AI Project Tools

Resources

- Slide Deck
- NC-SARA Compliance Advisor (GPT)
- Nursing Flashcard Game
- Google Gemini
- Perplexity Pages

*You can sign up for my newsletter: **AI+Edu=Simplified***. Conne with me on my blog, Twitter, Bluesky, Mastodon, LinkedIn, or YouTube.

If you have additional questions, please reach out to me at lance.eaton@gmail.com.

Workshop Prompts & Guidance

How to Create a Google NotebookLM Project

1. Go to https://notebooklm.google.com/
2. Select "+ New Notebook"
3. Upload Sources if you currently have them (or "X" out of the screen).
4. Add Files (PDF, text files, or Markdown files), Google Docs, Links, Large text that you've copied, or drag & drop into the box.
5. Select "Untitled notebook" and name your Notebook.
6. On the left side of the scree, the documents will show up.
7. You can check or uncheck them to include them when you prompt NotebookLM.
8. Select Notebook Guide in the bottom right corner.
9. Consider creating a FAQ, Study Guide, Table of Contents, Timeline, or Briefing Doc.
10. You can also generate an audio overview on the right.
11. Once a note is created, you can click on the title "New Note" and rename it accordingly.
12. If you want a Note included in your interaction, you can check the select the checkbox that appears when you hover you mouse over the note.

NC-SARA Custom Text for Claude Projects

This project is to help institutions make well-informed and critical decisions about how best to uphold the National Council for State Authorization Reciprocity Agreements (NC-SARA) standards for online learning.

The documents are relevant to NC-SARA standards. All answers must be grounded in these documents and where possible include quotations and citations to verify your responses.

When a clear answer can no be derived from these sources, then you must indicate that you are uncertain. At that point, you should recommend real sources or websites to consult for further information.

NC-SARA Custom Instructions for Custom-GPT

I would like to make a bot that can help our institution make well-informed and critical decisions about how best to uphold the National Council for State Authorization Reciprocity Agreements (NC-SARA) standards for online learning.

These attachments are relevant to NC-SARA standards. All answers must be grounded in these documents. When answers can not be directly connected and quoted from these documents, then you should look online, particularly for web-pages with the base address (https://nc-sara.org/) or those sites that have .org or .edu and link to https://nc-sara.org/.

When a clear answer can no be derived from these sources, then you must indicate that you are uncertain. At that point, you should recommend real sources or websites to consult for further information.

Nursing Flash Card Game Prompt

Take the attached document. Create a flash-card game that does the following. The game page has "Nursing Flash Card Game" and a "Begin" button to start the game. Once the game begins, it should show one of the words from the document. There is a "Next" button at the bottom of the card with the word on it. When the user clicks on Next, show the definition. Below the definition, there are two buttons "Right" and "Wrong." If the user selects "Right", there is an textual response of "Yay!". If the user selects "Wrong", there is a textual response of "Maybe next time!". Keep track of the score. After ten rounds, provide a final score and include a button to "Start again?" The words should be randomized each game in terms of which words are chosen and their order.

Claude Artifacts

What is it?

Claude Artifacts are outputs generated by Claude AI, such as code snippets, text documents, diagrams, graphics, or website designs, which appear in a dedicated panel alongside your conversation. These Artifacts are designed to help users easily create, view, edit, and reuse content generated by Claude, making collaboration more efficient. Additionally, these artifacts can be published to the web for others to view, interact, copy, and adapt.

What can it do?

1. **Coding Support**: Generate complex code structures, algorithms, and pseudocode, then edit them in real time. You can also view and copy code for external use.
2. **Collaboration**: Share or publish Artifacts with teammates, allowing for real-time feedback, modifications, and collaborative editing.
3. **Content Creation**: Generate and edit documents (Markdown, plain text), code snippets, or diagrams (e.g., flowcharts, SVG graphics) in a dedicated window. Other content includes: documents (markdown or plain text), code snippets, websites (single page HTML), scalable Vector Graphics (SVG) images, diagrams and flowcharts, interactive react components, data visualizations (charts, dashboards, infographics)
4. **Editing and Iteration**: Make modifications without changing Claude's memory of the original content. Switch between different versions using the version selector.
5. **Export**: Download Artifacts as files for external use
6. **Interactive Visualization**: Create charts, infographics, or interactive web components (e.g., React components), making it easier to develop, modify, and present data or designs.
7. **Standalone and Reusable**: Artifacts are designed to be self-explanatory and referenced later, enhancing efficiency for ongoing projects.

Limitations

Complexity Constraints: Artifacts are most useful for simple or mid-level tasks such as generating Python functions or creating SVG graphics. However, for more complex tasks like extensive code development, artifacts might face scalability issues, particularly when integrating APIs or handling complex libraries.

Incremental changes: It lacks the ability to make targeted, incremental changes to specific parts of the code.

Limited to Visual and Textual Outputs: Artifacts cannot handle audio or video content, which restricts their utility in multimedia projects. Users are limited to text, code, visual data (e.g., charts), and other non-interactive content like diagrams

No Dynamic Collaboration: While Claude Artifacts can be shared for collaboration, they don't support real-time, multi-user edits, which may be a drawback for teams needing dynamic, interactive workflows.

Panel View: The interface is optimized for Artifacts that fit reasonably within the viewable panel area.

Token Usage: The Artifacts system message alone is over 4,000 tokens, which counts against usage limits even when not actively using the feature.

Version Control: Version control is limited to switching between different versions of the same Artifact

Claude Projects

What is it?

Claude Projects is an innovative feature of the Claude AI platform, designed to enhance project management and collaboration through artificial intelligence. This feature allows users to create dedicated workspaces where they can upload relevant documents, set custom instructions, and interact with Claude in a focused manner.

What can it do?

1. **Artifacts**: Claude can generate outputs like code, documents, and designs, which are stored in dedicated windows for easy editing and reuse, especially useful for developers and content creators.
2. **Cold Start Solution**: By maintaining persistent context across conversations and referencing past chats and files, Claude overcomes the typical challenge of AI needing to build context from scratch, saving users time and improving workflow continuity.
3. **Collaboration**: For teams, Claude Projects support shared workspaces where team members can contribute documents, collaborate in chats, and share outputs, improving collective problem-solving and innovation.
4. **Document Integration**: Users can upload various types of content, including documents, code snippets, and images, directly into their project workspace. This integration helps Claude provide tailored assistance based on the specific materials related to the project
5. **Contextual Assistance**: Users can upload documents (e.g., code, reports, transcripts) to provide Claude with specific context, enabling the AI to generate more accurate and domain-relevant responses.
6. **Customization**: Claude's responses can be tailored by setting custom instructions for tone, role, or perspective, making interactions more relevant to the user's specific needs.
7. **Large Context Window**: With a 200,000-token limit, Projects allow users to upload vast amounts of data (up to the equivalent of a 500-page book), enhancing Claude's effectiveness in complex, information-rich tasks.

Limitations

Context Window: Though Claude Projects boasts a large 200,000 token context window, this can still be limiting for extremely large or complex projects. Users working with massive datasets or extensive documentation may find themselves bumping up against this upper limit.

File Limits: There's a 30MB size limit per file, with a maximum of 5 files per upload

File Usage: Only certain document formats are supported (e.g. docx, csv, txt, html, odt, rtf, epub)

Handling of Complex Language: Despite its capabilities, Claude struggles with interpreting nuanced language, including sarcasm, humor, and cultural references. Its emotional intelligence and ability to grasp subtle linguistic cues are limited, making it less effective in highly context-dependent conversations.

No Live Sources: Like the base Claude model, Projects cannot access current internet data. This means information within a Project may become outdated over time unless manually updated by the user.

Sharing Limits: Claude will only allow people on the same work-plan to share projects; otherwise, all chats and the project itself is private to the user.

Text Only: Claude can only extract text from documents, not interpret images or other non-text content

Google Gems

What is it?

Google Gems is a feature within Google's Gemini AI platform that allows users to create customized AI assistants, known as "Gems," tailored for specific tasks.

What can it do?

1. **Advanced Customization**: While basic Gems can be used for free, advanced features and the ability to create highly tailored Gems are available through a subscription to Gemini Advanced. This allows for deeper customization and more sophisticated interactions.
2. **Customization**: Users can design Gems to perform specific functions, such as assisting with coding, providing career guidance, brainstorming ideas, or improving writing. This customization is achieved by entering detailed instructions that define the Gem's purpose and behavior.
3. **Gem Manager**: This feature organizes all created Gems in one place, allowing users to switch between them based on the task at hand. This enhances efficiency by enabling quick access to the appropriate AI assistant for specific needs.
4. **Image Generation**: Gems also provide advanced image generation through Google's Imagen 3, enabling the creation of high-quality visuals in a range of styles, from lifelike landscapes to abstract art. This functionality is particularly valuable for marketing, content creation, and design projects.
5. **Integration with Google Services**:Gems are integrated with Google's ecosystem, including Gmail, Google Drive, and Docs. This allows for smoother handling of personal data and tasks, making Gems contextually helpful.
6. **Pre-Made Gems**: Google offers several pre-built Gems that users can access for immediate use. These include options for brainstorming, coding assistance, and writing support, making it easy to get started without needing to create a Gem from scratch.
7. **Real-World Applications**: Gems can assist in various academic tasks, such as helping faculty draft course materials, guiding students in research projects, or providing personalized feedback on assignments. This makes Gems a versatile tool for enhancing educational outcomes.

Limitations

Complex Customization Process: While creating a Gem is theoretically easy, the process of writing effective instructions can be challenging for users who aren't experienced with AI or prompt engineering. The tool offers some assistance, but detailed customization still requires time and knowledge.

Instruction Following: Gems struggle with consistently following instructions, which is crucial for effective data integration and customized responses.

Limited Accessibility and Cost: Users need a paid Gemini Advanced account, costing $20/month, to fully customize Gems. Free users are restricted to only five pre-built Gems, limiting flexibility for those not paying for the service.

Memory Limitations: After extended conversations (around 30 minutes), Gems may forget previous context and restart the conversation as if it were new.

Repetitive Responses: Gems sometimes repeat the same questions or information within a conversation.

Google Notebook LM

What is it?

Google NotebookLM is an AI-powered research assistant designed to enhance learning and productivity. It acts as a virtual collaborator that can analyze and synthesize information from documents you provide, making it particularly useful for academic and research purposes.

What can it do?

- **Ask Questions**: You can ask questions about the files you've uploaded.
- **Citations**: Google NotebookLM offers citations for its responses. This can help verify the information that it's providing. **Get a Summary**: When you first upload a document, it's going to automatically generate a summary, together with key topics and questions to ask so you get better information about the material.
- **Generate Thoughts**: One of its extra useful and beneficial abilities is that it's able to help people come up with creative new thoughts.
- **Sharing Notebooks with Others**: You can share your notebooks (also referred to as projects) with others with the purpose of asking their personal questions and accessing the sources.
- **Summarizes Data**: Google NotebookLM consists of the ability to summarize data out of your notes and sources. This may be useful for long files to get the essence of them without analyzing the complete content material.
- **Upload particular documents:** Use a variety of documents and sources (websites, Google docs or slides, PDFs, copy & pasted text, etc)--up to 50 sources at this time (9/2024).

Limitations

Account Restrictions: Some users, particularly those with company or educational email addresses, may have difficulty accessing the app.

Document Formatting: NotebookLM may reformat content when uploading, which can alter the appearance of documents.

Document Syncing: Updates to Google Docs or Slides are not automatically reflected in NotebookLM. Users must manually re-upload or use the "Click to Sync with Drive" button to refresh imported documents.

Editing Restrictions: Automatically generated notes cannot be edited directly. Users must manually copy contents to a written note to make changes.

File Support: While NotebookLM supports PDFs, there are limitations, particularly with image-only PDFs prior to September 2024.

File Size Limit: There's a maximum limit of 500,000 words per source.

Interface Design: The interface can be difficult to use on smaller screens, with a bottom-based UI that differs from other Google apps.

Language Support: The tool's effectiveness may vary depending on the language of the source material, especially for less common languages.

Limited Organization: Users cannot reorder notes and sources, which is a basic feature expected in digital notebooks.

PDF Handling: While NotebookLM can handle PDFs, there may be limitations, particularly with image-heavy PDFs or those with specific formatting.

Source Size and Complexity: The tool may struggle with large or complex documents, especially those with intricate formatting, images, or tables.

Understanding Context: While NotebookLM can identify key points and concepts, it may sometimes struggle to understand the broader context or nuances of the material.

OpenAI Custom GPTS

What is it?

Custom GPTs from OpenAI are AI models that can be personalized to perform specific tasks based on user preferences without requiring coding skills. They allow individuals to tailor how the AI responds, making it more relevant to their needs. For example, you can adjust the model to help with particular tasks like answering industry-specific questions, generating content, or assisting with projects.

What can it do?

1. **Access options**: Custom GPTs can be shared privately, with specific users, or made publicly available to all ChatGPT account users.
2. **Adaptability**: Custom GPTs can be continually edited and improved based on user feedback and changing requirements.
3. **Custom instructions**: Users can provide specific instructions to guide the GPT's behavior without needing coding or prompt engineering knowledge.
4. **Domain-specific applications**: They can be tailored for particular fields or subjects, like international management or strategic analysis.
5. **Enhanced knowledge base**: Custom GPTs can be augmented with additional documents and data relevant to their specialized purpose.
6. **Integration of existing features**: Users can add capabilities like web browsing, image generation, or code interpretation to their custom GPTs.
7. **Interactive learning**: Custom GPTs can facilitate simulations, provide feedback, provide insights into case studies, and engage in Q&A sessions on specialized topics.
8. **No-code creation**: The process of creating a custom GPT does not require coding skills, making it accessible to non-technical users.
9. **Real-time iteration**: Creators can switch between different interfaces (one more user-friendly and one more technical) to build out and refine the GPT's performance based on test interactions.
10. **Tailored AI tools**: Custom GPTs are specialized AI tools designed for specific domains or contexts, offering more targeted capabilities than standard ChatGPT.

Limitations

Action Limitations: Custom GPTs are restricted to a maximum of 30 operations when configuring actions.

Document Limit: Users can only upload up to 20 files to train a custom GPT.

File Handling and Data Access: Custom GPTs allow file uploads for enhanced functionality, but this has raised concerns about privacy and security. Uploaded

files can sometimes be accessed by simply querying the model, which can inadvertently expose sensitive content. Although OpenAI has taken steps to disable file downloading in some cases, there are still ways users can indirectly extract details from files uploaded to a GPT.

File Size Limit: There's a maximum file size of 512MB per upload for training custom GPTs.

Limited Customization: The level of customization and control over the AI's behavior appears to be limited compared to some competing platforms.

Memory Limitations: After extended conversations, GPTs may forget previous context and restart the conversation.

No Access to User Logs: OpenAI's policy of not providing access to chat logs means creators cannot analyze or optimize their models based on user interactions. This hinders continuous improvement and fine-tuning, especially compared to platforms that allow interaction analysis to refine responses.

Overfitting: If a Custom GPT is trained on a small or overly specialized dataset, it may become overfitted, performing poorly on new or unseen data.

Token Limit: Each file is limited to 2 million extracted tokens (approximately 1 million words).

Single Schema Restriction: Only one schema per domain (server/URL) is allowed, limiting the ability to split schemas into multiple actions.

Perplexity Pages

What is it?

Perplexity Pages is an innovative feature within the Perplexity AI platform that allows users to create and share comprehensive, visually appealing web pages on any topic.

What can it do?

1. **AI-powered content generation**: The system uses advanced AI to synthesize information from various sources, creating detailed and structured content on a given topic.
2. **Customizable output**: Users can tailor the content complexity to different audience levels (beginner, advanced, or general), making it versatile for various educational contexts.
3. **Easy sharing**: Created pages can be easily shared with others, facilitating collaboration and knowledge dissemination.
4. **Interactive Learning**: Readers can ask follow-up questions directly from a Page, promoting continuous learning and engagement.
5. **Multimedia integration**: Pages can incorporate images, videos, and other media elements to enhance engagement and visual appeal.
6. **Proper citation**: The tool automatically provides citations and links to original sources, ensuring academic integrity and allowing for further exploration of topics.

Limitations

Limited Customization and Editing: While Perplexity Pages is easy to use for simple content generation, users face challenges when trying to manually edit the generated content. Since editing must often be done through prompts rather than directly in the interface, it can be frustrating for complex projects that require significant polishing

Lack of Analytical Depth: Perplexity Pages is better suited for generating basic informational content rather than handling more complex or analytical tasks. Its ability to analyze and synthesize deep insights lags behind other AI tools like GPT-4 or Google Gemini

Limited Control Over Information Sources: It appears that users cannot directly control or specify the information sources used for creating Pages, at least not in the current implementation

Sharing and Export Limitations: Pages can only be shared via a link on the Perplexity platform. There is no functionality to export the content to other formats or platforms. Even basic export options like printing to PDF are not supported

Tool Comparison

Tool	Distinct Features	Use Cases in Higher Education	Similar Tools
Google Notebook LM	Summarizes long documents, generates creative ideas, provides citations, integrates with Google Docs, supports up to 500K words per source, notebook sharing for collaboration.	Research assistance, study material creation, collaborative research, thesis development, large-scale document summarization, and course material synthesis.	Notion AI, Elicit, Evernote AI
Google Gemini Gems	Highly customizable AI assistants, premade Gems for tasks (coding, brainstorming, career guidance), image generation (Imagen 3), seamless integration with Google services (Gmail, Google Drive), supports multiple languages.	Lesson planning, coding assistance, content creation for lesson visuals, personalized tutoring, curriculum development, career guidance, integration with Google productivity tools.	ChatGPT, Claude, Microsoft Copilot
Perplexity Pages	Transforms research into comprehensive, visually enriched content, customizable tone, audience levels (beginner to expert), interactive follow-up questions for deeper exploration, easy publishing and sharing.	Content creation for classes, student projects, research publication, academic publishing, interactive study guides, and e-learning content creation with audience-level customization.	Notion AI, Canva, Medium
OpenAI Custom GPTs	Create custom AI models tailored to specific domains, use of datasets for training, no coding required, customizable instructions for tailored behavior, integrates web browsing, code	Custom learning assistants, interactive Q&A, grading assistance, personalized tutoring, interactive simulations, feedback on assignments, course-specific AI tutors, web-assisted research.	Claude Projects,

	interpretation, and image generation.		
Claude Projects	Project-specific AI workspaces with persistent context, real-time feedback, collaboration features, supports a 200K token context window, enhanced team-based learning and document collaboration.	Group research projects, team-based learning, collaborative research, interdisciplinary research collaboration, curriculum development, thesis support, managing multi-institution projects.	Google NotebookLM, Google Vertex AI
Claude Artifacts	Generates standalone, interactive, and editable content (e.g., code snippets, diagrams), version control, integrates diagrams and content generation, real-time editing and feedback.	Interactive learning materials, project prototyping, research visualization, dynamic programming tutorials, interactive diagrams and flowcharts for science, business courses, and wireframes.	GitHub Copilot, Figma AI, Miro

Resources

- AI Literature Reviews: Exploring Google's NotebookLM for Analysing Academic Literature
- AI Tools - Artificial intelligence