Futuring Machines

An Interactive Framework for Participative Futuring through Human-AI Collaborative Speculative Fiction Writing.

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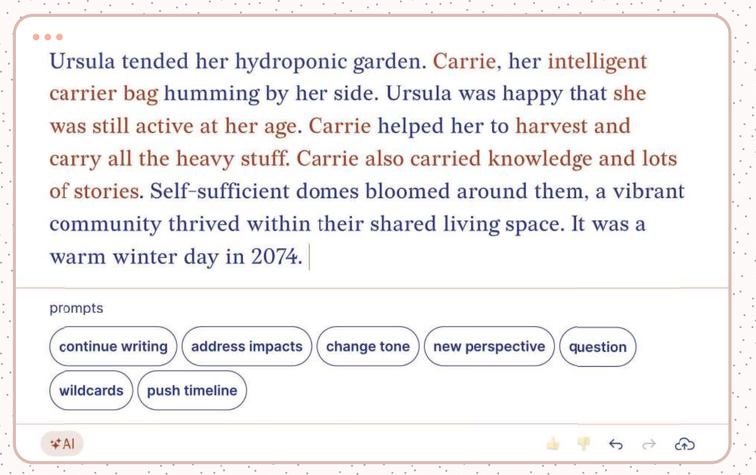
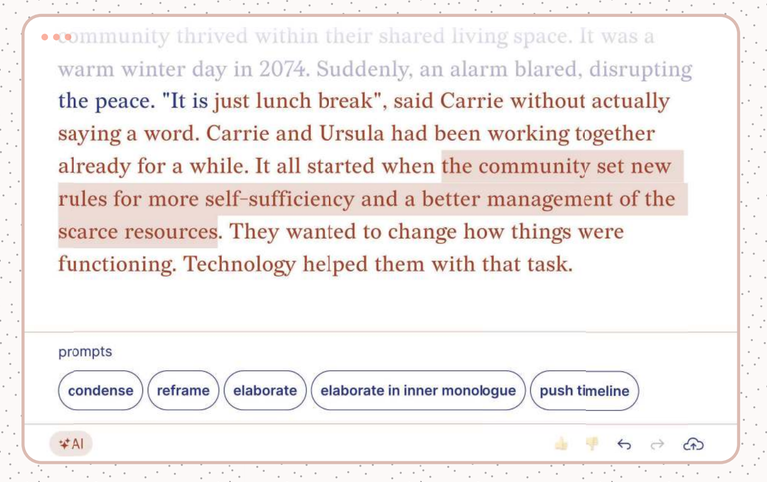
Introduction

Imagining future scenarios arising from events and (in)actions is crucial for democratic participation – but is often left to experts who have in-depth knowledge of, for example, social, political, environmental or technological trends. A widely accepted method for non-experts to think about future scenarios is to write fictional short stories set in speculative futures. However, writing fiction is also a relatively uncommon skill, which calls for the use of special writing tools. To support the writing process and thus further lower the barrier for this form of participation, we introduce *Futuring Machines*, a framework for collaborative writing of speculative fiction through instruction-based conversation between humans and AI. We propose it as a key strategy to stimulate reflection on future scenarios in both participatory workshops and individual use.



Continue modes

The AI advances the story based on the existing content. In some modes (e.g., *Continue Writing*) the direction is completely left to the AI. Other modes allow users to provide specific directions by selecting predefined filters, sentiments, or analytical factors (e.g., social, technological, economic, environmental, or political).



Elaborate + Paraphrase modes → *Selection*

Elaborate modes continue the story by further developing a topic or idea that was already mentioned in the story. The AI-generated continuation is then appended to the story.
Paraphrase modes allow users to rewrite and replace selected text (e.g., shortening or reframing with another perspective).

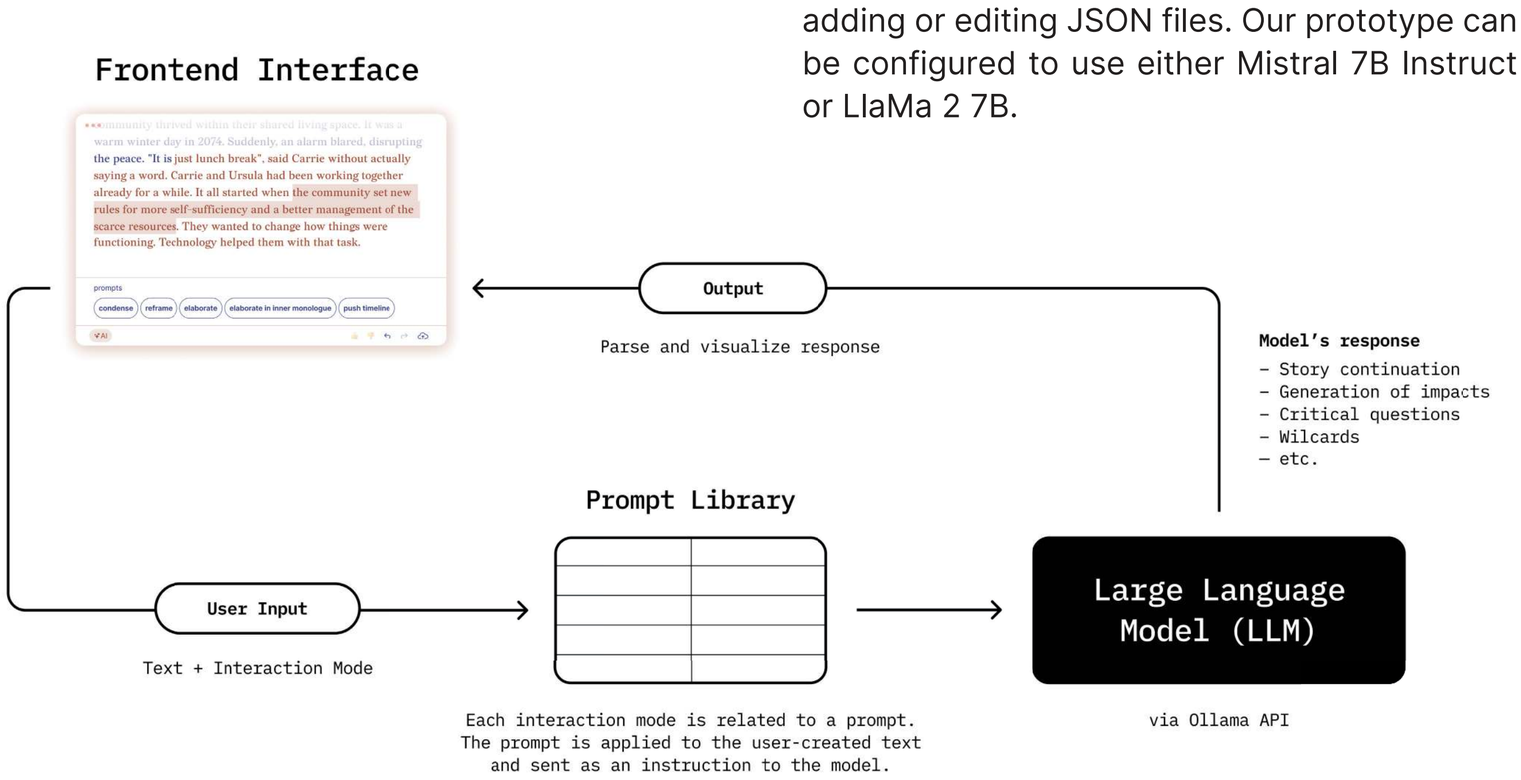
Interaction Modes

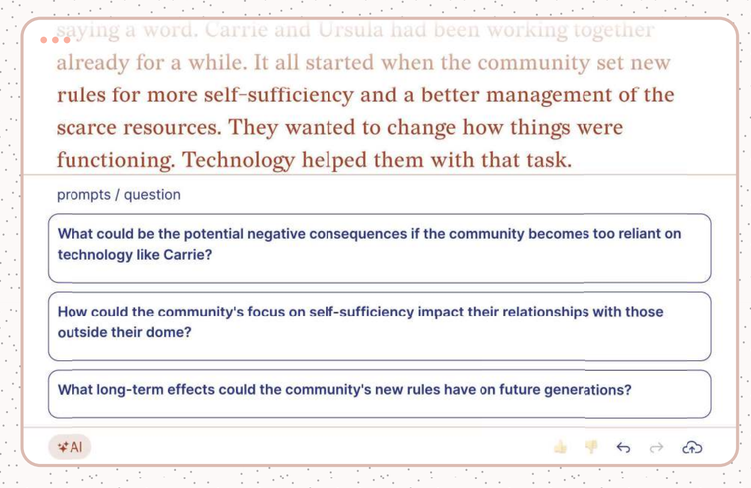
The framework's predefined interaction modes follow the paradigm of iterative writing-completing, building on the "story completion" method (Clarke et al. 2019, Cambre et al. 2020). The user and the AI take turns in an instruction-based conversation to further develop each other's text and push the story forward. In this way, the user explicitly instructs the AI, while the AI embeds thought-provoking impulses as part of the story narrative. This approach aims to lower the user's inhibition threshold for writing and create positive irritations for critical reflection.

The implemented interaction modes can be grouped into three categories based on their trigger and action: (1) *continue modes*, (2) *paraphrase modes*, and (3) *elaborate modes*.

Implementation

The framework consists of a frontend interface and an LLM backend providing a REST API. It is developed to be simple and extensively customizable. The frontend is developed using the lightweight, open-source JavaScript framework Vue.js. Its architecture eases the addition and customization of interaction modes by simply adding or editing JSON files. Our prototype can be configured to use either Mistral 7B Instruct or LlaMa 2 7B.





Generating divergent future paths with AI

Adopting different perspectives and analyzing divergent developments is crucial for engaging with futures. To this end, some interaction modes generate different options (typically three) for the user to reflect on. When the user chooses one of them, the AI generates story text accordingly. The example above shows how critical questions are generated as part of the *Question* continue mode.

Future Work

- An evaluation of our framework is being conducted in participatory workshops.
- Make the system steer the story following specific story structures.
- Adoption of technical limitations like bias or misunderstandings as a strategy for creating positive irritations and engaging reflection.

Test the tool:

Repository:

Bauhaus-Universität Weimar
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futuring machines >_