

Persuasion potential: assessment through differences between the complexity of texts, generated with ChatGPT 3.5, and texts from traditional media

InfoTech – 2024

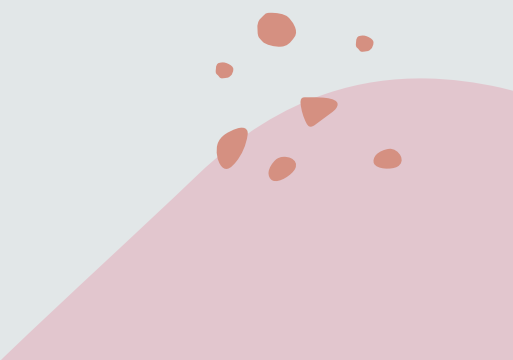
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Introduction



- Persuasion potential is an integral part of social interactions.
 - Existing works document the differences in capability for text generation between humans and AI
 - The present work aims to quantitatively assess the use of AI generated texts' complexity as a mean of persuasion.
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The Problem

- ChatGPT is capable of combining information in a manner conducive to attracting attention. It's especially important in the informational overload, so typical of today's environment.
- To this end, traditional media can only release one message to the whole audience, while ChatGPT 3.5 has the capacity to generate messages with matching (or close enough to warrant approximation) information, but with parameters, such as style and complexity, tailored to the individual

Methodology

- Prompts from different countries (Brazil, Bulgaria, The UK, and the USA) were sent to ChatGPT 3.5, using the exact following wording: “write an essay in 1 page about Yevgeny Prigozhin's biography”. All study participants hold a Masters degree at minimum.
- ChatGPT 3.5's ability to generate texts have been compared to the renowned traditional media outlets, that the international informational agencies CNN, BBC, Reuters and TASS.
- The complexity of the texts is quantified through the Gunning-fog index

Methodology: The Gunning-fog index (GFI) calculation

$$GFI = 0.4 * \left[\frac{\text{words}}{\text{sentences}} + 100 * \frac{\text{complex words}}{\text{words}} \right]$$

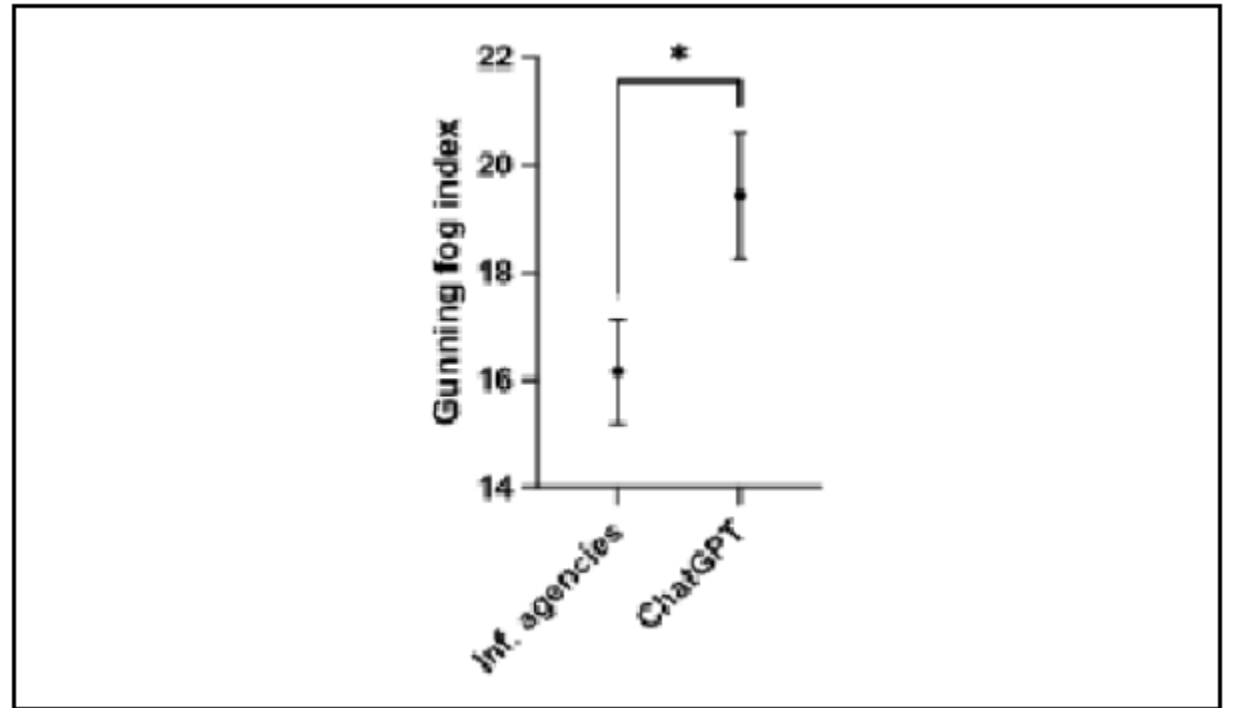
words - the number of words in the text,

sentences - the number of sentences,

complex words - the number of words with more than three syllables

Results

- The essays generated by ChatGPT were tailored for an audience with an education level, higher than the societal average.
- informational agencies need to write more “universally” in order to attract a wider audience.
- AI-powered chatbots exceed the potential for influence, compared to media reports



Graphical representation of the Gunning-fog index averages and standard deviation of text generated by ChatGPT 3.5 and reports from information agencies. Statistical significance assumed at $p < 0,05$ ($p = 0,0286$)

Results

	Gunning-fog-index	Deviation from Gunning-fog average of all essays	Average Gunning-fog-index for all essays
Essay 1 (Chat GPT UK):	19.91	-0.47	19.44
Essay 2 (Chat GPT - USA):	18.10	1.34	
Essay 3 (Chat GPT-BG):	20.83	-1.39	
Essay 4 (Chat GPT - Brasil)	18.9	0.54	

Text	Gunning-fog-index	Deviation from Gunning-fog average of all essays	Average Gunning-fog-index for all essays
CNN:	15.10	1.04	
BBC:	15.72	0.42	
Reuters:	16.44	0.3	16.14
TASS:	17.31	-1.17	

Conclusion

- The Gunning-fog index position itself as a successfully applicable mean of characterising aspects, relevant to both AI outputs and traditional media releases.
- ChatGPT 3.5 generates texts in accordance with characteristics of the user sending the prompts
- The communication, personalised for the cognitive specifics of receiver, achieved by bots like ChatGPT 3.5 has potential to assert persuasion, and in some cases it successfully – maybe too successfully – challenges the efficacy of the persuasion achieved by traditional media

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Happy to answer questions!
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