



The Roux Institute
Northeastern University

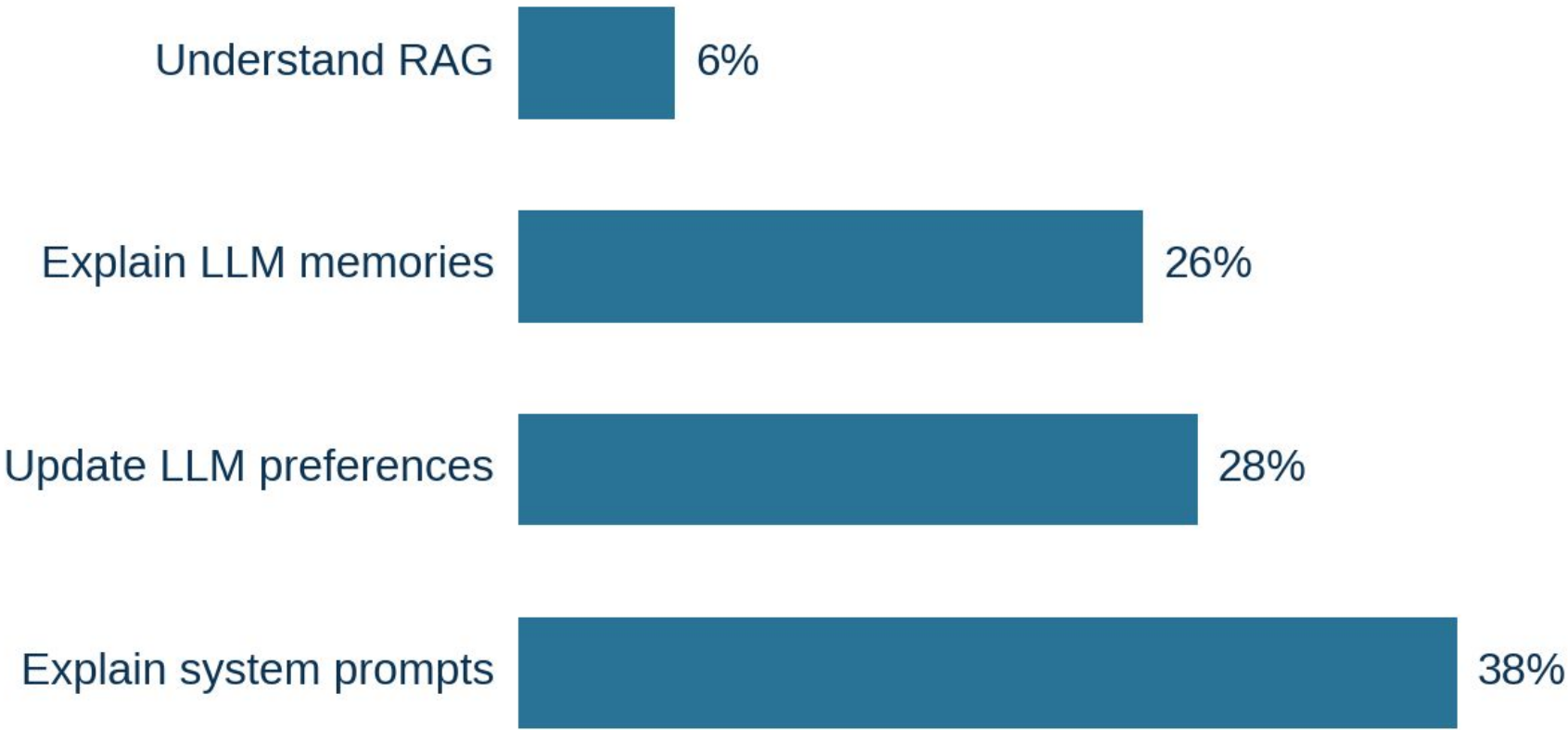
Going Deeper with AI Tools: Advanced Prompting Techniques

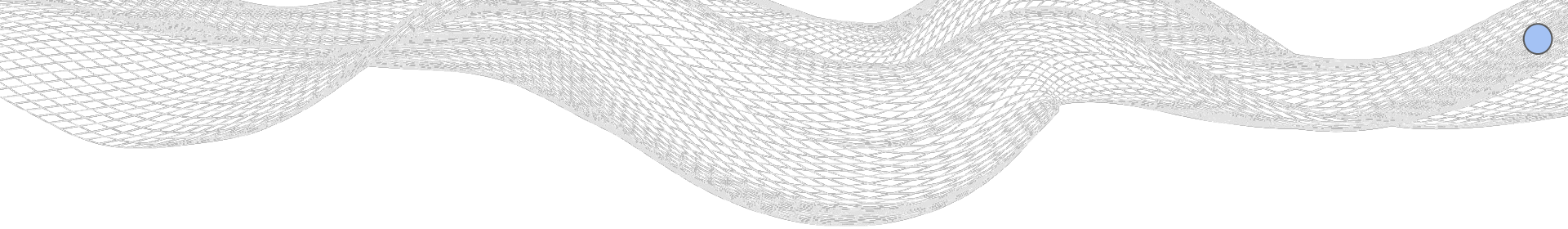
Dr. Berkeley Almand-Hunter
Zach Blattner

June 5th, 2026

Most Participants are Unfamiliar with Advanced Prompting Concepts

% of Participants Indicating Agree or Strongly Agree





How can I **strategically** and **responsibly** use AI tools to support and enhance my work?

Agenda & Objectives

Objectives

- Explain the difference between system and user prompts and how they relate to instructions for AI tools
- Create persistent instructions, leverage memory capabilities, and adjust preferences to improve outputs across conversations or projects

Agenda

- LLM Foundations
- Personalizing Chat
- Projects and Notebooks
- Excel + AI
- Risk Reminders
- Wrap up + Survey

Agenda

- **LLM Foundations**
- Personalizing Chat
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AI chatbots answer your questions by...

1. Looking up facts in their internal database
2. Predicting the next word based on patterns in training data
3. Searching the internet
4. Searching internal documents/databases
5. All of the above
6. 2 and sometimes 3 or 4

Next-word prediction enables LLMs to be trained on vast amounts of data

I can't eat a hot dog without **ketchup**
mustard
sauerkraut
options



A black curly bracket is positioned under the words "I can't eat a hot dog without ketchup". Below the bracket, the word "prefix" is written in an italicized font.

The words "mustard" and "sauerkraut" are listed vertically to the right of the bracket, representing possible completions for the prefix. Below these two words, the word "options" is written.

No right answer - just likely answers based on training

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Chat Personalization

Categories:

- Custom Instructions
- Saved memories
- Chat History

What best describes your work? Data science ▾

Instructions for Claude

Claude will keep these in mind across chats and Cowork within [Anthropic's guidelines](#). [Learn more](#)

Role:

- I am the technical director of a team that does workforce learning on

Personalization

Control how Copilot tailors responses using your preferences. [Learn more.](#)

Custom instructions

Add details about your preferences so Copilot can respond your way. ☒

[Edit instructions](#)

Work profile

Copilot will use your work profile for more relevant answers. [View work data](#)

Saved memories

Allow Copilot to remember details to provide better responses. ☒

[Manage saved memories](#)

Chat history (Frontier)

Let Copilot use your past chats to personalize responses. [Learn more.](#) ☒

Personalization

Base style and tone Professional ▾

Set the style and tone of how ChatGPT responds to you. This doesn't impact ChatGPT's capabilities.

Characteristics

Choose additional customizations on top of your base style and tone.

Warm Less ▾

Enthusiastic Less ▾

Headers & Lists Default ▾

Emoji Less ▾

Fast answers

ChatGPT can sometimes use its general knowledge to give fast, in-depth answers. These aren't personalized and don't use your memory. ☒

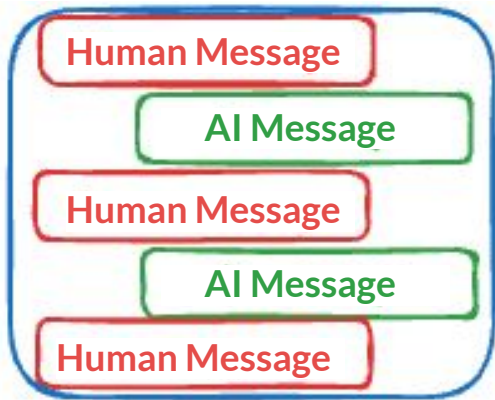
Custom instructions

Role:

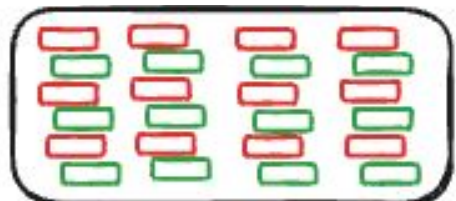
- I am the technical director of a team that does workforce learning

LLM Memory

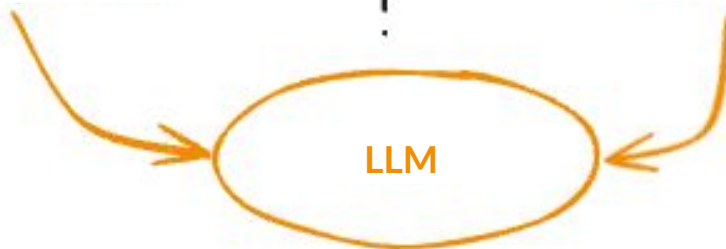
Short-term Memory



Long-term Memory



Stored Memories



A list of memories is generated automatically from your chats

Saved Memories

Responses will become more personalized as you chat, using inferences from your conversation.

The user likes hiking



The user likes France



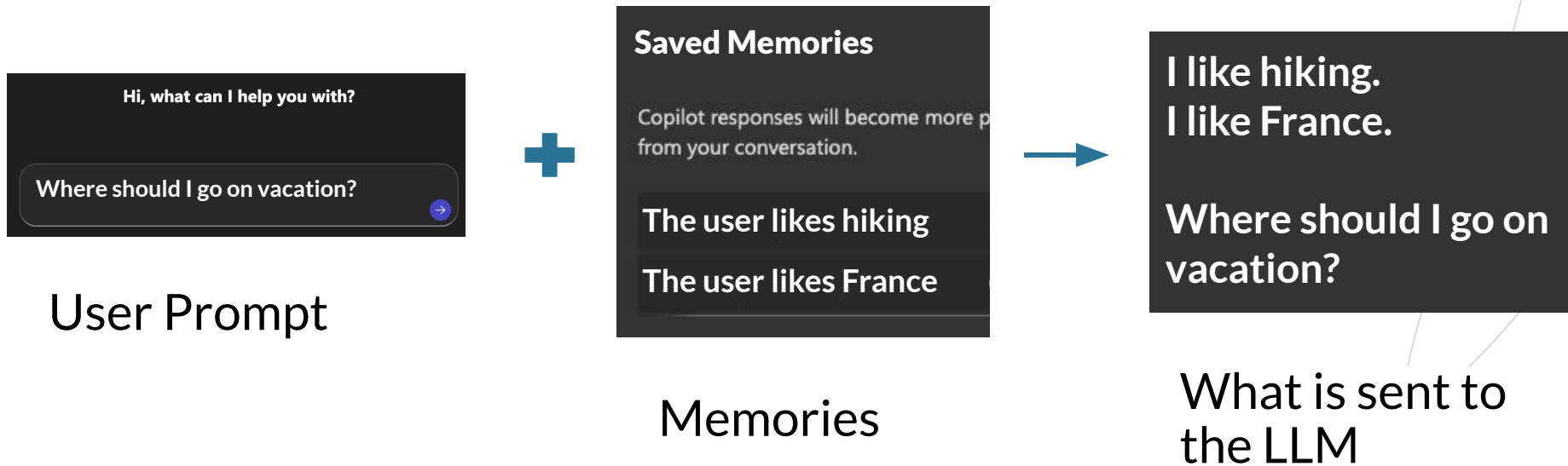
How memories are incorporated

Hi, what can I help you with?

Where should I go on vacation?



Saved memories are appended to your prompt



Chat history search

Generate memory from chat history

Allow Claude to remember relevant context from your chats. This setting controls memory for both chats and projects. [Learn more.](#)



Chat history (Frontier)

Let Copilot use your past chats to personalize responses. [Learn more.](#)



Reference chat history

Let ChatGPT reference all previous conversations when responding.



System vs User Prompts

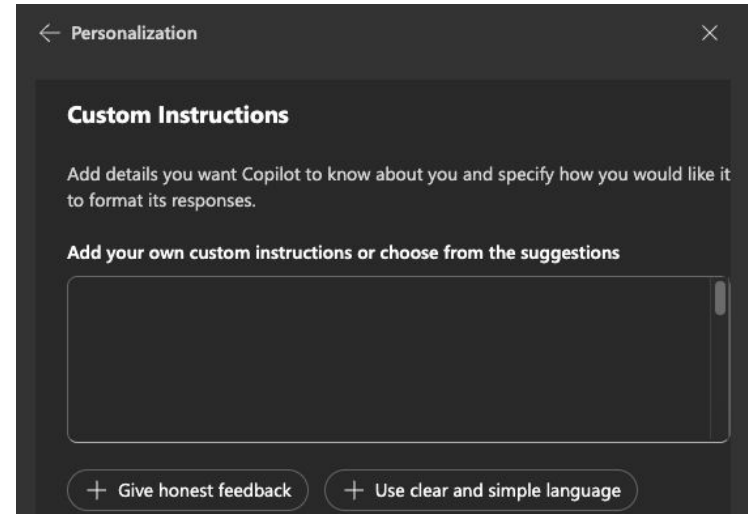
	System Prompt	User Prompt
Purpose	Sets model behavior & context	Requests specific task
Timing	Set before conversation starts	During Conversation
Persistence	Applies throughout entire session	Single query or thread
User Control	Often hidden from users	User Input
Example	"You are an HR expert. Always apply HR best practices and norms when responding"	"Explain the rationale for the new PTO policy attached"

Custom Instructions

- Appended to queries in the same way as memory
- Use for context you want to apply to every query

Instructions for Claude

Claude will keep these in mind across chats and Cowork within [Anthropic's guidelines](#). [Learn more](#)



← Personalization ×

Custom Instructions

Add details you want Copilot to know about you and specify how you would like it to format its responses.

Add your own custom instructions or choose from the suggestions

+ Give honest feedback

+ Use clear and simple language

Custom instructions

Sample Instructions to Consider

- Always tell me the truth. Do not soften your comments or agree with me just to be agreeable.
- Ask me follow-up questions to better understand my prompt and goal.
- Provide real citations, urls and source identifications. Do not make up sources.
- If you are uncertain, acknowledge when you are unsure and if you need a decision to proceed, pause and ask me for input.
- Limit verbosity and keep responses to 100 words or fewer unless prompted otherwise.
- Write in <marketing, technical, etc.> tone.
- Prioritize <creative or precise> answers.

Reflect

Share an item from your updated instructions that you think will be helpful in your daily work



Instructions

Primary use cases are writing & communications and data & analysis. Tailor responses accordingly — crisp, polished drafts for communications; clear, structured outputs for analysis.

♥ 1 0 comments

Write a comment

When numbers are involved, check the math explicitly and show the calculation.

♥ 0 0 comments

Write a comment

How I like Claude to respond:
Adapt length and depth to the task. Quick questions get concise answers. Complex requests get thorough, well-structured responses.

♥ 0 0 comments

Write a comment

Primary Objectives
Support strategy development
Enhance decision-making clarity and speed
Deliver market analysis with actionable insights
Prioritize implications and recommendations over raw information

♥ 0 0 comments

Write a comment

I like that I can personalize it to not give me long answers that spend energy and tokens unnecessarily. It will help me be more efficient

♥ 0 0 comments

Write a comment

Avoid unnecessary wordiness and default to short and concise responses

♥ 0 0 comments

Write a comment

I told it to never use an em-dash.

♥ 3 0 comments

Write a comment

When something is ambiguous, show tradeoffs and let me decide

♥ 0 0 comments

Write a comment

When uncertain about intent, scope, or a key assumption, ask 1 or 2 focused questions before proceeding.

♥ 0 0 comments

Write a comment

For employment law questions, always cite specific statutes and regulations (Maine state law and federal).

♥ 0 0 comments

Write a comment

Favors detailed, clear guidance
Prefers step-by-step instructions, especially in:
Bullet-point format
Process-driven explanations
Values clarity, completeness, and actionable direction over high-level summaries

♥ 0 0 comments

Write a comment

Historically I have input these preferences on a session level, and this ability to create "instructions" will save a lot of time and hassle repeating myself

♥ 0 0 comments

Write a comment

When numbers are involved, check the math explicitly and show the calculation.

♡ 0 0 comments

Write a comment

Provide KPI's and Metrics on efficiency and productivity of resources on our shop floor.

♡ 0 0 comments

Write a comment

give me shorter paragraphs instead of long bulleted lists. I think this will help me get a summary of an answer and then I can ask for the details I want instead of a huge list of things I may or may not need. Scaling up instead of paring down

♡ 0 0 comments

Write a comment

Primary Objectives
Support strategy development
Enhance decision-making clarity and speed
Deliver market analysis with actionable insights
Prioritize implications and recommendations over raw information

♡ 0 0 comments

Write a comment

He expects support that focuses on financial analysis, document summarization, and synthesizing complex information into actionable insights, while avoiding abbreviations, unnecessary punctuation such as m dashes, jargon, and vague language.

♡ 0 0 comments

Write a comment

decide
♡ 0 0 comments

Write a comment

When helping with communications, avoid suggesting workflows that create unrealistic upkeep burdens.

♡ 0 0 comments

Write a comment

Accuracy is extremely important to me. If information may be uncertain, say so clearly. Distinguish facts from assumptions. Verify current information when possible. When multiple valid answers exist, explain the tradeoffs.

♡ 0 0 comments

Write a comment

Ambiguity: When a request is unclear or could go multiple directions, ask before starting rather than guessing and producing something off-target. A quick clarifying question up front beats a wrong deliverable

♡ 0 0 comments

Write a comment

Critical thinking: Pressure test my ideas, poke holes in my logic, identify risks, surface assumptions, and help me strengthen my thinking before I share work with others.

♡ 0 0 comments

Write a comment

Optimize outputs for executive decision-making and provide moderate technical depth that remains clear to executive audiences

♡ 0 0 comments

Write a comment

Write a comment

Use a data-driven approach anchored in clear narrative
Lead with key insights, then support with structured evidence
Prioritize clarity, brevity, and executive-level readability

♡ 0 0 comments

Write a comment

I go some good ideas from Claude about How it can Help. For example, flag process/alignment risks proactively, especially around cross-functional decisions

♡ 0 0 comments

Write a comment

I specified Claude to write 5 bullet points for LinkedIn profile and that changed the language used

♡ 0 0 comments

Write a comment

i prefer short, plain-language responses—no jargon

♡ 0 0 comments

Write a comment

Share your thoughts

🖼️ 🎥 🎤 GIF



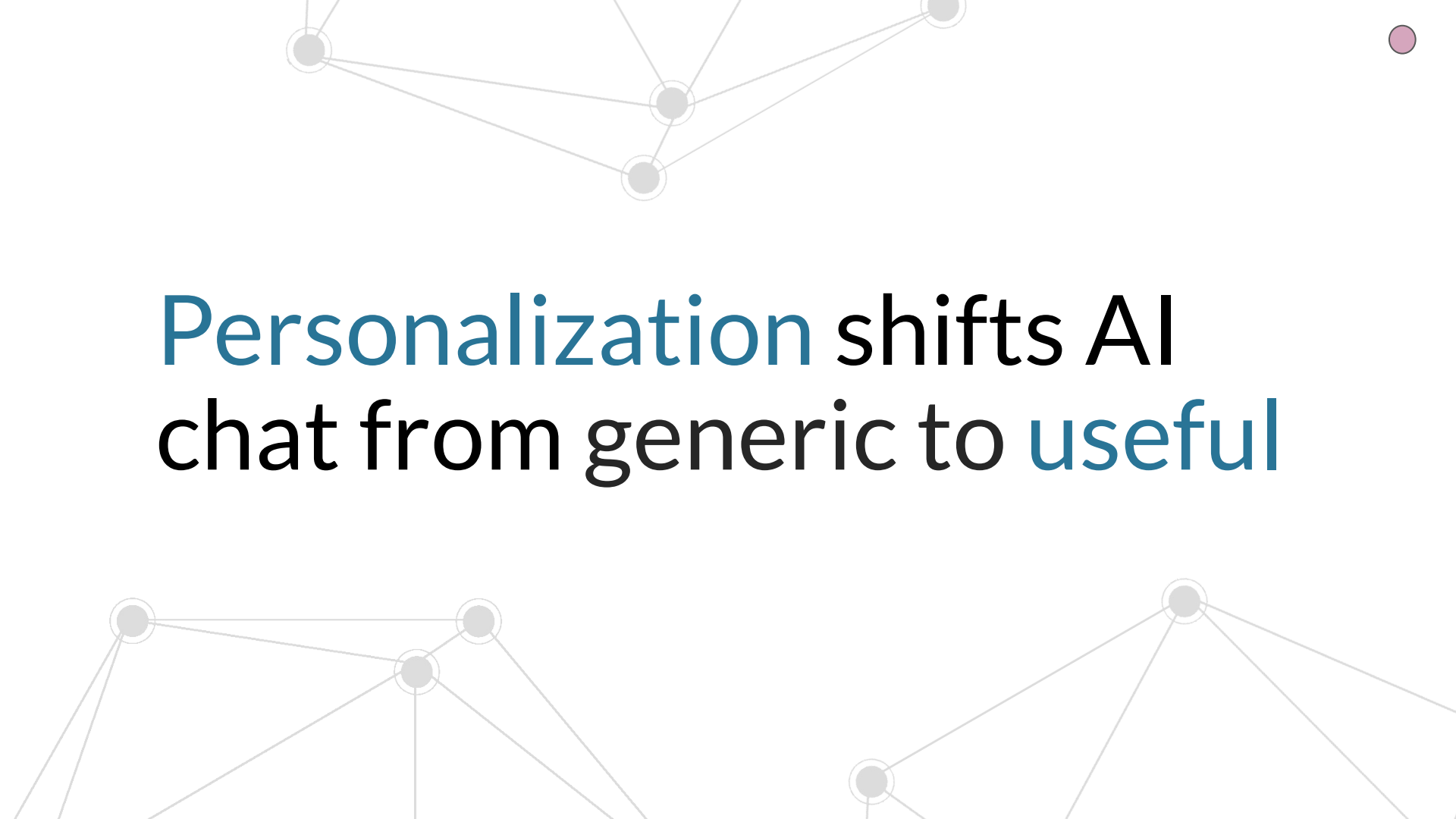
Chat

Pros

- No setup; start immediately
- Good for quick, one-off tasks
- Supports file and image input
- Good for brainstorming and drafting

Cons

- Context resets each session
- Grounding requires manual input in each thread
- Can drift in long conversations

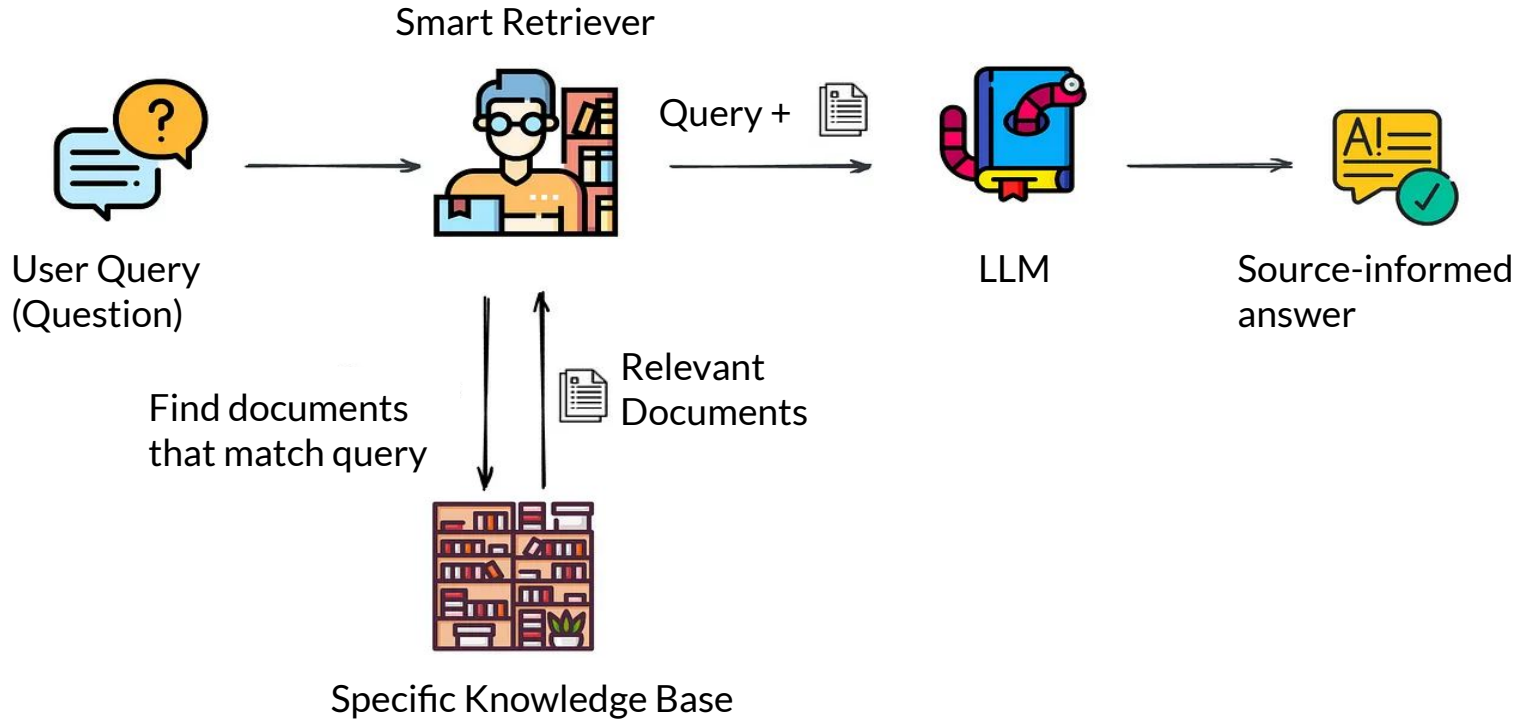


Personalization shifts AI
chat from generic to useful

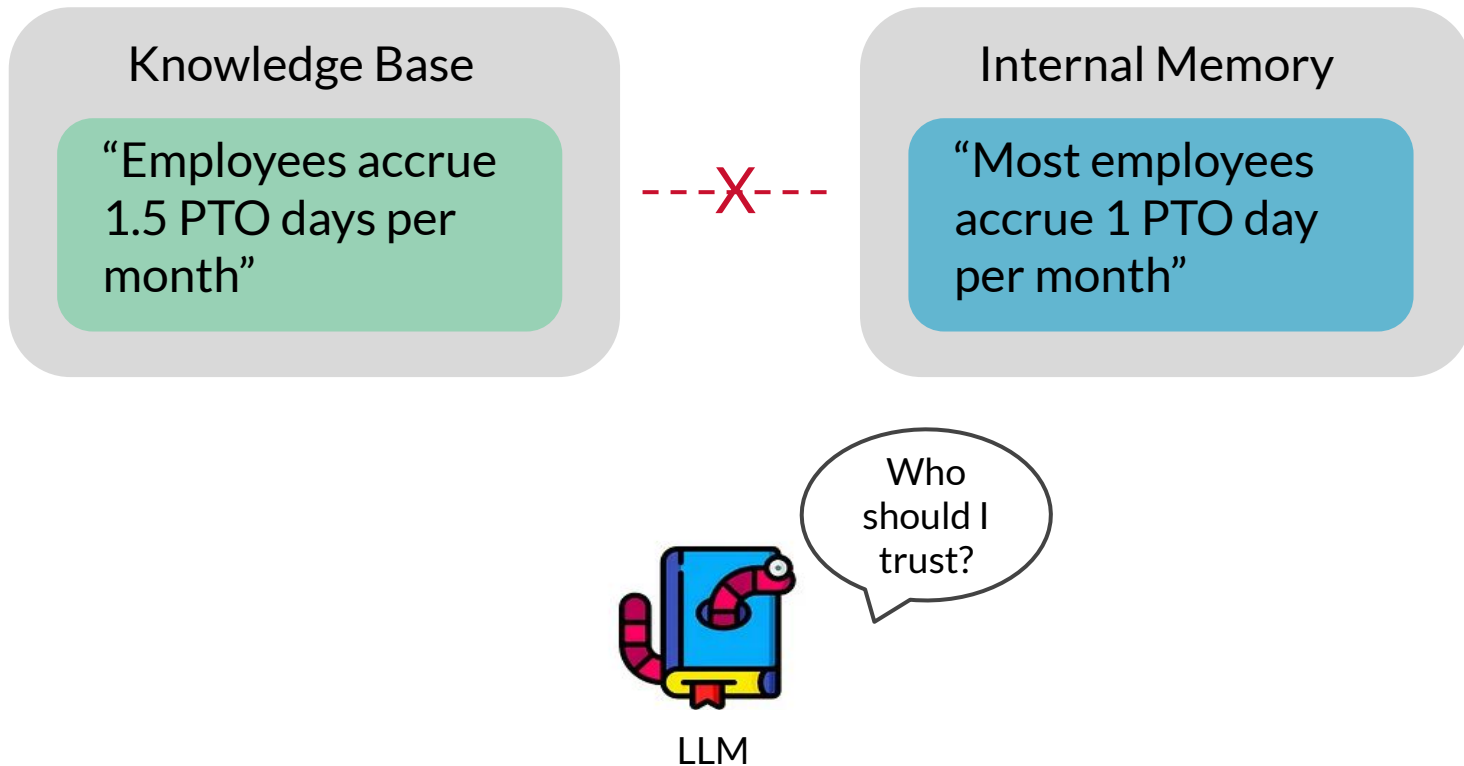
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- Excel + AI
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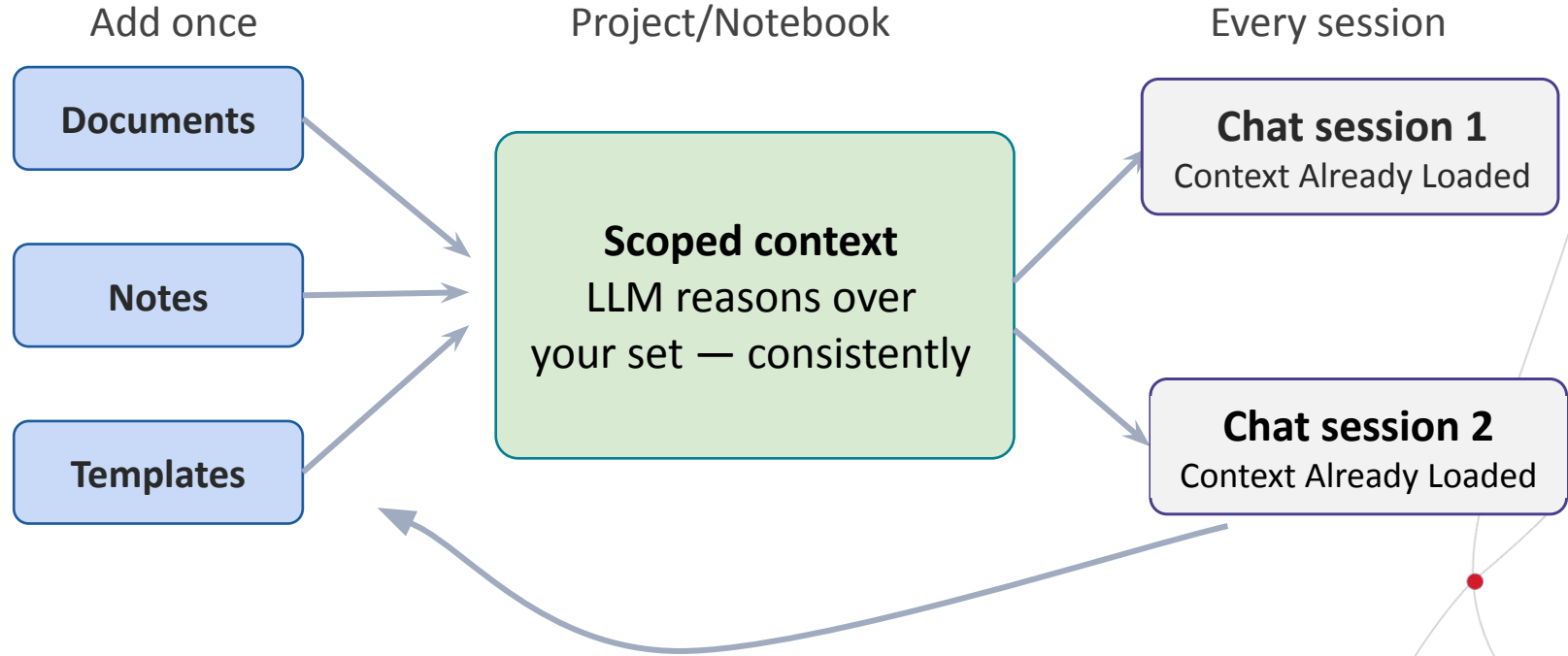
RAG enables an LLM to access a knowledge base



RAG Challenges: Knowledge Conflicts



Project/Notebook



Projects/Notebooks (via RAG)

Pros

- Persistent grounding across sessions (no re-pasting documents)
- Better for referencing multiple sources than single chat
- Keeps context consistent for long-running or collaborative work
- May connect to external apps

Cons

- More work than chats for one-off projects
- Copilot Notebook: no web search currently

Projects/Notebook Use Cases

HR

- **Job description/policy drafting** — store approved language and templates as persistent references for consistent outputs across roles

Sales

- **Competitive intelligence** — load competitor briefs and battle cards as a scoped reference set for pre-call prep

IT

- **Service desk knowledge base** — load runbooks, escalation guides, and known issue docs so tier-1 support queries them consistently across shifts

Finance

- **Budget/variance analysis** — load prior period reports and budgets as persistent references so the team queries trends across sessions without re-importing data

Operations

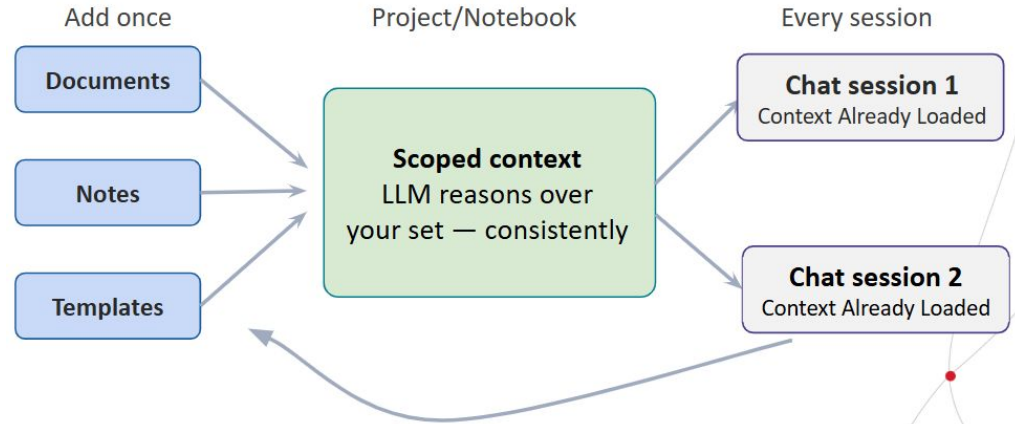
- **Process documentation hub** — store SOPs, runbooks, and workflow specs so teams query the current state of operations consistently across locations or shifts

Legal/Compliance

- **Contract review baseline** — load standard contract templates so deviations in new agreements are queryable against the norm

Common Features

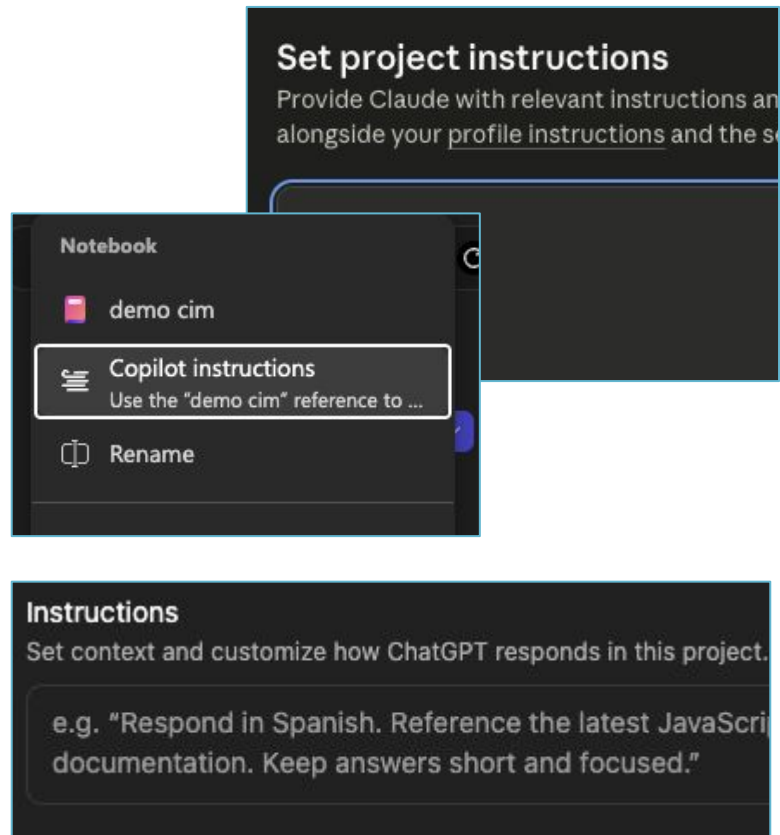
- References
- Instructions
- Pages*



*Copilot Notebook only

Project/Notebook Instructions

- Potential Categories
 - Purpose/Role
 - Output/Format preferences
 - Use of context/references
 - Tone
 - Data/Sensitivity/Bias
 - Avoid/Do Not
- Consideration:
 - *What questions do you want the Project/Notebook to ask you?*



Project/Notebook Tips

- Based on testing, update the instructions to be more specific and anticipate recurring questions or prompts
- If a reference isn't accurate, the output will suffer
- Always review the outputs to ensure accuracy
- Share with with team members to build more useful/collaborative tool and reduce duplicative work

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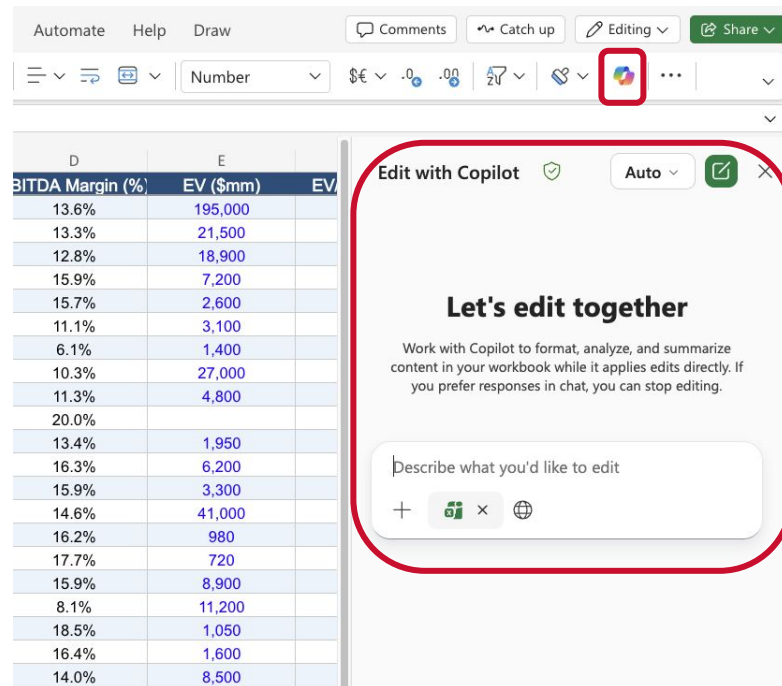
AI + Excel

Pros

- Quick setup
- Integrated into Excel
- Can reference workbook context
- Can generate formulas, clean data, produce visualizations, and run analyses

Cons

- No automation
- No repeatability, but potential memory
- Edits spreadsheet directly
- Hallucinations - always check everything!

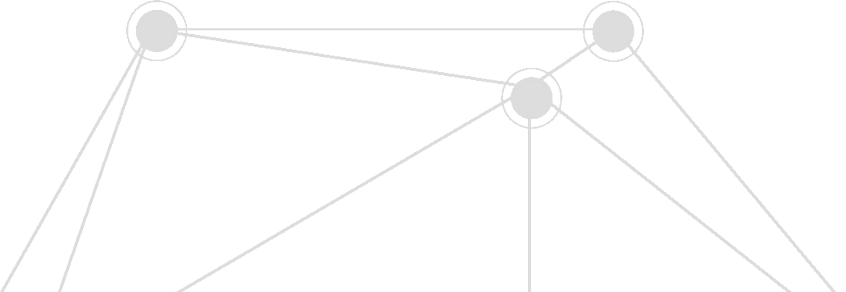
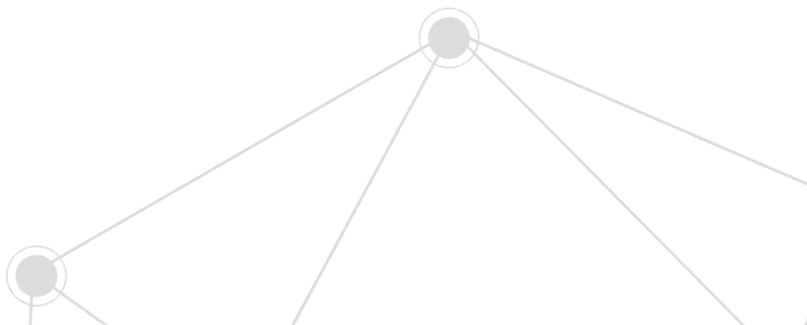


Excel Tips

- Include these items in your prompt:
 - Do not edit the original data
 - Put analysis in a new worksheet
 - Return formulas, not just raw numbers
 - Convert the data to an Excel Table with named columns
- Break complex actions into steps
- Be as clear as possible and engage in chat to iterate
- Always double check AI work!



Use the **simplest tool** that
works



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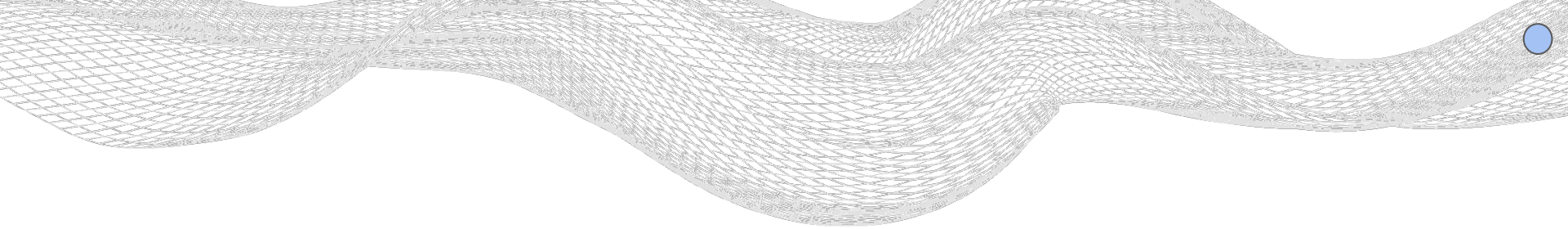


Challenges for GenAI Tools

- Errors or “hallucinations”
- Internalized biases
- Misuse
- Intellectual Property
- Environmental Impact
- Wasted Time - yours and others
- Reputational Damage

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How can I **strategically** and **responsibly** use AI tools to support and enhance my work?

Key Takeaways

- Optimize AI Chat experience via instructions and memories in your user preferences
- RAG enables LLMs to ground answers in connected documents
- Choose the simplest AI tool that will work for your task
 - Chat for one-off questions or quick tasks
 - Notebooks/Projects when specific and persistent document references are needed
 - AI in Excel for in-spreadsheet analysis

Keep building after today.

Today's workshop is a sample of how we work. The Roux Institute at Northeastern University designs customized learning programs that help teams build practical AI, analytics, and data skills.



Customized to your context

Built around your people, tools, and priorities.



Designed for real-world application

Hands-on learning your team can use right away.



Built to keep momentum going

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