and mitigate these issues.
- **Comprehensiveness:** Generative AI does not guarantee comprehensive coverage because it generates plausible text rather than performing an exhaustive search of the relevant evidence. As a result, it can omit key studies, counterarguments, or boundary conditions, creating an incomplete picture.

Understanding these limitations is essential for using generative AI effectively and responsibly. Rather than viewing limitations as barriers, researchers can treat them as design opportunities. By applying structured prompting strategies, researchers can help ensure that outputs are transparent, verifiable, and aligned with scholarly standards.

Appropriate reliance and protecting cognitive skills

Appropriate reliance[10] on generative AI occurs when researchers critically accept AI-assisted outputs that are substantively correct and methodologically sound, while identifying and rejecting outputs that are incomplete, misleading, or incorrect. When reliance is miscalibrated, researchers may either overrely on generative AI by accepting fluent but inaccurate analyses, fabricated citations, or unsupported claims, or they may underrely on it by dismissing valid contributions that could improve efficiency or insight. Both overreliance and underreliance can degrade research quality, waste time, undermine confidence in results, and weaken the effectiveness of human–AI collaboration.

Achieving appropriate reliance is particularly challenging because users may hold incomplete or incorrect mental models of what generative AI systems can and cannot do. These challenges are amplified by generative AI's ability to rapidly produce polished text that may contain subtle errors, inconsistent answers, or unreliable sources. Effective generative AI practices should help researchers understand how these models behave, encourage ongoing critical review, and make it easier to check, validate, and document AI-assisted work.

> *Though generative AI models can lighten cognitive load and reduce mental "spam," if used inappropriately they can also induce cognitive debt, reducing engagement and shifting skills from intentional practice to passive appraisal.*

This dependence on generative AI for cognitive tasks can erode engagement with the research process. Microsoft Research identifies two modes for AI in knowledge work:[11] 1) assistant mode, which accelerates routine tasks (for example, writing an email); and 2) tool-for-thought mode, which supports deeper analysis and creative synthesis (for example, reframing arguments). For both modes, it's essential to critically evaluate AI-generated outputs, recognizing that they're not guaranteed to be factually correct or conceptually deep.[12] This evaluation safeguards scholarly rigor and helps ensure that AI serves to augment human reasoning—not replace it.

Cognitive debt risks

Risk	Mitigation
Reduced neural engagement and ownership with prolonged LLM-assisted writing	Scaffold tasks; require reasoning and reflection; avoid full solutions
Overreliance on fluent but shallow outputs	Verification prompts; evidence-based grounding; human review
Skill shift from production to appraisal without pedagogy	Explicit training on evaluation, bias auditing, and documentation

Section 2

Robust prompting for academic research

As generative AI tools have become integral to research workflows, the ability to craft effective prompts has emerged as a core scholarly skill. Prompting is no longer a matter of ad hoc trial and error. It's evolving toward a systematic, reproducible practice.[13,14] This section provides a structured method for interacting with Microsoft Copilot in ways that produce transparent and contextually tailored outputs.

> *Prompting is considered analogous to research design: it requires clarity, context, and iterative refinement, supported by documentation for reproducibility.*

The guidance here combines Microsoft recommendations with leading academic frameworks, offering principles and practical tools that researchers can apply across literature review, idea generation, writing support, and beyond. Whether you're drafting a quick exploratory query or developing prompts for complex tasks, these practices help ensure that generative AI serves as an assistant and accelerator—never a substitute for scholarly rigor.

To put these principles into practice, prompting is treated as a research skill rather than a set of instructions. Just as experimental design demands precision and transparency, effective prompting requires clarity, structure, and refinement. The first subsection explores why this skill matters and how it parallels other methodological competencies that researchers have adopted as technology evolves.

Prompting as a research skill

Prompting is the primary interface through which researchers engage with generative AI systems and directly influences the relevance, utility, and transparency of outputs. It should be understood as a methodological competency, akin to experimental design or statistical modeling. The prompt contents shape the reasoning process that a model undertakes and determines the interpretability of its responses, and the prompt quality influences the degree of tailoring that the AI-generating output will have.

> *A well-constructed prompt establishes boundaries, clarifies objectives, and signals tone and format, enabling outputs that are tailored to scholarly needs—rather than generic approximations.*

The utility of prompting as a skill lies in the capacity of a good prompt to transform generative AI from a passive text generator into an active collaborator. Effective prompting can both accelerate routine tasks (for example, drafting quick email responses) and support higher-order intellectual work (such as synthesizing competing hypotheses or reframing arguments for clarity). These dual roles as assistant and tool for thought require researchers to apply critical thinking and iterative refinement: evaluating outputs, identifying gaps, and revising prompts to improve alignment with research goals. Over time, this iterative process builds user fluency in how language models interpret context, fostering more precise and reproducible outcomes.

Using generative AI as a tool for thought in research processes requires more than crafting prompts. It involves designing iterative, well-documented interactions that stimulate reasoning, surface assumptions, and support intellectual engagement, while maintaining rigor and reproducibility. Recording unedited prompts and outputs serves as a methodological record, supporting reproducibility and accountability in scholarly workflows. This practice parallels established norms in research, such as maintaining detailed laboratory notebooks or version-controlled code repositories.

> *Just as the rise of computational methods required researchers to develop expertise in programming and data management, the integration of generative AI introduces prompting as a new technical literacy, one that underpins responsible and effective use of these tools in academic contexts.*

A unified model for comprehensive prompting in academic research

To treat prompting as a research skill, prompts should be constructed with the same care given to other methodological choices. In practice, prompt quality influences not only whether outputs are useful but also whether the interaction can be explained, revisited, and potentially reproduced. Most existing prompting frameworks and practitioner guidance recommend that prompts make expectations explicit, reduce ambiguity, and surface assumptions in ways that support verification and appropriate reliance. The unified model presented here consolidates Microsoft prompt recommendations with research-oriented frameworks[15,16,17,18,19,20] into a single structure that can be applied across common scholarly tasks.

Rather than presenting prompting as a single instruction, this model describes a set of components for rigorous prompt construction. The "Components of comprehensive prompts" table that follows summarizes these building blocks and explains what each one contributes to output quality. It begins with role definition, to set perspective and domain expectations, and then moves through background and context to ground the request, along with objectives with success criteria to specify what "good" looks like. It also includes parameters and boundaries to constrain scope and reduce unwanted drift, an explicit output format to make responses reusable and comparable, and guidance that increases transparency.

Components of comprehensive prompts

Prompt element	Purpose and guidance
Define the role	Shapes perspective and domain specificity; improves relevance and tone
Provide background and context	Supplies key definitions, audience, and source material for tailored outputs
Articulate objectives and success criteria	Reduces ambiguity; clarifies what constitutes a successful output
Set parameters and boundaries	Guides precision; constrains scope, tone, and depth
Specify format	Helps ensure that outputs are structured for reuse and clarity
Encourage reasoning	Promotes transparency; surfaces logic, assumptions, and sources for verification

Prompt robustness testing

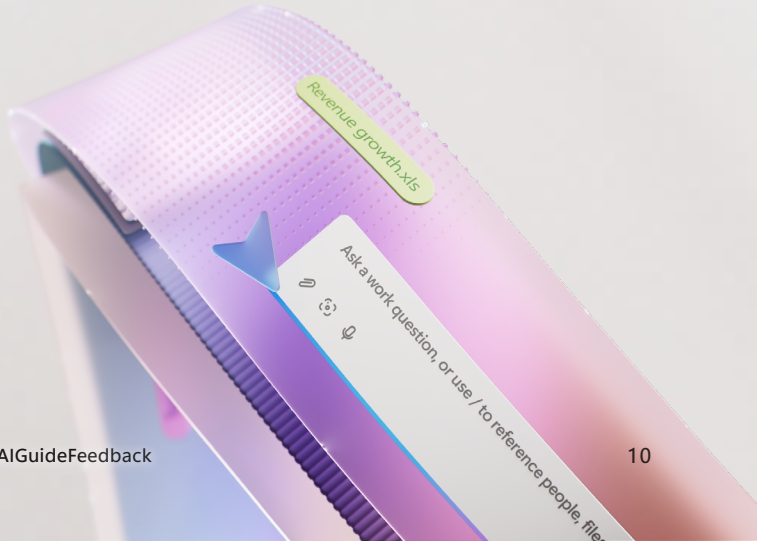
Even a carefully designed, comprehensive prompt does not guarantee that an LLM's output will be correct, complete, or appropriate for specific research contexts. Because these systems generate probabilistic responses, even repeated runs of the same prompt can change what the model produces. As a result, responsible use requires not only writing strong prompts but also developing strategies for checking the outputs. This section describes a practical rubric for evaluating how stable (or fragile) the results are. The goal is to provide a starting methodology for probing the generated output: identifying where the output holds up, where it fails, and what revisions or human interventions are needed before it's relied on.

Prompt robustness testing is particularly important for using generative AI because LLMs don't determine a single correct answer. They generate text one token at a time by estimating which next token is most probable, given the prompt and the text generated up to that moment. In practice, that means the model is choosing among several plausible continuations, and small changes in wording (or simply rerunning the same prompt) can shift which continuation the model selects—sometimes in ways that affect reasoning quality, citation behavior, or conclusions.[21] Robustness testing is a way to make this variability visible so you can better judge when an output is stable enough to reuse and when it needs tighter constraints or independent verification.

This variability creates practical risks. It can make it harder to reproduce results across runs or across different models; it can make outputs more sensitive to seemingly irrelevant additions (including accidental typos or extra phrases); and it can complicate scholarly transparency when disclosure standards require documenting prompts, variants, and outputs.[22,23,24]

> *Robustness testing does not eliminate the risks of using generative AI, but it helps detect them earlier and helps document how they were managed.*

To make robustness testing actionable, these ideas are summarized in the "Rubric for Prompt Robustness Testing" table. This table provides a set of concrete criteria for evaluating whether a prompt produces outputs that are stable, verifiable, and usable for scholarly work. The rubric can be used as a quick diagnostic workflow: select the criterion to strengthen, compare the current prompt and output against the indicator of quality, run the suggested checks in "What to check / How to test," and then revise the prompt to address common pitfalls. Used iteratively, the rubric supports a shift from subjective judgments to a documented, reproducible approach for improving prompt reliability.



Rubric for prompt robustness testing

Criteria	Indicators of quality	What to check / How to test	Common pitfalls
Clarity and brevity	Use precise, unambiguous language; avoid jargon unless necessary.	Readability scan; remove ornate phrasing; replace ambiguous terms.	Vague verbs ("analyze," "discuss") without scope; nested clauses.
Role assignment	Relevant, discipline-appropriate role that guides tone and perspective.	Confirm role improves relevance (for example, "statistician," "research librarian").	Irrelevant roles; role conflicts across iterations.
Context provision	Includes domain, audience, purpose, and source materials for tailoring.	List research focus and audience: attach authoritative sources.	Missing audience; relying on outside knowledge instead of sources.
Objective and success criteria	Clear task, outputs, and conditions of success (measurable).	Specify outputs (tables, bullets), constraints, and evaluation criteria.	"Do it well" without explicit outputs; subjective goals.
Parameters and boundaries	Scope, tone, and depth are constrained; exclusions are explicit.	Add "Use only attached files," time windows, and out-of-scope items.	Scope creep; implicit exclusions the model cannot infer.
Output format	Structured for reuse (sections, tables, bullets, templates).	Require labeled sections tabular outputs for comparison.	Freeform text; inconsistent headings across runs.
Reasoning visibility	Prompts elicit step-by-step logic, assumptions, and citations.	Include "Explain reasoning" and "List assumptions"; request citations / Digital Object Identifiers (DOIs).	Hidden assumptions; unsupported claims.
Iterative refinement	Designed for reflection and controlled revision.	Plan for evaluation revise prompt rerun; note changes.	One-and-done prompting; revision without notes.
Robustness under perturbation	Stable outputs under minor changes in wording / structure.	Compare outputs for drift.	Performance drops with synonyms / typos; directive tokens not locked.
Neutrality and non-leading language	Avoids subjective framing; invites counterarguments / alternatives.	Add "Present alternatives" and "Provide counterarguments."	Leading questions; over-agreement; "sycophancy."
Verification and reflection	Prompts request checks, questions for the researcher, and flags of uncertainty.	Include "Suggest two questions I should ask myself" and "flag uncertainty."	Unverified citations; overstated certainty.
Reproducibility and documentation	Exact prompts / variants and unedited outputs are recorded for disclosure.	Append prompts, outputs, robustness notes.	Missing appendices; undocumented iterations or model / version details.

Documenting generative AI use in research

Transparency in documentation of generative AI use is now recognized as an essential component of scholarly integrity. Leading publishers, including Elsevier and Nature, require disclosure of when and how generative AI tools are used by authors and reviewers alike. Recent work has advanced formal standards for reporting generative AI involvement and recommends documenting prompt variants and their outputs, model and version, and the scope of assistance provided.[25,26,27] Some medical science frameworks now mandate disclosure of prompts and unedited outputs alongside manuscripts.

Recording unedited prompts and outputs creates an auditable trail that supports reproducibility and accountability, paralleling established norms, such as maintaining detailed laboratory notebooks or version-controlled code repositories. This practice helps ensure that generative AI–assisted steps remain defensible under peer review and aligns with emerging disclosure standards.

> *Generative AI disclosure policies emphasize that generative AI models cannot assume authorship or responsibility for content; researchers remain accountable for validating outputs and ensuring conceptual rigor.*

Specific guidelines and rules for generative AI use and documentation are rapidly evolving and vary depending on discipline, use, and journal policy. The "Common generative AI documentation recommendations" table that follows provides a list of frequently required documentation of generative AI use for scholarly publication. Researchers should always be aware of the most up-to-date rules and requirements of their target journal.

Common generative AI documentation recommendations

- State AI tools / models and versions used
- Record exact prompts and unedited outputs
- Document robustness tests, prompt variants, and iterations
- Verify citations and provide DOIs / links
- Clarify human roles and accountability

Documenting generative AI use is not merely compliance; it strengthens reproducibility, mitigates bias, and aligns with emerging norms for transparency. By integrating disclosure frameworks into your workflow, generative AI–assisted outputs are more auditable and have the potential to be defensible under peer review. Use of generative AI–assisted research should be disclosed, documented, and in compliance with all applicable rules and regulations.

Section 3

Integrating Copilot Chat into your research workflow

Academic researchers (scientific researchers; managers of people, space, and finances; marketers of their work; mentors; and educators) perform an extensive variety of tasks as part of their professional responsibilities. This section outlines practical use cases for how academic researchers can use Copilot Chat within their workflows. For each use case, we provide three levels of prompts—standard, enhanced, and comprehensive—to illustrate how prompt complexity influences output.

Prompt levels

A standard prompt states the task and includes some context but doesn't provide detailed information. This often produces a generic response that's relevant but may lack the depth that academic researchers require.

An enhanced prompt adds more structure by defining a role, adding context, and specifying an output format. This typically produces a more organized and useful response, but it may be necessary to refine it to get the depth required for research.

A comprehensive prompt builds on the enhanced prompt by adding constraints, success criteria, and requests for reasoning or verification. This prompt is designed to produce highly tailored outputs that are well structured and contextually rich.

Although comprehensive prompts generally deliver the most reliable and structured results, they aren't always necessary. If quick brainstorming, email drafting, or exploratory tasks are your goal, a standard prompt may be sufficient. Researchers should choose the level of prompt complexity that matches the task's importance, required precision, and downstream use of the output. Specific elements of the enhanced and comprehensive prompts are described in more detail in "**Section 2. Robust prompting for academic research.**"

> *Increasing prompt complexity can yield more tailored, context-rich outputs, but it doesn't guarantee factual accuracy or completeness.*

In the examples provided, prompt instructions written in the first person ("I") provide information to Copilot about the role of the user writing the prompt. Prompt text using the second person ("you") instructs Copilot on the type of response requested, i.e., the role the user wants Copilot to play.

The prompt examples presented here should be considered suggestions. The user should choose which parts of the example prompts are applicable to their task and edit the prompts as needed to best fit their goals.

This section presents use cases for the following topics:

- Literature and knowledge management
- Discovery and idea generation
- Writing support
- Data support
- Research administration
- Science communication

Table of contents: Use cases

How to access Microsoft 365 Copilot Chat

Microsoft 365 Copilot Chat can be accessed through the Copilot app or on the web.

To access Microsoft 365 Copilot Chat in a web browser, navigate to https://copilot.microsoft.com or https://copilot.cloud.microsoft

If applicable, sign in using your work or school Microsoft 365 account. If you sign in with one of these accounts, you will receive enterprise data protection.

Once you have successfully opened or signed in to Copilot, you can enter prompts in the chat box.

Literature and knowledge management

Academic research begins with understanding what's already known. Researchers are tasked with understanding and synthesizing large amounts of prior research and extracting extensive information in their respective fields. Copilot Chat can accelerate these processes by helping researchers discover, organize, and synthesize literature efficiently, reducing the time spent searching and enabling deeper engagement with papers.

Use case: Literature discovery

With millions of papers published each year, catching up with the field or exploring a new one can be time consuming. Copilot can streamline this process and find relevant work that may have been overlooked. To get the most out of Copilot Chat for literature discovery, it's beneficial to be as specific as possible, including the period of interest (for example, "after 2020"), type of studies (such as "review papers"), and relevant background context about the research focus.

Prompt design examples:

STANDARD

I am working on a research project about [topic]. Please help me find relevant academic literature on this topic, including important papers and recent studies.

I am especially interested in [subtopic or time period].

Summarize the key findings and trends in the literature.

ENHANCED

Role:
You are an [academic research assistant] with experience supporting peer-reviewed research.

Background and context:
I am working on [paper/proposal/dissertation/review] focused on [topic], with emphasis on [subtopic, mechanism, region, population, or time period].

Objective:
Identify key literature that will help me understand the current state of knowledge and major debates related to this topic.

Parameters and guidance:
Prioritize peer-reviewed journal articles.
Include both foundational and recent studies.
Focus on literature most relevant to the stated topic and scope.

Output format:
A short list of influential and recent papers with brief summaries.
A concise description of major themes or trends.
A brief note on areas where findings are mixed or uncertain.

Use case: Literature discovery (continued)

COMPREHENSIVE

Role:
You are a [research librarian / senior domain expert] specializing in [field/discipline], with experience supporting peer-reviewed research and grant writing.

Background and context:
I am working on [paper/proposal/dissertation/review] focused on [topic], with particular emphasis on [subtopic, mechanism, region, population, or time period].
What I already know or have cited: [brief bullets or key papers].
Key terms and synonyms to include: [keywords, acronyms, alternative spellings].
Explicitly exclude: [irrelevant subfields, regions, methods].

Objective and success criteria:
Identify and organize the most relevant literature so I can understand the state of knowledge and remaining gaps.

A successful output will:
Capture seminal and recent work.
Reflect methodological and geographic diversity.
Clearly identify where consensus ends and uncertainty begins.

Parameters and boundaries:
Prefer peer-reviewed journal articles; include books/reports only if foundational.
Time window preference: [e.g., 2015–present], plus older seminal work.
Do not fabricate citations; flag uncertain references.

Output format:
Search strategy: Databases, Boolean queries, filters
Annotated reading list (table): Citation | Contribution | Methods/Data | Relevance | Key limitations
Thematic synthesis: Major themes + disagreements
Identified gaps: What is missing and why it matters

Reasoning and transparency:
Explicitly state any assumptions you make due to missing, ambiguous, or underspecified information.
Explain your reasoning clearly and sequentially, especially when synthesizing, interpreting, or prioritizing information.
Cite sources or evidence locations for factual claims (e.g., section numbers, table/figure references, or attached file names).
Flag uncertainty and clearly distinguish evidence-based conclusions from interpretation or speculation.
If the task cannot be completed reliably with the provided information, stop and explain why, and specify what additional input would be required.

Interpretation guidance:
Downstream use: [manuscript / proposal / background memo].
Risk tolerance: [conservative/exploratory].

Use case: Summarizing papers or topics

In addition to discovering literature, researchers need to consolidate the findings of relevant research into clear summaries. Copilot can help researchers generate summary drafts and synthesize the main findings, methods, and key points. Additionally, Copilot can compare two different papers or methodologies and describe the differences or similarities between the two. Whenever possible, upload the full paper instead of just providing a URL, because Copilot can only interact with material that is publicly available.

Prompt design examples:

STANDARD

Summarize [paper/set of papers/topic] for [background section / general understanding / early drafting].

The source material is [pasted text below and/or attached files].
Focus on the main ideas and findings.

ENHANCED

Role:
You are a [subject-matter expert] in [field] with experience summarizing peer-reviewed research.

Background and context:
The purpose of this summary is [background section / synthesis / framing a gap]. Use only [pasted text below and/or attached files] as source material.

Objective:
Produce an accurate and well-organized summary suitable for academic use.

Output format:
Plain-language overview (3–5 sentences)
Structured academic summary including:
Research question or focus.
Data/system (if applicable).
Methods (high level).
Key results.
Limitations noted by the authors.

Use case: Summarizing papers or topics (continued)

COMPREHENSIVE

Role:
You are a [subject-matter expert and methodological reviewer] in [field].

Background and context:
The purpose of this summary is [background section / synthesis / framing a gap].
Use only [pasted text / attached files] as authoritative sources.

Objective and success criteria:
Produce an accurate, citation-safe summary suitable for academic writing.

A successful summary:
Separates results, interpretation, and limitations.
Avoids introducing information not present in the source.
Is structured for reuse.

Parameters and boundaries:
If information is missing, state "Not specified in the source."
Do not infer causality unless explicitly claimed.
Maintain tone appropriate for [audience/journal].

Output format:
Plain-language overview (3–5 sentences)
Structured academic summary:
Research question.
Data/system.
Methods.
Key results.
Interpretation.
Limitations.
Citation-safe bullets and quote-safe phrases.

Reasoning and transparency:
Explicitly state any assumptions you make due to missing, ambiguous, or underspecified information.
Explain your reasoning clearly and sequentially, especially when synthesizing, interpreting, or prioritizing information.
Cite sources or evidence locations for factual claims (e.g., section numbers, table/figure references, or attached file names).
Flag uncertainty and clearly distinguish evidence-based conclusions from interpretation or speculation.
If the task cannot be completed reliably with the information provided, stop and explain why, and specify what additional input would be required.

Interpretation guidance:
Downstream use: [manuscript/proposal].
Risk tolerance: Conservative.

Discovery and idea generation

Scientific progress depends on asking well-defined questions. Copilot can streamline this process by acting as a brainstorming partner to help produce questions that are novel and practical and to transform them into actionable projects.

Use case: Brainstorming research questions

Identifying gaps in the literature is a critical part of forming research projects. Copilot can help generate new research questions that fit within a field and specific constraints. For this use case, we highly recommended explicitly stating that the request is for creative ideas by inputting "exploratory" in risk tolerance as part of a comprehensive prompt.

Prompt design examples:

STANDARD

I'm interested in research related to [general topic].
Please suggest several research questions I could explore.

I am especially interested in [subtopic, region, method, or time period].

ENHANCED

Role:
You are a [researcher] in [field/discipline] with experience developing research questions for academic studies.

Background and context:
I am exploring research directions related to [general topic].
My available data, tools, or methods include: [datasets, instruments, models, or constraints].
The following areas should be avoided: [out-of-scope topics, regions, populations, or methods].

Objective:
Generate several potential research questions that are relevant, focused, and feasible

Output format:
For each proposed research question, briefly describe:
- The main idea or gap it addresses.
- The type of data or methods that could be used to study it.

COMPREHENSIVE

Role:
You are a [senior researcher] in [field/discipline], with experience identifying publishable, peer-review-quality research gaps and formulating empirically testable research questions

Background and context:
I am exploring research directions related to [general topic].
My available data, tools, and methods include: [datasets, instruments, modeling approaches, experimental access, analytical constraints].
The following topics, regions, populations, methods, or timescales are explicitly out of scope: [what to avoid].
You should treat these constraints as hard boundaries, not suggestions.

Objective and success criteria:
Generate [N] novel, empirically testable research questions that are well aligned with my stated constraints.
A successful set of questions will:
Address a clearly identifiable gap or tension in the existing literature.
Be answerable using plausible data and methods given my constraints.
Be sufficiently focused to support a publishable study (not broad review questions).
Vary meaningfully in approach, scale, or mechanism, not just in wording.

Parameters and boundaries:
Avoid generic, textbook, or well-settled questions.
Do not propose questions that would be unlikely to survive peer review due to vagueness, infeasibility, or lack of novelty.
Questions must be empirically addressable (observational, experimental, modeling, or mixed-methods, as appropriate to the field).
If a question depends on assumptions about data availability or methodological feasibility, those assumptions must be made explicit.

Output format:
Provide the output as a table with the following columns:
Research question | Literature gap addressed | Data needed | Proposed method | Feasibility risks | Expected contribution

Reasoning and transparency (required):
Explicitly state any assumptions you make due to missing, ambiguous, or underspecified information (e.g., data availability, methodological access).
Explain your reasoning clearly and sequentially, particularly how you identified each literature gap and why the proposed question addresses it.
Where relevant, reference types of sources or evidence that motivate the gap (e.g., recent observational studies, conflicting modeling results, lack of regional data), without inventing citations.
Flag uncertainty and clearly distinguish evidence-based reasoning from exploratory or speculative elements.
If the task cannot be completed reliably with the information provided, stop and explain why, and specify what additional information would be required to proceed responsibly.

Interpretation guidance:
Downstream use: [journal article / grant proposal / exploratory planning document].
Risk tolerance: Exploratory, but maintain standards consistent with peer-review-quality research design.

Use case: Expanding or refining ideas

Copilot can take a big picture idea and zoom in to make a feasible study within the parameters and defined constraints. Researchers can provide Copilot with potential data and details about the study, including the desired timeframe or methodological constraints, to begin narrowing down the scope of a project. Additionally, Copilot can break a scoped project down into actionable steps.

Prompt design examples:

STANDARD

Here is my research idea: [paste idea/notes/bullets].

Can you help me expand it and refine it into a clearer, more focused research plan? I'm working within [timeframe and/or key constraint].

ENHANCED

Role:
You are a [research design coach] with experience supporting academic research planning in [field/discipline].

Context:
Here is my current rough research idea (may be incomplete): [paste idea/notes/bullets or attach file].

Key constraints:
Timeframe: [e.g., 6 months / 1 year / dissertation chapter]
Data access: [datasets available / planned collection / limitations]
Methods/tools: [methods available or restricted]
Budget/resources (if relevant): [constraints]

Task:
Help me refine this into a feasible, well-scoped study concept appropriate for academic research.

Output format:
1–2 sentence description of the core idea/contribution.
Refined research question(s) (and/or hypothesis if appropriate).
Proposed data source(s) and method approach (high level).
Key risks or uncertainties + possible mitigations.
A short list of next steps I can take to move the idea forward.

COMPREHENSIVE

Role:
You are a [research design coach] with experience helping researchers translate early-stage ideas into well-scoped, executable study designs suitable for peer-reviewed research and grant proposals in [field/discipline].

Background and context:
Here is my current rough research idea or concept (this may be incomplete or loosely formed): [attach file; paste idea, notes, paragraph, or bullet points].

Key constraints I am operating under include:
Timeframe: [e.g., 6 months / 1 year / dissertation chapter]
Data access: [existing datasets / planned data collection / limitations]
Methods/tools: [methods available or restricted]
Budget/resources: [if relevant]
If any of these constraints are binding or nonnegotiable, treat them as hard boundaries.

Objective and success criteria:
Refine and expand this idea into a clearly scoped, executable study plan that is realistic given my constraints and suitable for academic research.

A successful output will:
Articulate a clear contribution claim (what this study adds and to whom).
Translate the idea into specific research questions and/or hypotheses.
Propose a feasible data and methods strategy aligned with constraints.
Identify key risks (theoretical, data-related, methodological) and practical mitigations.
Distinguish between a minimum viable study and a more ambitious stretch version.
Provide a concrete near-term execution plan.

Parameters and boundaries:
Do not invent data access, funding, or methodological capacity I did not describe.
Avoid over-scoping; prioritize clarity and feasibility over ambition.
Do not assume causal inference unless the proposed design plausibly supports it.
If the idea is currently under-specified, make reasonable assumptions but clearly label them.

Output format:
Organize the response into the following clearly labeled sections:

1. *Contribution claim*
    a. *1–2 sentences describing the core contribution and intended audience*
2. *Refined research questions and/or hypotheses*
    a. *Clearly stated and scoped, aligned with the contribution*
3. *Data and methods overview*
    a. *Data sources or collection strategy*
    b. *Analytical or experimental approach*
    c. *Key assumptions*

Prompt continued on next page ⓘ

4. *Key risks and mitigation strategies*
    a. *Data limitations*
    b. *Methodological risks*
    c. *Theoretical or interpretive risks*
5. *Minimum viable study vs. stretch version*
    a. *What can be accomplished with minimal resources*
    b. *What additional insight could be gained with expanded scope*
6. *30 / 60 / 90-day plan*
    a. *Concrete tasks and milestones for each phase*

Reasoning and transparency (required):
Explicitly state any assumptions you make about feasibility, data availability, or methodological capacity that are not fully specified.
Explain your reasoning step by step, especially how you narrowed scope and prioritized certain design choices over others.
Clearly distinguish evidence-based design decisions from more speculative or exploratory elements.
Flag uncertainty and identify aspects of the study plan that are most sensitive to missing information.
If the idea cannot be refined responsibly without additional information, stop and explain what is missing and why it matters.

Interpretation guidance:
Downstream use: [journal article / grant proposal / dissertation chapter / exploratory planning].
Risk tolerance: Conservative—prioritize designs that would withstand feasibility and peer-review scrutiny.

Use case: Hypothesis generation

After a research question has been determined and the scope of that idea has been refined, the next step is to propose hypotheses. Copilot can translate a broad research question into testable hypotheses and brainstorm how these hypotheses could be tested with available data or methods.

Prompt design examples:

STANDARD

I am investigating [a phenomenon, observation, theoretical idea, or prior finding] related to [general topic].

Please suggest possible hypotheses that could be explored in this context.

ENHANCED

Role:
You are a [researcher] in [field/discipline] with experience developing hypotheses for empirical or theoretical studies.

Background and context:
I am investigating [a phenomenon, observation, theoretical framework, or prior finding] related to [general topic].
Relevant variables, concepts, or constructs include: [key variables, measures, or ideas].
Relevant constraints include: [data limitations, methodological constraints, scope considerations].

Objective:
Generate a set of plausible, testable hypotheses appropriate for this research context.

Output format:
For each hypothesis, provide:
A clear hypothesis statement.
The proposed mechanism or theoretical rationale.
A brief description of how it could be examined or tested (conceptually or empirically).

COMPREHENSIVE

Role:
You are a [methodological expert] in [field/discipline], with experience designing empirically rigorous studies and formulating falsifiable hypotheses suitable for peer-reviewed research.

Background and context:
I am investigating the following observed pattern or empirical relationship: [description of pattern, trend, or anomaly].
Candidate mechanisms that may explain this pattern include: [list of proposed mechanisms, theories, or processes].
The variables, measures, or proxies I currently have access to include: [list variables, how they are measured, spatial/temporal resolution if relevant].
If relevant, note key constraints on data, methods, or study design: [e.g., observational only, small sample size, limited temporal coverage].

Objective and success criteria:
Produce a set of clearly articulated, falsifiable hypotheses that link the observed pattern to underlying mechanisms and can be tested with the available variables and constraints.

A successful set of hypotheses will:
Be explicitly testable with the stated variables or realistic extensions of them.
Include directional predictions (where applicable), not just associations.
Clearly distinguish between competing mechanisms rather than restating the same idea.
Be formulated at a level of specificity appropriate for peer-reviewed empirical research.

Parameters and boundaries:
Avoid vague or purely descriptive hypotheses.
Do not propose hypotheses that require data or methods far outside what I have described.
Do not assume causal inference unless the study design plausibly supports it.
If multiple hypotheses address the same pattern, ensure they are meaningfully distinct in mechanism or implication.

Output format:
Provide the output as a table with the following columns:
Hypothesis | Underlying mechanism | Testable prediction (directional, if applicable) | Proposed test or analysis | Key confounders or alternative explanations | Falsification criteria

Reasoning and transparency (required):
Explicitly state any assumptions you make about data quality, measurement, scale, or feasibility that are not fully specified.
Explain your reasoning step by step, particularly how each hypothesis maps the observed pattern to a specific mechanism.
Clearly distinguish mechanism-based reasoning from more speculative or exploratory elements.
Identify where hypotheses are weakly constrained by existing evidence versus strongly motivated by prior work.
If the hypotheses cannot be formulated responsibly with the information provided, stop and explain what additional information would be required.

Interpretation guidance:
Risk tolerance: Conservative—prioritize hypotheses that would withstand critical peer review over more speculative but less testable ideas.

Writing support

Writing is a time-intensive component of research, often requiring many iterations of drafting, revising, and refining. Copilot can assist in the writing process to help organize thoughts, improve clarity, and provide feedback that anticipates peer review.

Use case: Outlining

Copilot can assist in developing a starting point by generating an outline of a draft, helping to alleviate blank page syndrome and aiding in overcoming initial writer's block. By specifying the intended audience, document type, requirements, and the main ideas to cover, Copilot can help create a structural roadmap for writing.

Prompt design examples:

STANDARD

Create an outline for a [journal article / grant proposal / dissertation chapter / review paper] about [topic].
The main point I want to make is: [1–2 sentence core claim or purpose].

Please organize it into sections and subsections.

ENHANCED

Role:
You are an [academic writing coach] in [field/discipline], familiar with common structures for [document type].

Context:
I am drafting a [document type] for [journal / funding agency / venue, if known].
Primary audience: [specialists / interdisciplinary researchers / applied or policy audience].
Core claim or contribution: [1–2 sentence statement].
Constraints (if any): [word limits, required sections, formatting rules].

Task:
Create an outline that supports the core claim and follows typical expectations for this document type.

Output format:
Provide a hierarchical outline with labeled headings and subheadings (e.g., I, I.A, I.A.1).
For each major section, include:
Purpose (what the section does in the overall argument).
Key points (bullets of what will be argued or shown).
Evidence needed (data, analyses, figures, citations—use placeholders if needed).
A brief transition note (how it connects to the section before/after).

Use case: Outlining (continued)

COMPREHENSIVE

Role:
You are an [academic writing coach] with expertise in [field/discipline], familiar with the structure, argumentation style, and expectations of peer-reviewed academic writing in this field.

Background and context:
I am drafting a [journal article / grant proposal / dissertation chapter / review paper] intended for [specific journal, funding agency, or venue if known].
The primary audience is [specialists / interdisciplinary researchers / applied or policy audience].
The core claim or contribution I want this document to advance is:
[1–2 sentence statement of the central argument, finding, or contribution].
If relevant, note any structural or formatting constraints (e.g., word limits, required sections): [constraints].

Objective and success criteria:
Create a logically coherent, publication-ready outline that clearly supports the core claim and aligns with disciplinary norms for this type of document.

A successful outline will:
Make the argumentative logic explicit from introduction through conclusion.
Clearly indicate how each section contributes to advancing the core claim.
Identify what evidence, analysis, or citations are required at each stage.
Anticipate potential points of reviewer confusion or critique through clear structure.

Parameters and boundaries:
Do not invent results, data, or conclusions that I have not provided.
Use placeholders where information is missing rather than filling gaps speculatively.
Avoid generic section descriptions; tailor structure to this field and document type.
Maintain an academic tone appropriate for the intended outlet and audience.

Output format:
Provide a hierarchical outline using clearly labeled section and subsection headings.
For each major section and subsection, include:
Section purpose (what this section accomplishes in the overall argument).
Key points or claims (bullet points outlining what will be argued or shown).
Evidence needed (data, analyses, figures, or citations required).
Transitions (a brief note on how this section connects to the preceding and following sections).
Use clear indentation or numbering to show hierarchy (e.g., I, I.A, I.A.1).

Reasoning and transparency (required):
Explicitly state any assumptions you make about disciplinary conventions, audience expectations, or document structure.
Explain your reasoning step by step, particularly how the proposed structure supports the stated core claim.
Identify where the argument may be most vulnerable (e.g., gaps in evidence, heavy conceptual load) and how the outline mitigates this.
If the outline cannot be constructed responsibly due to missing information (e.g., unclear contribution), stop and explain what clarification is needed and why.

Interpretation guidance:
Downstream use: [journal submission / grant proposal drafting / dissertation planning].
Risk tolerance: Conservative—prioritize clarity, logical flow, and reviewer comprehensibility over stylistic novelty.

Use case: Drafting a research report for a funding agency

Many funding agencies require periodic reports that summarize research outputs and impacts. Copilot can draft a cohesive report by synthesizing existing materials into a clear narrative aligned to a funder's requested sections.

Prompt design examples:

STANDARD

Draft a research report for a funding agency about my project: [project title].
Include (1) research outputs and (2) research impacts.
Use these documents as the source material: [attach or paste text].

ENHANCED

Role:
You are a [research administration specialist] experienced in drafting funder-facing research reports for [agency type].

Context:
Funding agency / program: [name]
Reporting period: [dates]
Project summary (1–2 sentences): [paste]
Source material you must use: [attach progress report(s), publication list, abstracts, dissemination materials, etc.]

Task: Draft a research report that summarizes research outputs and research impacts in language appropriate for a funding agency.

Output format:
Executive summary (150–250 words)
Research outputs (bullets grouped by type: publications, datasets, software, training, outreach)
Research impacts (narrative paragraphs with 3–5 clearly labeled impact claims)

Use case: Drafting a research report for a funding agency (continued)

COMPREHENSIVE

Role:
You are a [research impact officer] who specializes in writing evidence-based research impact and outputs reports for [funding agency], aligning content to common funder criteria (outputs, outcomes, impact, capacity building, and dissemination).

Background and context:
Funding agency / program: [name]
Award number (if applicable): [#]
Reporting period: [dates]
Intended audience: [program officer / technical reviewers / general science audience]
Required sections (if known): [paste agency headings or requirements]
Source documents (authoritative—use only these):
1) [progress report / annual report]
2) [publication list / CV section / ORCID export]
3) [manuscript abstracts or accepted papers]
4) [datasets / software documentation / repository README]
5) [evaluation summary / outreach materials / policy brief, if applicable]

Objective and success criteria:
Draft a funder-ready report that is accurate, auditable, and aligned to the agency's expectations.

A successful report will:
Clearly separate outputs (what was produced) from impacts (what changed or is likely to change because of the work).
Use conservative, evidence-backed language (avoid overclaiming).
Attribute each key claim to a specific source location (file name + section/page/slide).
Flag missing evidence or missing required fields rather than inventing details.

Parameters and boundaries:
Use only the provided documents; do not rely on outside knowledge.
Do not fabricate citations, dates, numbers, collaborators, or adoption claims.
If a claim is not supported, label it "Not evidenced in provided materials" and suggest what document would normally support it.

Output format:
1) Executive summary (150–250 words)
2) Outputs (table): Output type | Item | Date | Co-authors / participants (if applicable) | Where evidenced (file + section/page)
3) Impacts (narrative + evidence map): for each impact claim, include "Claim," "Mechanism," "Evidence in provided materials," and "Confidence (high/medium/low)"
4) Gaps / follow-ups needed (bullets): what information is missing to complete the report cleanly

Use case: Editing and revising

When an author is writing manuscripts, grant reports, or other academic documents, Copilot can serve as a second set of eyes and revise text for clarity, while preserving the original meaning. It can improve the flow of a manuscript by revising sentences and making text more concise. Copilot can also flag anything that's vague or biased. This scenario calls for using a "conservative" risk tolerance to let Copilot know that the scientific intent and arguments within the text should be preserved.

Prompt design examples:

STANDARD

Edit this text to improve clarity and grammar while keeping the meaning the same.

This is from a [manuscript/proposal/dissertation/report] for [audience or outlet].

Text:
[paste text / attach file].

ENHANCED

Role:
You are an [academic copyeditor] experienced in revising scholarly writing in [field/discipline].

Context:
This text comes from a [document type: journal article / grant proposal / dissertation chapter / report] intended for [target outlet / journal / funding agency / audience].
My goal is to improve clarity, grammar, concision, and neutrality while preserving the original claims, interpretations, and technical content.
Source material: [paste text below and/or attached files].
Do not change: [optional: variable names, equations, citations, section(s) to leave untouched].

Task:
Revise the text for readability and precision without changing scientific meaning or argumentative intent.

Output format:
Revised text (clean, publication-ready)
Brief change summary (bullets describing the most meaningful edits, not every small grammar fix)
Flags (any sentences that seem ambiguous, overstated, or potentially biased, with suggested more neutral wording)

COMPREHENSIVE

Role:
You are an [academic copyeditor] with expertise in [field/discipline], experienced in editing peer-reviewed manuscripts for clarity, precision, and bias-aware academic language while preserving authors' original scientific meaning.

Background and context:
The text I want you to revise comes from a [document type: journal article / grant proposal / dissertation chapter / report] intended for [target outlet, journal, funding agency, or audience].
The primary goal of this revision is to improve clarity, grammar, concision, and neutrality, while preserving the original claims, interpretations, and technical content.
You may use [either pasted text below or attached files] as the source material. Treat this material as the authoritative source and do not rely on outside knowledge.
If there are sections you believe should not be edited (e.g., methods, equations, variable names, citations), list them here: [optional exclusions].

Objective and success criteria:
Revise the text so it is clearer, more precise, and more readable for the intended academic audience without changing scientific meaning or argumentative intent.

A successful revision will:
Improve sentence structure, flow, and readability.
Remove unnecessary verbosity while preserving nuance.
Identify and flag overclaims, vague language, or biased phrasing.
Maintain consistency in terminology and tone appropriate to the field.
Preserve all technical content, citations, and references unless explicitly instructed otherwise.

Parameters and boundaries:
Do not introduce new interpretations, evidence, or claims.
Do not simplify technical language if it would reduce precision.
Preserve variable names, equations, symbols, and citation formatting exactly as written.
If a sentence is ambiguous and could be interpreted in multiple ways, do not guess the author's intent. Instead, flag it.
Avoid stylistic rewrites that alter emphasis or argumentative balance.

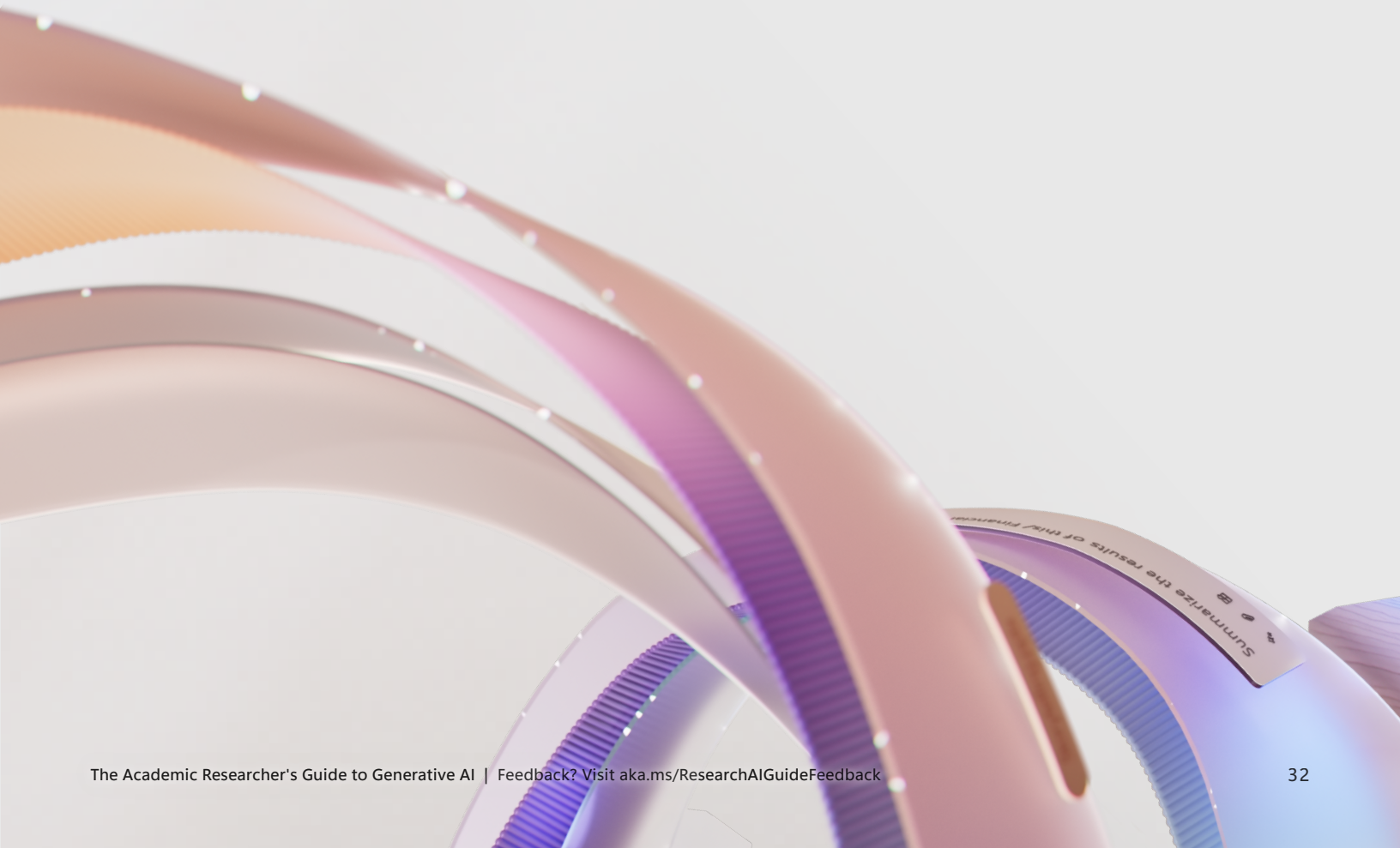
Output format:
Provide the output in three clearly separated parts:

1. *Revised text*
    a. *Clean, publication-ready version with improved clarity and grammar*
2. *Change log*
    a. *Bullet list describing substantive changes (e.g., "clarified causal language," "tightened wording," "removed redundancy"), not minor grammar fixes*
3. *Bias and overclaim flags*
    a. *A list of specific phrases or sentences that may be biased, overstated, or insufficiently supported*
    b. *For each, explain why it may be problematic and suggest a more neutral or precise alternative*

Prompt continued on next page 

Reasoning and transparency (required):
Explicitly state any assumptions you make about disciplinary writing norms or audience expectations.
Explain your reasoning step by step for any substantive revisions that affect emphasis, scope, or interpretation.
Clearly distinguish surface-level edits (grammar, flow) from conceptual-risk edits (claims, generalizations, bias).
Flag any locations where improving clarity risks altering meaning and explain how you mitigated that risk.
If the text cannot be revised responsibly without additional context (e.g., missing definitions, unclear referents), stop and explain what information is needed.

Interpretation guidance:
Downstream use: [journal submission / grant proposal / dissertation / public-facing adaptation].
Risk tolerance: Conservative—prioritize meaning preservation and precision over stylistic elegance.



Use case: Peer-review simulation

Copilot can act as "reviewer zero," providing constructive feedback tailored to a specific journal's tone and requirements. By taking on the role of a journal reviewer, Copilot can help identify areas of weakness in a manuscript to strengthen the writing in anticipation of reviewer concerns to address when refining a first draft.

Prompt design examples:

STANDARD

Review this [manuscript/section: abstract, introduction, methods, results, discussion] and give me feedback.
I'm planning to submit to [journal or field, if known].

Focus on what's unclear, what's missing, and what could be improved.

Text:
[paste text / attach file]

ENHANCED

Role:
You are a [peer reviewer] in [field/discipline] reviewing for [journal name / journal type / disciplinary context]

Context:
Please review the following [manuscript/section].
Optional: The manuscript's main claim or contribution is [1–2 sentences].
Tone: Constructive but critical—aim to improve rigor and clarity.

Task:
Provide realistic peer-review feedback aligned with expectations for this venue.

Output format:
Organize your review into:
- *Summary (3–5 sentences on what the paper does and its contribution).*
- *Major comments (numbered list of the most important issues + suggested fixes).*
- *Minor comments (bullet list of smaller issues).*
- *Recommendation (Accept / Minor revision / Major revision / Reject) with 1–2 sentence justification.*

Use case: Peer-review simulation (continued)

COMPREHENSIVE

Role:
You are a [peer reviewer] with expertise in [field/discipline], serving as a reviewer for [journal name, journal type, or disciplinary context]. You are familiar with the expectations, standards of evidence, and review criteria typical for this venue.

Background and context:
I would like you to review the following manuscript or manuscript section (e.g., abstract, introduction, methods, results, discussion):
[Attach manuscript or paste specific section].
If relevant, here is the manuscript's stated contribution or main claim:
[Optional: 1–2 sentence summary provided by the author].
Your review should assume the role of a constructive but critical reviewer, aiming to improve the quality, clarity, and rigor of the work rather than to reject it by default.

Objective and success criteria:
Provide realistic, actionable peer-review feedback that reflects how a knowledgeable reviewer in this field would evaluate the work.

A successful review will:
Identify the manuscript's core contribution and strengths.
Flag substantive issues that affect validity, interpretation, or clarity.
Distinguish between major concerns (must be addressed) and minor concerns (improvements or clarifications).
Provide specific, implementable recommendations, not vague criticism.
Reflect the standards and scope appropriate to the target journal or field.

Parameters and boundaries:
Base all comments strictly on the provided text; do not assume missing sections contain fixes.
Do not demand new data, experiments, or analyses that are unrealistic for the study's scope or stage unless clearly justified.
Avoid stylistic nitpicks unless they affect comprehension or interpretation.
Maintain a professional, respectful, and collegial tone, even when critiques are serious.
Do not invent methodological flaws or missing citations unless they are evident in the text.

Output format:
Organize your review into the following clearly labeled sections:

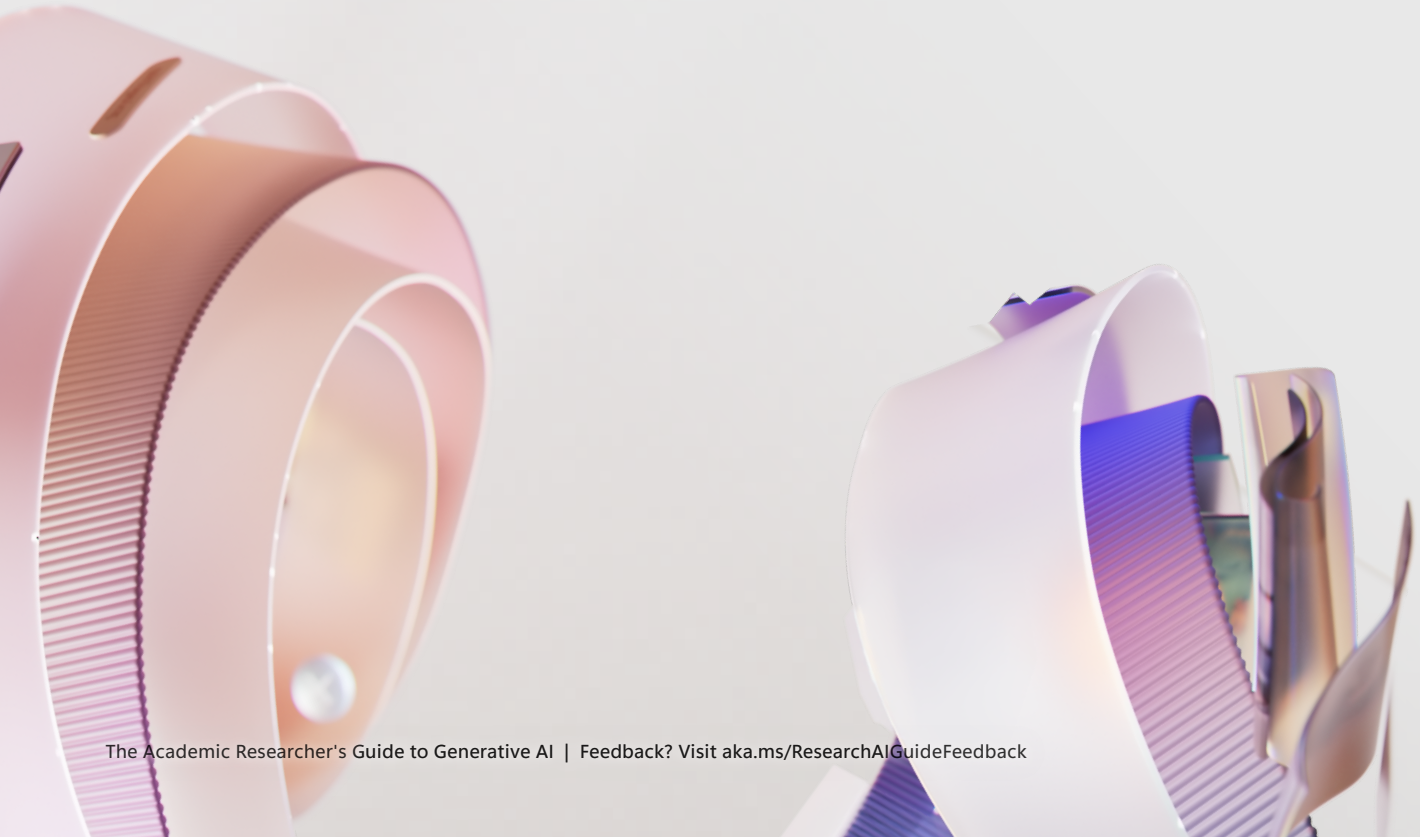
1. *Summary*
    a. *3–5 sentences summarizing what the manuscript claims to do and its perceived contribution*
2. *Major comments*
    a. *Numbered list*
    b. *Each comment should include:*
        i. *The issue or concern*
        ii. *Why it matters (impact on validity, interpretation, or significance)*
        iii. *A concrete suggestion for how the authors could address it*

Prompt continued on next page ⊕

3. *Minor comments*
    a. *Bullet list of smaller issues (clarifications, missing context, organization, wording)*
4. *Editorial decision recommendation*
    a. *One of: Accept / Minor revision / Major revision / Reject*
    b. *Brief justification grounded in the comments above*
5. *Quick wins*
    a. *3–5 specific changes that would substantially improve the manuscript with relatively low effort*

Reasoning and transparency (required):
Explicitly state any assumptions you make about the journal's standards, audience, or scope.
Explain your reasoning step by step for classifying issues as major vs. minor.
Clearly distinguish methodological or conceptual concerns from issues of presentation or clarity.
Flag areas where your critique is uncertain or conditional due to missing information.
If a responsible review cannot be completed because critical information is missing, stop and explain what is missing and why it matters.

Interpretation guidance:
Downstream use: [author revision / internal lab review / training exercise].
Risk tolerance: Conservative—prioritize rigor, clarity, and defensibility under peer review standards.



Data support

Data analysis is a critical component of research, and it remains imperative to interpret results accurately and present evidence clearly. Copilot can support the interpretation of data by providing suggestions for visuals that can communicate results clearly and by reinforcing those visuals with statistical tests that ground the results.

Use case: Statistical reasoning and interpretation

When prompts provide details about the methodologies and data used, Copilot can suggest appropriate statistical approaches and/or double-check to see whether the model or test being used is appropriate for the data it's being applied to. In addition, it can explain results from tests in plain language and suggest alternative approaches if needed.

Prompt design examples:

STANDARD

I'm analyzing data from a(n) [experimental/observational/ longitudinal] study about [topic]. I used (or am considering) [model/test].

Here are the results: [paste model output / tables / figures or describe key results].

Can you help me interpret what these results mean and whether this approach seems appropriate for my study?

ENHANCED

Role:
You are a [statistical consultant] with expertise in [field/discipline].

Context:
Study type: [experimental / observational / quasi-experimental / longitudinal / cross-sectional / modeling study]
Units of analysis: [individuals, samples, sites, time points, etc.]
Sample size and structure: [N, grouping, repeated measures, clustering, spatial/temporal structure]
Model/test used or under consideration: [e.g., t-test / ANOVA / linear regression / GLM / mixed-effects / Bayesian / time-series / etc.]
Outputs to interpret: [paste output tables / model summaries / figures or attach files]
If I am unsure about model choice, include model/test selection as part of the task.

Task:
Provide a conservative interpretation of the results and feedback on whether the chosen approach fits the study design and data.

Output format:
Plain-language interpretation: what the results suggest and what they do not support.
Technical interpretation: key parameters / effect sizes / uncertainty and how to read the outputs.
Appropriateness check: whether the method fits the design + any key assumptions to be aware of.
Limitations/cautions: main limitations or risks of overinterpretation.
Suggested next steps (if needed): alternative approaches or additional outputs that would strengthen interpretation.

Use case: Statistical reasoning and interpretation (continued)

COMPREHENSIVE

Role:
You are a [statistical consultant] with expertise in [field/discipline], experienced in advising study design, statistical modeling, and interpretation of quantitative results for peer-reviewed academic research.

Background and context:
I am analyzing data from the following study design:
Study type: [experimental / observational / quasi-experimental / longitudinal / cross-sectional / modeling study]
Units of analysis: [individuals, samples, sites, time points, etc.].
Sample size and structure: [N, grouping, repeated measures, clustering, spatial/temporal structure].
The statistical model(s) I have used or am considering include:
[e.g., linear regression, GLM, mixed-effects model, Bayesian model, time-series model, machine learning approach].
Here are the relevant outputs you should interpret (tables, figures, diagnostics):
[paste output tables, model summaries, figures, or attach files].
If I am unsure about the appropriate model choice, treat model selection and diagnostic evaluation as part of the task.

Objective and success criteria:
Provide an accurate, conservative interpretation of the statistical results and guidance on whether the chosen model(s) are appropriate for the study design and data.

A successful output will:
Clearly explain what the results do and do not show.
Distinguish statistical significance, effect size, and practical significance.
Identify key assumptions underlying the model and whether they appear reasonable.
Flag potential violations, limitations, or sources of bias.
Suggest alternative models or analyses if the current approach is poorly matched to the design or data.

Parameters and boundaries:
Do not infer causality unless the study design plausibly supports causal interpretation.
Do not overinterpret marginal or noisy results.
If diagnostics or key information are missing, explicitly state what is needed.
Prefer simple, interpretable models when multiple approaches are viable, unless complexity is clearly justified.
If model choice affects interpretation substantially, explain how and why.

Output format:
Organize the response into the following clearly labeled sections:

1. *Plain-language interpretation*
    a. *What the results mean in non-technical terms*
    b. *What claims are supported and which are not*
2. *Technical interpretation*
    a. *Explanation of coefficients, parameters, uncertainty, and model fit*
    b. *How to interpret key statistics (e.g., p-values, confidence intervals, posterior distributions)*

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3. *Model assessment and assumptions*
    a. *Core assumptions of the model*
    b. *Evidence for or against assumption violations (based on provided outputs)*
4. *Limitations and cautions*
    a. *Design limitations*
    b. *Statistical limitations*
    c. *Sensitivity to assumptions or modeling choices*
5. *Suggested alternatives or extensions (if applicable)*
    a. *Other models, diagnostics, or robustness checks that could strengthen the analysis*
6. *Draft write-up text*
    a. *2–4 sentences suitable for inclusion in a Results or Methods section, written conservatively*

Reasoning and transparency (required):
Explicitly state any assumptions you make about the study design, data quality, or modeling choices that are not fully specified.
Explain your reasoning step by step, particularly how you connect statistical outputs to scientific claims.
Clearly distinguish evidence-based conclusions from interpretive judgment or modeling preference.
Flag uncertainty and identify which conclusions are most sensitive to assumptions or model choice.
If the analysis cannot be interpreted responsibly with the information provided, stop and explain what additional outputs (diagnostics, data summaries, model details) are required and why.

Interpretation guidance:
Downstream use: [journal manuscript / grant proposal / internal memo / presentation].
Risk tolerance: Conservative—prioritize defensible inference and transparent uncertainty over strong claims.

Use case: Visualization and narrative logic

Copilot can support how researchers plan, evaluate, and refine figures and visual narratives for papers, posters, and presentations. Rather than asking Copilot to generate figures or interpret statistical results, researchers can prompt Copilot to help them think critically about what to show, how to structure visuals, and how to communicate evidence accurately and responsibly. Copilot can also assist researchers in reviewing visualization conventions used by target journals to help align visual narratives with disciplinary expectations, while also preserving analytical intent, including common figure types, panel organization, and levels of annotation.

Prompt design examples:

STANDARD

Help me decide how to visualize my results for [paper/poster/talk] about [topic].

My main message is: [one-sentence claim].

Here are the results I want to show: [brief description / paste key bullets / figure summary / dataset].

ENHANCED

Role:
You are a [scientific communication advisor] familiar with figures used in [field/discipline].

Context:
Intended format: [paper / poster / talk / slide deck]
Audience: [specialists / interdisciplinary researchers / students / policymakers]
Core claim: [1–2 sentence claim]
Results to communicate (do not add new results): [bullets of findings, pasted text, or attached figure drafts]
Must-include elements: [figures/results that must appear]

Task:
Recommend a set of visuals and an order that supports the core claim clearly and conservatively.

Output format:
Proposed figure list (or slide/panel list) in recommended order
For each figure: purpose + proposed visual type + what the audience should notice + 1 caption/callout suggestion
3–5 "clarity checks" (common pitfalls to avoid for these visuals)

Use case: Visualization and narrative logic (continued)

COMPREHENSIVE

Role:
You are a [scientific communication and visualization advisor] with experience designing and critiquing figures for peer-reviewed academic research in [field/discipline]. You are familiar with disciplinary norms for figures, captions, and visual argumentation, as well as common sources of misinterpretation or overstatement in scientific graphics.

Background and context:
I am developing one figure for [journal article / conference presentation / poster / slide deck] intended for [journal, conference, or venue if known].
Target audience: [specialists / interdisciplinary researchers / students / policymakers / general scientific audience].
The specific claim or point this figure is meant to support is: [1–2 sentence statement of the intended takeaway].
The data, results, or comparisons that this figure must represent include: [brief description of variables, groups, trends, or results to be shown].
If there are constraints on this figure, note them here:
Figure type or journal requirements: [e.g., single-panel vs. multi-panel, size limits].
Required elements: [must-include variables, uncertainty, comparisons].
Prohibited elements: [what should not be emphasized or implied].
Treat the provided information as authoritative. Do not introduce new analyses, results, or interpretations.

Objective and success criteria:
Develop a clear, defensible plan for a single figure that accurately and efficiently communicates the intended claim for the specified audience.

A successful figure plan will:
Make the relationship between the claim and the visual evidence explicit.
Use visual structure to support reasoning, not decorate results.
Preserve appropriate uncertainty, limitations, and scope.
Minimize the risk of misinterpretation or overstatement.
Be appropriate for the intended venue and audience.

Parameters and boundaries:
Do not reinterpret statistical results or assess significance.
Do not introduce new claims, causal language, or conclusions.
Do not recommend visual encodings that exaggerate effects or hide uncertainty.
Avoid unnecessary visual complexity or jargon.
If simplifying for accessibility, do not remove essential caveats or limitations.
Prioritize conceptual clarity and transparency over stylistic novelty.

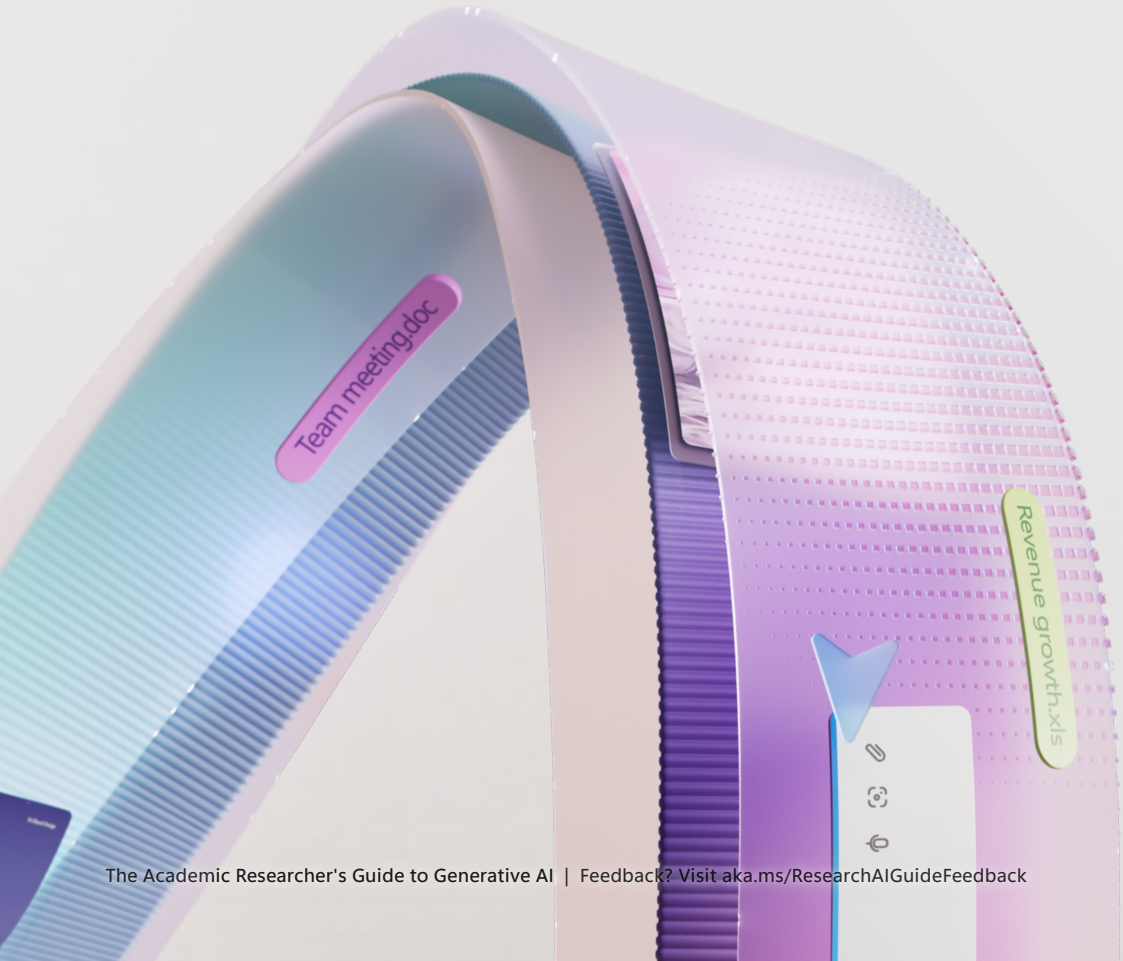
Output format:
Provide a figure-level plan and critique with the following components:
Figure purpose: what this figure is meant to demonstrate in the context of the paper or presentation.
Proposed visual structure: suggested figure type (e.g., distribution, comparison, trend, schematic; no code required), number of panels and what each panel shows.
Key elements to include: variables, groupings, scales, uncertainty representations, reference points or comparisons necessary for interpretation.

Prompt continued on next page ⓘ

Audience takeaway: what a reader should understand after viewing this figure.
Caption and annotation guidance: key phrases or framing that clarify interpretation, language to avoid that could overstate or mislead.
Clarity and risk check: potential points of confusion or misinterpretation and how the proposed design mitigates these risks.
If relevant, include a brief note on how this figure connects to the figures immediately before or after it in the overall narrative.

Reasoning and transparency (required):
Explicitly state any assumptions you make about audience background knowledge or venue expectations.
Explain your reasoning step by step, particularly how the proposed visual design supports the stated claim.
Identify where simplification was used and why it does not change the scientific meaning.
Flag areas where the figure is especially vulnerable to misinterpretation and how this is addressed.
If a responsible figure plan cannot be produced with the information provided, stop and explain what additional detail is needed and why.

Interpretation guidance:
Downstream use: [journal manuscript / conference presentation / poster / teaching material].
Risk tolerance: Conservative—prioritize accuracy, transparency, and audience comprehension over rhetorical impact.



Research administration

Research involves behind-the-scenes work to keep projects going, including drafting emails, creating summaries of meeting notes and action items, and coordinating tasks. Copilot can make workflows more efficient, including drafting emails and other communications.

Use case: Email and communication support

Effective communication is integral for managing research projects and collaborations, yet drafting emails can be time consuming. Copilot can reduce this burden by generating clear, professional messages tailored to the recipient and context to help reduce administrative workload.

Prompt design examples:

STANDARD

Write an email to [recipient] about [topic/purpose].

I want the tone to be [formal/neutral/collegial/brief].

Here's what I need to say: [brief description or bullets].

ENHANCED

Role:
You are an [academic communications assistant] experienced in professional correspondence in academic and research settings.

Context:
Recipient(s): [name(s), role(s), relationship to you]
Purpose of the email: [request / update / follow-up / coordination / introduction / reminder]
Key points to include: [bullet list]
Tone and formality: [formal/neutral/collegial/brief]
Any constraints or sensitivities (if relevant): [deadlines, power dynamics, prior conversations]

Task:
Draft a clear, professional email that communicates the message effectively and is appropriate for the recipient and context.

Output format:
Subject line
Email body
Optional alternate version

Use case: Email and communication support (continued)

COMPREHENSIVE

Role:
You are an [academic communications assistant] with experience drafting professional correspondence in academic and research settings.

Background and context:
Recipient(s): [name(s), role(s), relationship to you]
Purpose of the email: [request, update, follow-up, coordination, introduction, reminder]
Key points that must be included: [bullet list].
Tone and formality level: [formal/neutral/collegial/brief].
If relevant, note any constraints or sensitivities (e.g., power dynamics, deadlines, prior conversations): [optional].

Objective and success criteria:
Draft a clear, professional, and appropriate email that communicates the intended message effectively and prompts the desired response.

A successful email will:
Clearly state the purpose early.
Include all required information without unnecessary detail.
Use tone and language appropriate for the recipient and context.
End with a clear next step or call to action (if applicable).

Parameters and boundaries:
Do not invent facts, commitments, or deadlines.
Do not include confidential or sensitive information unless explicitly instructed.
Keep the email concise unless otherwise specified.
If information needed to draft the email is missing, flag it rather than guessing.

Output format:
Provide the output in the following structure:
Subject line
Email body
Optional variants (e.g., more formal / more concise), if appropriate

Reasoning and transparency (required):
If the email cannot be drafted responsibly due to missing context, stop and explain what additional information is needed.

Interpretation guidance:
Downstream use: [internal coordination / external correspondence / faculty communication / collaborator outreach].
Risk tolerance: Conservative—prioritize clarity and professionalism over stylistic flair.

Use case: Meeting summaries

Productive research meetings often generate extensive notes, decisions, and action items that need to be captured accurately. Copilot can streamline this process by transforming raw notes into structured summaries, highlighting key insights, and organizing next steps.

Prompt design examples:

STANDARD

Write a meeting summary for [project/collaboration/course/committee] from [paste or attach source material].

I want the tone to be [neutral/professional].

ENHANCED

Role:
You are a [project manager] experienced in documenting academic or research meetings.

Context:
Meeting date: [date]
Participants: [names/roles]
Purpose: [planning / decision-making / update / review]
Source material: [pasted notes or attached files]

Task:
Create accurate, concise meeting minutes that capture outcomes, responsibilities, and next steps.

Output format:
Summary (brief overview)
Decisions (explicit outcomes)
Action-item table (Task | Owner | Deadline)
Open questions or follow-ups

Use case: Meeting summaries (continued)

COMPREHENSIVE

Role:
You are a [project manager] supporting academic or research projects and collaborations.

Background and context:
The following material documents a meeting related to [project/collaboration/course/committee].
You may use either pasted notes below or attached files (e.g., transcript, agenda, notes) as the authoritative source.

If known, include:
Meeting date: [date]
Participants: [names/roles]
Meeting purpose: [planning, decision-making, update, review]

Objective and success criteria:
Produce accurate, concise meeting minutes that clearly capture outcomes, responsibilities, and next steps.

A successful summary will:
Faithfully reflect what was discussed and decided.
Clearly distinguish decisions from discussion.
Assign action items with owners and timelines where specified.
Avoid introducing decisions or commitments not explicitly stated.

Parameters and boundaries:
Do not infer intent, agreement, or decisions that are not clearly documented.
If notes are ambiguous or incomplete, flag uncertainty rather than guessing.
Preserve the original meaning and emphasis of the discussion.
Use neutral, professional language.

Output format:
Organize the output into the following sections:
Summary (brief overview of the meeting)
Decisions (explicitly agreed-upon outcomes)
Action-item table (Task | Owner | Deadline, if stated)
Open questions or follow-ups

Reasoning and transparency (required):
Explicitly state any assumptions you make when interpreting notes or transcripts.
Explain your reasoning briefly when categorizing items as decisions vs. action items.
Flag uncertainty where the source material is unclear or contradictory.
If the meeting record is insufficient to produce reliable minutes, stop and explain what additional information is needed.

Interpretation guidance:
Downstream use: [team coordination / documentation / follow-up communication].
Risk tolerance: Conservative—prioritize accuracy and traceability over completeness.

Science communication

Scientific expertise is built through deep immersion in a narrow domain. Although this depth is necessary for domain-specific research, it can also make it difficult to step back and assess how ideas, results, and significance are perceived by others. Researchers may unintentionally assume shared background knowledge, overemphasize technical tasks, or organize explanations around the structure of a paper rather than the needs of an audience. Generative AI tools can help create alternative framings and structures of their work, acting as a perspective-shifting aid to help researchers identify core messages, adjust emphasis, and experiment with how their work might be understood outside the immediate research context.

Use case: Audience-specific translation

Being a scientist involves communicating ideas and research to a diverse range of audiences. Whether you're working on a seminar for your colleagues, a grant proposal for a funding agency, or an outreach event for elementary school students, Copilot can scale content to the appropriate language, tone, and depth.

Prompt design examples:

STANDARD

Rewrite this for [target audience]. It's from a [journal article / manuscript / report / presentation] about [topic].

I want it to work as a [blog post / policy brief / public talk / slide deck / social media].

Text:
[paste text / attach file]

ENHANCED

Role:
You are a [science communicator] with experience translating research in [field/discipline] for non-expert audiences

Context:
Source material: [journal article / manuscript section / report / presentation] (use only [pasted text below and/or attached files])
Target audience: [general public / policymakers / educators / undergraduates / interdisciplinary scientists / journalists]
Intended medium: [blog post / policy brief / public talk / slide deck / poster / social media thread]
Key messages to preserve: [bulleted list of findings/claims/takeaways]

Task:
Translate the content so it is clear and engaging for the target audience while keeping the meaning consistent with the source.

Output format:
Audience-targeted translation (formatted for the intended medium).
3–5 bullet "key takeaways" written at the audience level.
A short list of technical terms that may need brief explanation.

Use case: Audience-specific translation (continued)

COMPREHENSIVE

Role:
You are a [science communicator] with experience translating peer-reviewed scientific research in [field/discipline] for diverse audiences while preserving technical accuracy and appropriate uncertainty.

Background and context:
The source material you should translate comes from [journal article / manuscript section / report / presentation].
You may use either pasted text below or attached files (PDFs, Word documents, figures, etc.) as the authoritative source material.
Target audience: [e.g., general public, policymakers, educators, undergraduates, interdisciplinary scientists, journalists].
Intended medium: [blog post, policy brief, public talk, slide deck, poster, social media thread].
The key messages that must be preserved are:
[bullet list of core findings, claims, or takeaways].
If there are concepts, terms, or results that must not be simplified or reframed, list them here: [optional exclusions].

Objective and success criteria:
Translate the scientific content so it is accessible, engaging, and appropriate for the target audience and medium, while faithfully preserving the original meaning, evidence, and uncertainty.

A successful translation will:
Accurately reflect the underlying science without exaggeration or distortion.
Adjust language, framing, and emphasis to match the audience's background.
Preserve appropriate uncertainty, limitations, and scope.
Avoid introducing new interpretations, causal claims, or policy implications not supported by the source.

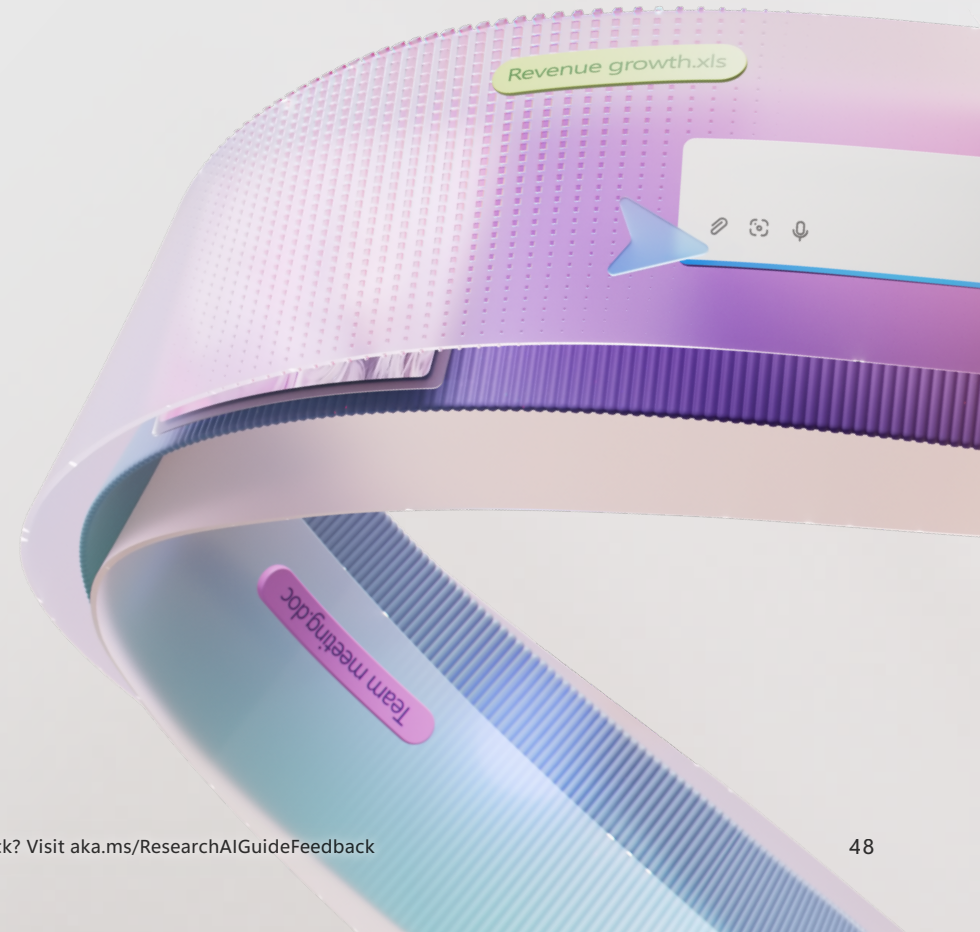
Parameters and boundaries:
Do not introduce new data, conclusions, or examples not grounded in the source material.
Do not oversimplify in ways that change meaning (flag where simplification risks distortion).
Maintain consistency with the terminology and claims in the original work.
If trade-offs between accessibility and precision arise, prioritize scientific accuracy and explain the trade-off.

Output format:
Provide the output in clearly separated sections.
Audience-targeted translation.
Written for the specified audience and medium.
Uses appropriate tone, structure, and vocabulary.
Technical reference version.
Slightly simplified but still technically precise.
Suitable for an informed but non-specialist scientific audience.
Glossary of terms and concepts.
Plain-language definitions of key terms.
Indicate where analogies or metaphors were used.

Prompt continued on next page ⓘ

Reasoning and transparency (required):
Explicitly state any assumptions you make about the audience's background knowledge.
Explain your reasoning step by step, especially where you chose to simplify, reframe, or omit technical detail.
Clearly identify places where precision was reduced for accessibility and explain why this does not change the underlying meaning.
Flag uncertainty and ensure that limitations or caveats in the original source remain visible.
If the material cannot be translated responsibly without additional context (e.g., missing figures, undefined terms), stop and explain what is needed and why.

Interpretation guidance:
Downstream use: [public talk / policy brief / outreach article / educational material].
Risk tolerance: Conservative—prioritize accuracy and faithful representation over rhetorical impact.



Use case: Presentation and poster development

Copilot can help transform written research outputs into visual and oral materials. With the knowledge of the intended audience, Copilot can use written text to help outline slides and talking points.

Prompt design examples:

STANDARD

Convert this text into [slides / a poster].

The format is [oral talk / lightning talk / conference poster / invited seminar] and the audience is [audience type].

Source material:
[paste notes / attach file].

ENHANCED

Role:
You are a [scientific presentation coach] familiar with presentations and posters in [field/discipline].

Context:
Use only [pasted text / attached files] as the source material.
Format: [oral talk / lightning talk / conference poster / invited seminar / public lecture].
Venue and audience: [conference / department / event + audience type].
Constraints: [time limit OR poster size / orientation OR required sections].
Required elements (if any): [must-include figures, tables, results, or messages].

Task:
Create a clear plan to communicate the main question, approach, and contribution for this audience and format.

Output format:
Choose the relevant structure:
If slides: a slide-by-slide outline including slide title, key visual(s), and 2–4 talking points.
If poster: a panel-by-panel outline including panel title, key visual(s), and core message (1–2 sentences).
Action-item table (Task | Owner | Deadline)
Open questions or follow-ups

Use case: Presentation and poster development (continued)

COMPREHENSIVE

Role:
You are a [scientific presentation coach] with experience designing clear, evidence-driven presentations and posters for academic and professional audiences in [field/discipline].

Background and context:
The source material you should use comes from [attached paper, manuscript section, report, or pasted notes].
Treat this material as the authoritative source and do not introduce new results or interpretations.

Presentation format: [oral talk / lightning talk / conference poster / invited seminar / public lecture]
Venue and audience: [conference name, department seminar, interdisciplinary audience, students, policymakers, etc.]

Constraints:
Time limit (for talks): [e.g., 10, 15, 30 minutes].
Poster size / layout constraints (if applicable): [dimensions, orientation].
Presentation medium: [slides, printed poster, digital poster].
If there are figures, tables, or results that must be included, list them here: [required elements].

Objective and success criteria:
Convert the research into a clear, compelling visual narrative that communicates the core contribution accurately and efficiently for the intended audience and venue.

A successful presentation or poster will:
Clearly communicate the central question, approach, and contribution.
Use visuals to support reasoning, not decorate slides.
Preserve appropriate uncertainty, limitations, and scope.
Be paced and structured appropriately for the time or space constraints.
Enable the audience to follow the logic without requiring prior deep familiarity.

Parameters and boundaries:
Do not overload slides or poster panels with text.
Do not introduce new claims, results, or interpretations not supported by the source material.
Avoid unnecessary jargon; where technical terms are needed, ensure they are clearly motivated.
If simplifying for accessibility, do not remove essential caveats or limitations.
Prioritize conceptual clarity over visual novelty.

Output format:
Provide a structured layout plan, using one of the following formats as appropriate:

1. *For slide presentations:*
    a. *Slide-by-slide outline, including for each slide:*
    b. *Slide title (claim-based, not topic-based)*
    c. *Purpose (what this slide accomplishes in the narrative)*
    d. *Key visual(s) (figure, schematic, plot, table, or conceptual diagram)*
    e. *Minimal supporting text or talking points*
    f. *Transition note (how this slide connects to the next)*

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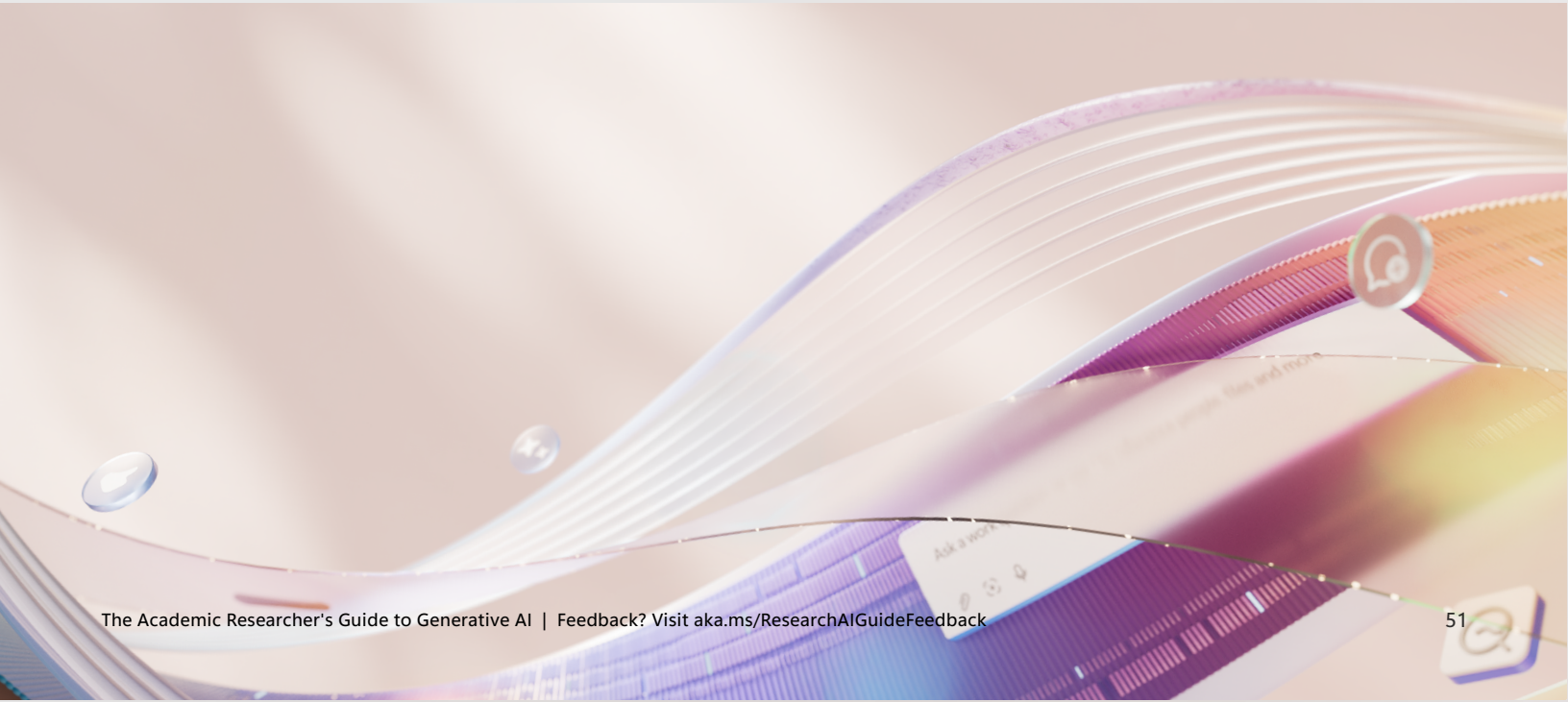
2. *For posters:*
    a. *Panel-by-panel layout, including:*
    b. *Panel title and purpose*
    c. *Key visual(s)*
    d. *Core message (1–2 sentences)*
    e. *Suggested reading flow (e.g., left-to-right, top-to-bottom)*

If helpful, include a brief one-sentence takeaway the audience should remember after the presentation.

Reasoning and transparency (required):
Explicitly state any assumptions you make about audience background knowledge or venue norms.
Explain your reasoning step by step, particularly how you decided what to include, omit, or condense given the constraints.
Identify where visual simplification was used and why it does not change the underlying scientific meaning.
Flag uncertainty and ensure that limitations or caveats from the source material remain visible.
If the source material cannot be converted responsibly into a presentation or poster without additional clarification (e.g., missing figures, unclear results), stop and explain what is needed and why.

Interpretation guidance:
Downstream use: [conference presentation / poster session / invited talk / outreach event].
Risk tolerance: Conservative—prioritize accuracy, clarity, and audience comprehension over stylistic flourish.



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