

How I used AI tools to generate media asset for my lab's website

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1 Introduction

With recent advancements in artificial intelligence (AI), the capabilities of AI have expanded tremendously, resulting in a significant boom. In fact, although I wrote the entire content of this article, it has been polished with the assistance of ChatGPT. While ChatGPT itself is already impressive, it does have limitations when it comes to processing media assets such as images or videos. Fortunately, the market now offers other remarkable tools like MidJourney and Stable Diffusion. This article serves as a summary of my learning journey in utilizing these tools to generate media assets for our lab.

2 Methodology

2.1 Dall-E

To create the logo for our Language and Intelligence Lab, I employed various AI tools and techniques. One of the initial tools I explored was Dall-E. Here are some of the very first prompts I used to generate AI images:



Figure 1: "Design a jpg logo for the Language and Intelligence Lab, which is a department of Moffitt Cancer Center."



Figure 2: "Create a visually elegant logo for the Language and Intelligence Lab, a department of Moffitt Cancer Center. The logo should exhibit a similar style to the Moffitt Cancer Center logo while reflecting the lab's focus on language and intelligence. Design Specifications: Incorporate the lab's full name, 'Language and Intelligence Lab,' within the logo design."

Obviously, the results were far from what I had expected. After experimenting for a while, I realized a crucial rule when generating AI images:

Rule 1: Always have a clear idea in mind before entering the prompt.

In the case of the two previous prompts, it was evident that I did not adhere to this rule. I learned that if we do not know what we want, how can we expect AI to know? Therefore, when I changed my approach and provided more specific prompts, the results were completely different:



Figure 3: Prompt: "Rounded white background of a blue brain, representing a logo for a NLP research lab"



Figure 4: Prompt: "Rounded white background of a blue brain, representing a logo for a NLP research lab. Include the text 'Language and Intelligence Lab' (English)"

When I specified that I wanted a logo of a brain, the generated images began to take on the desired shape. Even at this early stage, these images can be used as logos with some additional editing efforts. However, since my professor, Dr. Thanh, and I already have more refined images in mind, we are eager to explore further.

2.2 Stable Diffusion

Unfortunately, Dall-E turned out to be more costly than anticipated, and my credits ran out after just 30 minutes of experimentation. I then discovered another tool that proved to be a valuable alternative: Stable Diffusion. One of the notable advantages of Stable Diffusion is its free accessibility.

A significant improvement offered by Stable Diffusion over Dall-E is the ability to incorporate "Negative Prompts." Negative Prompts allow users to specify properties or characteristics they want Stable Diffusion to avoid, in contrast to the positive prompts. While using Stable Diffusion, sometimes, I realized that although I included "disconnected limbs" in the negative prompts, the AI did not always strictly adhere to it. Nonetheless, it is still beneficial to include negative prompts. Throughout my journey, I employed the following negative prompt list: "2 heads, cropped image, out of frame, deformed hands, twisted fingers, long neck, missing limb, disfigured, blurry, bad anatomy, disfigured face, mutated hands, mutilated, gross proportions, poor contrast, overexposed, draft, grainy, beginner, distorted face, low-res, watermark, cut off, bad art, surreal, extra fingers, extra limbs, poorly drawn hands, poorly drawn face, poorly drawn feet, mutated, tiling, disconnected limbs."

While playing around with Stable Diffusion, I found this very cool **Stable Diffusion Guide** and decided to install Stable Diffusion locally to gain more control over the images. With the local version, I have more choices with the seed, the model, or the sampling method, especially the option to generate from image to image. However, installing and using a large language model (LLM) locally required a strong enough machine and after some time playing around with some prompts, my machine ran out of memory and then I had to return to other tools. Here are some cool brain logo that was generated by the SD:



2.3 Lexica

While watching tutorials on effectively using Stable Diffusion, I came across Lexica, a tool introduced as a platform for summarizing pictures with prompts and a place to learn about prompts. This discovery marked a turning point in my journey as later, I realized that Model Aperature v3 had even better abilities in understanding the prompts I provided and I also really enjoy the type of images generated by this model. As an example, below is an image that I found in Lexica's prompt library.



Figure 5: brain lightning, "M", logo, low colors, blockchain, 2d, minimalist, 2 d design, retro, fb logo, youtube logo, company logo, 2 d rendered, symmetry, highly detailed, recognizable, iconic, printable, poster, by Alena Aenami

Until now, I have also learned another important rule:

Rule 2: Keywords are crucial.

I have come to realize that most generative AI models analyze keywords from my input rather than the entire sentence. Redundant words do not contribute much to the generation process. To illustrate this, I have included two different images generated by Lexica. In one case, I used a chunk of keywords, while in the other, I used a lengthy sentence.



Figure 6: neurons, logo, low quality 2D design, balanced, piece, realistic design. The letter L gracefully wraps around a scheme, white backgrounds, brain of neurons in this striking machine learning, minimalistic logo. It is designed style, laboratory logo, website for a machine learning laboratory development logo, Facebook logo focusing on practical AI applications, YouTube logo, company plications in healthcare. The logo, 2D rendered, symmetry, logo features a clean white background, highly detailed, recognizable, ground, a color scheme combination, printable, poster, SVG file.

highly detailed and precise geometric elements. The typography adds sophistication, while the design signifies the laboratory's commitment to excellence at the intersection of machine learning and healthcare. Eye-level perspective, scenic, masterpiece, typography.

Which one is better ? I believe you can already make the judgment yourself. Consequently, I have begun incorporating more keywords to formulate my images effectively. Some of the key words I utilize include "logo," "website development logo," "symmetry," "white background," "light blue," and more. Here are a few impressive pictures that I have generated:



During that period, in addition to the brain feature, both my professor and I desired an additional element: a letter to symbolize our laboratory. After careful consideration, we decided to incorporate the letter "L" into the logo as a representation of "Language Processing."

However, we encountered difficulties when attempting to include the full text "Language Processing" or "Language Intelligence" directly in the image. After struggling for a while, I arrived at another important realization:

Rule 3: Generative AI models are not proficient in handling text.

Hence, it is not advisable to incorporate lengthy words or sentences into the generated image. Often, we have to resort to using other tools like Canva or Photoshop to edit the image after obtaining the most suitable one. Nevertheless, incorporating a single letter is still feasible. Here are some images I generated with the concept of a logo featuring the letter "L" and a brain:



Figure 8: A brain with neurons, logo, low colors, 2D design, balanced, light blue and white color scheme, white background, machine learning, minimalist style, laboratory logo, website development logo, Facebook logo, YouTube logo, company logo, 2D rendered, symmetry, highly detailed, recognizable, iconic, printable, poster, SVG file.



Figure 9: Best quality, masterpiece, realistic design. The letter L gracefully wraps around a brain of neurons in this striking minimalistic logo. It is designed for a machine learning laboratory focusing on practical AI applications in healthcare. The logo features a clean white background, a color scheme combining light blue and white, and highly detailed and precise geometric elements. The typography adds sophistication, while the design signifies the laboratory's commitment to excellence at the intersection of machine learning and healthcare. Eye-level perspective, scenic, masterpiece, typography.



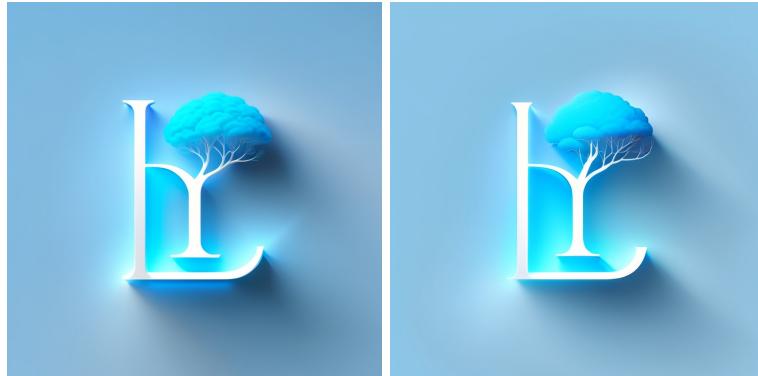
Figure 10: Best quality, masterpiece, realistic design. The letter L gracefully wraps around a brain of neurons in this striking minimalistic logo. It is designed for a machine learning laboratory focusing on practical AI applications in healthcare. The logo features a clean white background, a color scheme combining light blue and white, and highly detailed and precise geometric elements. The typography adds sophistication, while the design signifies the laboratory's commitment to excellence at the intersection of machine learning and healthcare. Eye-level perspective, scenic, masterpiece, typography.

At this stage, I aimed to enhance the image quality by incorporating the image from the previous results as an additional parameter for my prompts. After several iterations, I successfully discovered an image that closely met my expectations.



Figure 11: ((best quality)), ((realistic)), A striking minimalistic logo of a big letter L. On top of the letter L is a brain of neurons, typography. logo for web development, laboratory logo, logo for education research lab, balanced, vector arts, geometric design, light blue and white background.

The image above raises two important points for discussion. Firstly, the object positioned above the letter L unexpectedly resembles the shape of a letter I, which was not originally included in my prompt. However, it does not convey the desired depiction of a brain. In fact, it appears more akin to a tree. Nevertheless, this presents no problem! Now that I have captured the general shape of the logo, we can certainly utilize this image for subsequent prompts. By continuously generating and refining the image, I finally achieved versions that align more closely with my initial vision:



These two images can now be processed to become the official logo. However, I aspire to go even further by modifying the style of the brain and making the letter I more prominent. Once again, this technique follows the same principle: **Rule 4:** When utilizing generative AI, it's all about experimentation and improvement.



Figure 12: Final result

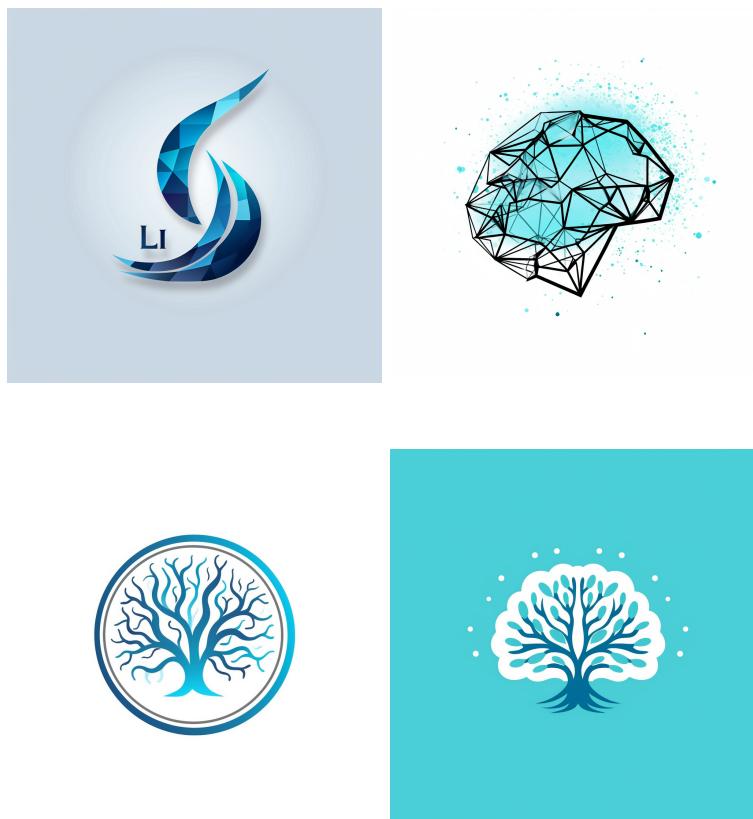
2.4 MidJourney

In addition to using Lexica, I also explored MidJourney, another image generating tool with a well-supported community, making it a valuable resource for beginners. Personally, I utilized MidJourney for testing prompts on Lexica and for blending images. However, I encountered some limitations with MidJourney. It's important to note that a prompt that yields satisfactory results on one model may not necessarily work as effectively on other models.

MidJourney proves to be particularly useful when you have a general shape in mind but struggle to envision it with clarity. However, when working with highly detailed pre-existing images, reproducing or enhancing them can be quite challenging. For those interested in further exploring MidJourney and its potential for logo creation, I found the following resources to be immensely helpful:

1. How to Create Actual AI-Generated Logos
2. YouTube Video Tutorial on MidJourney

Below, I present some intriguing images from my exploration with MidJourney. Although they may not exactly resemble what I had envisioned, these images still possess qualities that make them suitable for logo purposes:



3 Image processing

Often, when we got the image that we like the most from AI, we need to process it again with other image processing tools such as Photoshop or Canva to get a useable logo. Here, I will present detail step on how to process my image with Canva.

1. Remove Background:

- Upload the AI-generated image to Canva.

- Select the image and navigate to the "Background Remover" tool.
- Use the tool to automatically remove the background or manually trace and delete the background pixels.
- Adjust the settings and refine the selection until the main subject is isolated.

2. Erase Unnecessary Details:

- Zoom in on the image and identify any unwanted elements or artifacts.
- Select the "Magic Eraser" and carefully erase or retouch the areas that need refinement, such as stray lines, imperfections, or unwanted objects.
- Use the available options like brush size, opacity, and feathering to achieve precise erasing or retouching.

3. Change Color:

- Choose the "Adjust" or "Color" tool in Canva.
- Explore the various color adjustment options such as saturation, brightness, and contrast.
- Modify these settings to achieve the desired color balance and tone for the image.
- If you want to change the color of specific elements, use Canva's masking and adjustment layers to selectively apply color adjustments.

Here is the logo file in JPG format that I obtained after completing all of these steps:



4 Conclusion

Throughout my journey of utilizing AI tools to generate media assets for our lab's website, one of the key lessons I have learned is the importance of having a clear vision and providing specific prompts to achieve the desired results. AI models heavily rely on the information provided, and by formulating precise prompts, I was able to generate images that closely aligned with my initial intentions.

Moreover, keywords played a significant role in guiding the AI models to generate relevant images. I discovered that focusing on specific keywords rather than using lengthy sentences or descriptions produced more accurate and targeted results.

Additionally, I realized that generative AI models have their limitations, especially when it comes to handling text and detailed pre-existing images. In such cases, integrating other image processing tools like Canva or Photoshop proved essential to refine and polish the generated images.

Overall, this journey has demonstrated the immense potential of AI in generating media assets and the importance of combining human creativity and AI capabilities. By harnessing the power of AI tools while understanding their limitations, I can finally achieve remarkable results and create visually appealing logos that effectively represent our lab's identity and mission.