Short Communication

ChatGPT: Perspectives of an International PhD Student and his PI

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Abstract

Story: "I used the help of ChatGPT. Should I pack my bags?"

Ramyar: My pulse quickened as I read the email from my PI, Dr. Simi Hoque, who had indirectly and somewhat surprisingly questioned the drastic improvement in my writing over just a few months. "Should I pack my bags?" I mused, fearing the worst. When I explained that I had been using ChatGPT to fine-tune my academic texts, not only did she accept it, but she also expressed delight over how much the quality of my work had improved, while still remaining original.

Simi: I read Ramyar's paper first with surprise and then growing concern. How had his writing improved so dramatically so quickly? I understand that there is an enormous language barrier for many international students who make up a large segment of the STEM graduate population. According to the National Science Foundation, over 50% of the Ph.D. recipients in most science and engineering fields are foreign-born. English language proficiency and writing present a double barrier many international students like Ramyar face. When questioned, Ramyar told me exactly what he'd done, and assured me that he did not plagiarize, but rather used ChatGPT and other grammar and language tools offered through International Student Services to revise and structure his paper. But he was worried. "Is that ok? Or should I pack my bags?" This is a big question. I don't know in general if it is ok. For Ramyar, in this case, I told him to put the bags away, but I am still concerned.

Introduction

Ramyar: There's an ongoing debate among scholars and academics about the ethics of using AI tools like ChatGPT in academic settings. Concerns range from the potential for students to misuse such tools for plagiarism to the fear that scholars might churn out works lacking genuine intellectual rigor. However, my experience diverges significantly from these cautionary tales. Navigating the academic waters of Drexel University's Architectural Engineering PhD program under the guidance of Dr. Simi Hoque has proven both intellectually rigorous and linguistically challenging.

And let's face it, most PhD students can't afford a personal assistant, though we're in dire need of one-enter ChatGPT, my affordable "PA," aiding me in ways I had never imagined.

For a non-native English speaker like me, academic jargon such as "Capstone Project" or "Institutional Review Board (IRB)" can be confusing and alienating. But ChatGPT has served as my linguistic liaison, available around the clock to clarify not just everyday language but also specialized academic and scientific terms. This has enhanced my linguistic comfort, which textbooks or even

academic courses often fail to offer. I've expanded my vocabulary significantly, equipping me to articulate complex ideas more effectively.

Ramyar: My TOEFL scores might indicate proficiency in English, but understanding the rules of the language and utilizing them to engage an audience are different ballgames. Through regular interaction with ChatGPT, I've gained insights into the finer points of academic writing, such as transitional phrases, complex sentence structures, and active voice.

My practical experience with ChatGPT was most evident when working on two papers. The first, focused on building design optimization, leveraged parametric design, and Genetic Algorithms. The second paper examined the challenges of collecting indoor air quality data in low-income households. While both papers were underpinned by solid research, let's just say Dr. Hoque had to put on her linguistic hard hat to make sense of my initial drafts for the first paper which I wrote without any help from ChatGPT.

ChatGPT has evolved into an unofficial co-author and reviewer for my academic papers. I frequently draft segments of text and consult the AI for improvements or alternative phrasing. While it can't replace the insights from my professors or peers, it serves as a first line of review, refining my work before human eyes see it.

Not just a writing aid, ChatGPT has been invaluable in aiding my comprehension of academic material. It serves as a quick reference guide, summarizing complex articles and allowing me to focus on the essential details. This has enabled me to ascend the academic "ladder of comprehension" more efficiently, even though native speakers or more experienced academics might take this for granted.

Simi: There is no question that large language models (LLM) like ChatGPT do offer a quicker and more efficient way to communicate and parse meaning in general. And using it to better grasp the nuances of a professor's lecture notes, craft an email to one's graduate committee, or even understand readings is far more affordable than personalized linguistic services. I also understand the appeal of an algorithm crafting the presentation so that you have more time to focus on the data and analysis. If Ramyar had a tool that would allow him to get more value and meaning out of his American graduate education, would that not ultimately enrich his professional development and his scholarship?

In the past, I have used Microsoft Word's track changes to show students like Ramyar how to write their papers with more clarity and organization. In those cases, I was essentially being a generative wordsmith for them, expecting they would learn from the examples I was offering to them in my comments and redlines. Over the four or five years that I would work with my students, their writing would gradually improve, and I would feel pride that by the end of their PhD, they were finally writing beautiful sentences. But I wonder now if my time would have been better used on their research progress rather than their linguistics acrobatics. If I'm being perfectly honest, it is a great relief not to have to substantively rewrite student papers to show them how to better communicate their findings. Clearly today's generative AI tools are saving me time too. But are my students learning better writing skills from these tools? At the end of Ramyar's time as PhD student, will he be able to write beautiful sentences without the help of LLMs?

For Ramyar, the writing that he is now producing is grammatically correct, well-structured, coherent, and has a particular formal tone and style that is found in the scientific publications that we read. But I have noticed that the generated phrasing is sometimes jargony and uninspired because tools like ChatGPT are trained using existing writing samples to build new content. I am concerned that Ramyar's voice and unique writing style will not develop if he continues to rely on technology to review and refine his text. Does this matter? In most journal and conference publications in my field, we have come to expect a certain dry factual affect in the way we communicate. If the point of writing for publications is to share our knowledge and insights, then does Ramyar really need to cultivate his own writing voice and style?

Additionally, many of my non-native English-speaking students take a long time to read scientific papers because they are basically code switching between their language and English. I cannot imagine the time, effort, and energy it takes to do this. It is a major obstacle to their scholarly development and takes more time away from lab work, making them less productive than their native English-speaking cohort. But I have to wonder, how accurate are these language models in translating a paper? If Ramyar uses these tools, is he learning from questionable content produced by technology?

Conclusion

Ramyar: The academic world is becoming increasingly diverse, and it's crucial to acknowledge the tools that help sustain this diversity. While there are valid concerns about the potential misuse of AI in academia, my experience shows that when used responsibly, ChatGPT can be a transformative asset. It's not just a tool; it's an integral part of my scholarly life.

Simi: I still do not know the answers to the questions that LLMs now pose to those of us who are training the next generation of scientists and engineers. As an engineer, I value efficiency and quality and have benefitted from using ChatGPT in my own work – to quickly review texts, create reasonable timelines, develop proposal summaries, and to plan lessons (and meals). There are and will always be cases of misuse and mistrust with the advent of new technology, but we cannot ignore the fact that our students and colleagues have already started using it and we really have no way of shutting it down entirely. So, I am proceeding with caution in this new normal, wondering if we will need to add ChatGPT as a co-author to our papers. Some journals have already required a disclosure statement, which I think is a step in the right direction. I would rather know and let it be known how and when generative technology is being used than be blindsided with a plagiarism accusation down the line.

Epilogue: A Wink and a Nod

Ramyar: Before anyone assumes ChatGPT has evolved to self-promotion levels, let me clarify: this op-ed is my own, written under my strict supervision. ChatGPT might have a hand in the articulation, but rest assured, it's not ready for its editorial debut just yet. So, if you're worried about robots stealing the spotlight, fear not—they're still in the wings, waiting for their cue.