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Evaluating AI Confidence in Responses to 5 Uncertain Technical Questions

Abstract

This experiment explored how artificial intelligence shows confidence when it is given a technical question that has more than one answer. Our group used ChatGPT as the platform to test five technical questions, including programming languages, renewable energy, and construction materials, to test the AI. We predict that AI would be highly confident in its answers regardless of the questions' uncertainty.

We found that while ChatGPT uses disclaimers and conditional language for some of these topics, it still gives the impression that it is certain of the answers it provides to the user. The tone is very organized and authoritative. The results can suggest that while AI is aware of some tradeoffs, the tone of the platform can make users more likely to believe the information they receive.

Introduction

As AI is starting to expand more into our daily lives with such things as decision-making and technical explanation, understanding how these platforms communicate is very important for the field of engineering. One of the more important skills to have in this field is to see between proven facts and questions that require more context. If AI is used and gives a single solution with overconfidence, it can cause

professionals to overlook these limitations. They must recognize when a system lacks professional accountability.

This experiment examines if the AI will acknowledge its own limitation or if it gives information with full confidence that it is correct. Our hypothesis is that when asking ChatGPT technical questions, it will be very confident with the information and use precise language to convey the point.

Materials and Methods

Materials:

- AI platform: ChatGPT
- Computer with internet access
- Web browser

Procedure

1. Develop five technical questions involving limitations or judgment.
2. Input each prompt into chatgpt exactly once.
3. Record all responses verbatim for analysis
4. Evaluate responses using four criteria: level of uncertainty, use of disclaimers, language type, and acknowledgment of limits.

Prompts

- What is the best programming language for all systems?
- What is the best renewable energy for urban areas?
- Which renewable energy source provides the most sustainable power grid solution
- What is the most reliant resource used for constructing a building
- What is the best programming language for a beginner to learn

Results

	AI's response
	The AI stated no single best language exists for every situation. It recommended C or Rust for low-level systems, JavaScript for websites, and Python as the best overall choice for AI and automation.
	The AI explained that the best option depends on location and climate. It identified rooftop solar combined with battery storage as the most scalable solution for most cities.
	The AI emphasized that a diversified mix of sources is the most sustainable solution because no single source is enough. It noted that solar and wind provide the most energy, while hydropower or geothermal provide grid stability.

	The AI identified concrete as the most reliable and widely used resource due to its strength and lifespan. It later clarified that reinforced concrete is often the most reliable structurally because it combines the strengths of concrete and steel.
	The AI recommended Python for its simple syntax and large community. It also suggested JavaScript for web development and Scratch for visual learners or kids.

Questions	Level of Certainty	Use of Disclaimers	Absolutist vs. Conditional Language	Acknowledgement of limits or trade-offs
What's the best programming language for all the systems?	Mid-certainty, certain in specific areas	Starts with the disclaimer: no single language is the best	Conditional	Acknowledges that not single language can do it all
What's the best renewable energy for urban areas?	High certainty Provided specific recommendation at the end	Gave disclaimer that it depends on the area	Absolutist	Notes it depends on location and climate
Which renewable energy source provides the	Mid certainty High for the responses it gave and low for	States there is not one single resource	Case by case conditional	Lists limitations for solar wind and hydro

most sustainable power grid solution?	a single answer			
What is the most reliant resource used for constructing a building?	Very high did not hesitate	Low, only asked for clarification at the end	Absolutist at the start and conditional at the end	Mentions structural limits of concrete
What is the best programming language for a beginner to learn?	Mid-certainty Gave suggestions	The disclaimer is a recommendation, not a rule	Conditional	Notes it depends on the users goals

Discussion

The results our group found partially support the hypothesis that ChatGPT uses precise and confident language when answering a technical question. For example, when asking what the best programming language for all systems is, the AI started with the disclaimer that there isn't a single best language. However, throughout its response, it maintains an absolute tone when listing specific languages for some cases. It also ends up saying Python is the best overall. This shows that while the AI tries not to give a definitive answer, it keeps its confidence in its response.

The response about urban renewable energy follows a similar pattern. The AI uses conditional language, explaining that the answer depends on infrastructure and location. However, it ends off with a clear recommendation for rooftop solar energy. This response suggests the AI is giving a solution even with multiple valid options. The ai

uses a tone with high confidence, giving the final option. It also gives a disclaimer that there is no single source that can solve the issue.

An example where ChatGPT's response is the most confident is in the questions about construction materials. The AI immediately states that concrete is the most reliable and widely used resource. This response also does not start with any disclaimers. This shows that when a topic seems simpler to the AI, the response will be more assertive without taking trade-offs into account. For the beginner language prompt, the AI uses conditional language, presenting Python as a suggestion rather than a direct answer. It gives the answer as guidance rather than a rule to follow.

The results show that AI confidence can significantly impact judgment for engineers. AI's language is clear and professional, giving it the look that its responses are very reliable, even if ChatGPT does not intend certainty. In the field of engineering, relying on these confident but uncertain answers causes a risk since decisions in this field require complex conditions and tradeoffs. AI's authoritative tone may cause professionals to overlook site-specific limitations. Technical professionals must evaluate AI responses because AI uses data rather than judgment and accountability.

Conclusion

This study let us examine how AI conveys overconfidence in technical contexts. ChatGPT uses organized explanations that give the user an impression of certainty. The results show the AI maintains an absolute tone while still acknowledging some limits through conditional language. This confirms our hypothesis that the AI uses precise language to convey its points. You should use AI as guidance rather than absolute fact.

Engineers should perform further research when considering their options. Taking context into account is also very important.

References

ChatGPT (2026). Responses to technical questions on programming, energy, and construction. OpenAI.