

Playing with Language using an AI

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Text is one of the most effective ways to transform our thoughts into a physical memory. By putting words to our thoughts, they leave the abstract world of the mind, to become a material element. **Within text, everything remains.**

Especially, physical paper offers us an empty space to put raw versions of our mental processes. We don't have to think on how it would look or how to express it, we focus on the capturing rather than worrying on how we structure or shape our thoughts. This encourages reflection through the interaction with this newly created tangible object of our mind.

Many modern tools for writing imitate the shape of paper, providing different sizes and structures to help us reflect inside this digital space. However, many of them present a linear structure that forces us to place our ideas linearly through a never-ending scroll.

We can't move around. We can't connect our ideas or branch through concepts. Everything is continuous. However, when thinking, sometimes we want to play around with our ideas by moving, highlighting and even scratching them. By visualizing our mental processes, specially going back and forth to them, we can think deeper and connect our ideas. **Thinking requires non-linear exploration.**

There are moments when we want to go deeper on certain topics and reflect around them. Other times, we need to see them placed within our other explorations to help us understand how our reflections sit in our broader context. The linear structure of a document sometimes doesn't help us to make these connections.

Our thoughts must flow into an infinite space with tools that help us to play around with our ideas and concepts.

By spatially placing elements close to another or by separating them, we create new anchors or starting points for these different branches of our thinking processes. As an example, when exploring concepts, we tend to create variations within one direction. However, when we feel that a new concept emerged, we see ourselves separating it from the others. At that moment, we physically differentiate a new branch of thought.

In contrast, similar to how we behave in the physical world, we tend to organize elements by similarity.

Now imagine that you're discussing ideas with your colleagues. You are looking into the whiteboard and get inspiration from one of your colleagues' notes and write down an idea. Where would you place it? You will put it next to the original one. We don't need anybody to rapidly understand where we can contribute and how we can place our ideas by simply looking in this shared space.

By extending our thinking processes externally, others can join our shared space and help us to reflect and move on with our thinking. These spatial behaviors and interaction models are also present in our modern tools allowing us to visualize our collaborators and co-create together by sharing the same space.

The next question comes when we imagine how to collaborate with an artificial intelligent agent while writing down our thoughts. Are these spatial affordances still valid? How can we define our intention and guide the responses of these systems? Can these agents act autonomously without us explicitly telling them?

Patterns for writing with colocated AI agent

In this context, we'll refer to AI agents as computational systems that understand human language by being trained on enormous amounts of text data and respond by generating text given prompt.

The way you construct the prompt plays a big role on how the system will respond, requiring a certain exploration and learning process to fine-tune and create the perfect prompt.

In addition, interacting with these models often involves clearly defining your input and then the model continues your writing with its generated content. However, what happens when an AI agent can respond across a shared spatial canvas rather than only continue what we are writing?

Then, we start talking about **colocated AI agents**, intelligent systems that are present within our space and can respond to our actions performed within the boundaries of that shared space.

In [Fermat][<https://fermat.ws/>], we are exploring how we can embed agent's generative capabilities within different interface elements. Particularly, within this programmable spatial interface, we use GPT-3 API to embed AI agent's capabilities within a UI element, such as a button, without explicitly showing the prompt to the users. This can reduce people's cognitive load allowing them to focus on writing down their thoughts and ideas.

In our explorations, we are looking for new interaction patterns to work with text. As an example, imagine that we want to explore ideas around what are the benefits of writing with AI. Then our original input can be a note in the middle of our white canvas with the following text: *Using AI for writing*

Using this text we will compare the responses of two different prompts, one to generate ideas and another one to generate Pros/Cons embedded within two different buttons.

Prompt to generate ideas:

Brainstorm 3 distinct startup ideas that explore the following topic:

Topic:

#

Prompt to generate Pros/Cons

Generate a table of 3 pros and cons around these topic:

Buying or renting a home

Pros[You build equity in a home;You have the freedom to make changes to your home;You may have lower monthly payments than if you were renting]

Cons[You may not be able to afford the down payment on a home;You may have to move for work or other reasons, and then you would have to sell your home;You have to maintain a home, which can be expensive]

Then, we can select our original Text note and after pressing each respective button, we can get two distinct responses. Using the 'Idea generator' button, you could get something like this:

#1 A startup that uses AI to help people write better by analyzing their writing and giving them feedback on areas that need improvement.

#2 AI could help us to brainstorm by providing us with a list of potential ideas based on our current line of thinking.

#3 A startup that uses AI to help people research while they are writing by finding and curating relevant articles, videos, and other resources.

In contrast with 'Pro/Cons' button, you could get something like this:

Pros[Helps you to come up with ideas you wouldn't have thought of on your own;You can get feedback on your ideas from AI;Can help to provide structure and focus to your brainstorming sessions]

Cons[Ideating with AI could lead to more ideas, but they may not be practical ideas;The AI may not be able to understand the context of your problem;You may not be able to understand how the AI came up with its ideas]

Note that the response is well-formatted and easy for us to manipulate. We can create single Text notes from it, apply styles (i.e: green for Pros, red from Cons) and place it around the original text. We don't have to follow a linear structure, we have plenty of space to place generated content.

These are only some examples on how we can combine a spatial interface with AI-powered responses based on the content placed there. Both responses follow the same interaction model, selecting some text in the space and tapping in a button to generate a response next to it.

Fine-tuning our prompt can lead to different responses while reducing complexity to final users who can play with their content while staying in their personal space. We can argue that embedding the expected output within a button may limit both agent and user expressive capabilities. In addition, we may not exactly communicate our intention, making us adapt to an already defined prompt embedded within the button.

This process resembles more to choosing which color we want from a color palette while painting than expressing what we really want. We have also defined tools that help people directly write down their prompts, however, in some situations you may prefer getting inspiration from other sources and playing around rather than being worried about a perfect response. As mentioned before, thinking requires non-linear exploration and for moving your thinking process forward sometimes you need to visualize your problem from different perspectives

When you break linear formats from traditional writing tools, you free yourself from thinking linearly. Future of Text will probably come from playful explorations and experiments that will help us to ask new questions and rethink how we consume and generate text. What about putting some raw thoughts and using an AI to transform them into well formatted text structures? Perhaps the writing process will change from pressing keys in a keyboard to copy-pasting and recombining parts of generated texts. Or how about branching in multiple directions? Maybe you will write down your train of thought, zoom out and explore in a totally different direction. What about asking an AI agent to explore for you one direction once you are focusing on another aspect?

Imagining these futures, we may never find ourselves trapped in a creative block fearing the 'blank' page. We'll become curators of AI-produced content, rather than creators. Or we can go the other way around, what about providing possible directions and let these AI tools be in charge of transforming, organizing and making connections between our ideas. We may become the **conductors** of an orchestra of agents that write following our orders.

It's clear that a new wave of powerful writing tools and new interfaces is coming, highly powered by AI. Many of them will find their sweet spot in the Future of Text landscape and become companions for a future generation of writers. However, there are still many unknowns about which are the best interaction patterns for each writer and situation.

What we know for sure, is that the Future of Writing will involve reimagining the roles of humans and AI-powered tools. As envisioned by pioneers like Engelbart or Licklider, tools to augment human intellect will shape the future of human-AI collaboration. Traditional writing tools such as pencils or typewriters have now evolved into tools with different levels of agency and new transformative capabilities. They will not disappear, as we still prefer to write on paper sometimes. However, they will bring new dimensions of expressiveness while writing and opportunities to use text in ways we cannot yet imagine. Language has been for ages the most common way to communicate amongst humans, now we have just started to talk to machines.

Welcome to a new creative era.