

Navigating Generative AI Activity

Our goal in this activity is to better understand how Generative AI works—and, in turn, enhance our own ability to get it to generate products that we are looking for. We will be using the Microsoft Copilot Designer, which generates images based on text inputs. It is available through Bing and powered by Dall-E (made by the same company that made ChatGPT). You will need to create a free account to complete the activity <https://www.bing.com/images/create>.

This worksheet is designed to walk you through the activity and to collect notes that might be helpful as you go. It can be completed individually or in small groups.

About Copilot

Copilot is a free service from Bing that uses the Dall-E system created by OpenAI (the makers of ChatGPT) to turn text prompts into images. An account comes with 15 “boosts” that speed up the time it takes the system to generate images in response to a prompt. You can make unlimited requests, but the speed of the system might slow down if you do not have boosts remaining. Another limitation of this free version is that the development of an image cannot occur as a conversation, as it might in the context of ChatGPT or Dall-E’s native interface. For example, “Take that image and make it happier,” is not an option here.

Copilot does a good job of supporting users and being transparent about Dall-E’s strengths and weaknesses. The site offers a variety of tips on things that one can do with the tool (e.g., asking it to imitate particular styles of visualization) as well as caveats about things that it might struggle with (e.g., text, certain human body parts). If you want to continue using the system, you might spend some time with its frequently asked questions (<https://www.bing.com/images/create/help?FORM=GENHLP>).

Learning Objectives

The primary goal of this activity is to develop our ability to write prompts that will elicit a desired product from Copilot, also known as *prompt engineering*. To get there, we want to understand:

- What does Copilot “know”, that is, what information was it trained on? How do I use prompts to capitalize on that knowledge?
- How does Copilot connect prompts to outputs, that is, what is its algorithm? How do I design prompts that engage that algorithm effectively?
- What are the shortcomings of what Copilot knows and how it makes connections? How do we use prompts to overcome those shortcomings?

Activity

Step 1: Select a noun and ask Copilot/Dall-E to generate an image of it (e.g., a baseball player, a dog).

- What is consistent across the images that were produced? List 2-5 adjectives or elements.

- What seems to vary across the images?

- Paste two examples that capture this below.

Step 2: Let's try to make it more specific by adding one of the following: an adjective, action, place, a characteristic of the environment (e.g., bright, rainy), or more detail about the noun (e.g., a baseball player hitting a home run, a golden retriever).

- What did Dall-E add to the images in response to the more specific instructions? What aspects were most effective at capturing your idea?

- Are there errors in the images or things that seem awkward? What were they?

- Paste at least one example that you think captures both the strengths and weaknesses of Dall-E that you just listed.

Step 3: Repeat step 2 by adding more specificity to your request.

- What did Dall-E add to the images in response to the more specific instructions? What aspects were most effective at capturing your idea?

- Are there errors in the images or things that seem awkward? What were they?

- Paste at least one example that you think captures both the strengths and weaknesses of Dall-E that you just listed.

Step 4: As a last step, adjust the prompt to ask Dall-E to do one of the following:

- o Add text to the image.
 - o Create the image in a certain style (e.g., anime, a realistic photo, a child’s drawing).
 - o Intensify the prompt (e.g., “make it very bright”).
 - o Represent something that’s not visual (e.g., “it’s noisy”, “there’s a sweet smell in the air”).
- How did it handle this addition?

- Paste your favorite example of this here.

- What did this tell you about how Dall-E understands the world?