AI FOR WRITERS: PROMOTING END-TO-END INTENTIONALITY WITH LARGE LANGUAGE MODELS

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Background

Large language models (LLMs) have made considerable strides in linguistic and logical reasoning, permitting widespread LLM deployment across a variety of settings. However, LLM affordances have remained relatively static, with few models for interaction outside a chatbot window. Such interfaces employ an apparently definitive "single-request/single-response" format which can lead users to treat LLMs as fully-fledged "ghostwriters" capable of general intelligence on arbitrary tasks.

This mindset risks offloading cognitive and social responsibility onto "black box" models which possess demonstrable bias but lack answerability for their incremental "next-word" decisions. Uncritical usage of LLM outputs may jeopardize the expression of a writer's original intentions and the reader's interpretation of them.

As an alternative, might it be possible to modify LLM outputs to necessitate continued involvement from the writer? Could these modified outputs allow users to write efficiently *and* meaningfully?

We seek to create an LLM-powered tool which aids the writing process while keeping users cognitively engaged in the process.

Approach

- All LLM functionality relegated to a sidebar, encouraging focus on own thoughts in active document
- The LLM generates 4 variations of suggestions:
  - Completion of a current thought
  - A question about current/future writing
  - A list of possible vocabulary
  - A rhetorical strategy to employ.
- Suggestions concern single sentences at a time and are not automatically incorporated, requiring **active user interpretation** and response
  - Typical affordances allow direct insertion of standalone AI output into the document
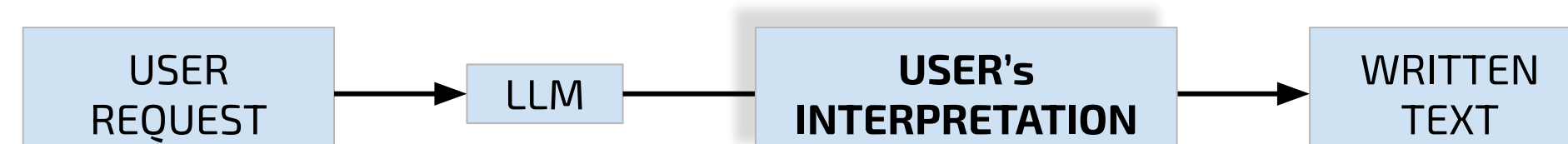
Implementation

Suggestions will be generated using:

...most of its history, the school is named after John Calvin, the 16th-century Protestant Reformer. → Context from the document

Completions → a   b ← Questions
Vocabulary → c   d ← Rhetorical Move
→ 4 different generation types

Please note that the quality of AI-generated text may vary

...most of its history, the school is named after John Calvin, the 16th-century Protestant Reformer.
What programs does Calvin University offer that integrate faith and learning?   b
→ AI Suggestion

...most of its history, the school is named after John Calvin, the 16th-century Protestant Reformer.
The university offers a diverse array of undergraduate and graduate programs, emphasizing a holistic education that integrates faith and learning.   a
→ Saved AI Suggestions

Key Concepts:
- For faster prototyping, we developed our user interface as a Microsoft Word add-in
- Different AI suggestion types are displayed as different buttons (A, B, C, D)
  - **A**: Completions (continuation of current thought)
  - **B**: Question (question about current or future writing)
  - **C**: Vocabulary (list of words to use in current or future writing)
  - **D**: Rhetorical Move (a type of sentence/structure to use in future writing)
- Users can save helpful feedback for future writing and revision

...omobile ownership, perpetuating the need for automobile ownership and infrastructure to support it.
To combat these issues, cities are now exploring solutions such as improving public transportation and creating pedestrian-friendly spaces.   a

...omobile ownership, perpetuating the need for automobile ownership and infrastructure to support it.
How did car-centric infrastructure affect communities without vehicle access?   b

...omobile ownership, perpetuating the need for automobile ownership and infrastructure to support it.
Adjectives: alternative, recent, public
Nouns: option, transit, transportation, system, year, movement, issue
Verbs: grow, mitigate, improve, explore   c

...omobile ownership, perpetuating the need for automobile ownership and infrastructure to support it.
Explanation: Illustrate the environmental impact of increased car usage.   d

Pilot Study

- Think-out-loud pilot study with N=9 participants
- Directions: respond to a freely chosen prompt in about 200 words while referring to an AI suggestion once per sentence—but feel free to accept or decline
- Concluded with semi-guided debriefing interview and post-study survey
- Questions: impressions of suggestion types, utility/disutility of suggestions, degree of influence, alignment with writing goals, usage patterns, feelings of authorship/ownership, and areas to improve functionality

Result and Conclusion

- Most participants found that the suggestions helped overcome "writer's block" and characterized the tool as conversational or collaborative
- The majority of participants used the "Completions" option most often
- Many participants expressed reservation on how their usage of "Completions" affected their authorship and ownership of the text, but did not raise similar objections to other suggestion types
- Several participants found "Questions" to be thought-provoking
- Some participants found "Vocabulary" useful for inspiring alternate phrasing
- Overall, non-Completion type suggestions seem to hold the most promise in assisting—but not replacing—users' writing

Acknowledgements