Abundance of words versus Poverty of mind: The hidden human costs of LLMs

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> "Fortunately, as his physical strength waned, Kingfisher's wisdom grew. He learned about Sun Tzu's art of war and wanted to adopt some strategems to conserve energy. If successfully applied, a few dives a day would give him enough fish for a day. A stratagem called "Using the lazy to defeat the laborious" (以逸待勞) in Sun Tzu's teachings proved effective and fit for him.
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> Kingfisher then sought out a master of episonage in the Bird Village, …Intell-Bird developed a device to intercept and decode underwater fish conversations, translating into Kingfisher language." – In Taboo Fish, *The Kingfisher Story Collection*, (Vuong, 2022a)-

The arrival of the matchlock guns (also known as the *tanegashima*) in the 16th century created many changes in Japanese society. Among those was the empowerment of farmers and non-samurai-ranked soldiers, hence the slow decline in the status of sword-wielding samurais. Eventually, the job of being a samurai completely disappeared from contemporary Japanese society. Yet, its *dao–bushido (武士道)*, the way of the warrior, is still present, quietly influencing many aspects of business culture and everyday activities in the land of the rising sun. New technologies have always changed society in unexpected ways, but deep cultural elements are never easily uprooted (Vuong, 2022b).

Drawing on the above lesson, in this essay, we analyze the rise of Large Language Models (LLMs) such as GPT-4 or Gemini, which are now incorporated in a wide range of products and services in everyday life and consider some of their *hidden human costs*. At the dawn of the conversational AI era, it would be wise to ponder what inequalities and empowerments will be co-created with LLMs.

First, is the question of who is left behind by the further infusion of LLMs in society. Social reality includes preexisting biases, stereotypes, and prejudices deeply encoded in our languages. LLMs are now consciously programmed to avoid blatant violation of these often unspoken rules. Yet, the problem with these rail guards is twofold. On the one hand, languages

are constantly evolving; therefore, it is unclear how the ever-evolving social and moral sensibilities can be programmed in LLMs only in the tacit dimensions. On the other hand, as the literature on AI and its discontents and the emerging sociology of algorithms have shown us, in the process of infusing AI systems into society, certain groups always feel left behind, and their rights get forgotten.

Second, is the issue of social inequalities between lingua franca and those which are not. As LLMs are trained using preexisting texts, the more diverse, flexible, and richer a native language is, the more diverse, richer, and more flexible the LLM trained in such a language becomes. The network externality effects resulting from this aspect might not be great news for speakers of marginal/disadvantaged world languages and cultures, for lack of better terms. For example, English is a *lingua franca*, and many top experts from diverse cultures work in English; therefore, it is reasonable to infer that using LLM in English would provide more advantages for fluent people. The inequalities between those who can command a lingua franca and their native language(s) and those who can't, both in economic terms and in knowledge terms, can be greatly amplified with the arrival of LLMs.

Third, LLMs will help disseminate scientific concepts, but what about their meanings? Indeed, LLMs can empower researchers in developing countries who now possess a tool to help them edit, revise, and improve their manuscripts substantially. And that would be great news for the science community. Nevertheless, the effects of LLMs on science and scientific practices remain unclear, especially regarding the dissemination of *scientific and humanistic concepts*. The power and value of *a concept*, i.e., a piece of language, and yet, the central subject of scientific inquiries, are the results of the intellectual labors of many thinkers, even generations of thinkers. Hence, meanings of concepts are hard to convey and explain within their native language, let alone to others. Our new AI tools might help us spread and get familiar with more concepts, but will LLM and its derivative technologies, e.g., the seamless language translation gadgets, deliver deeper understanding? Or will this process only generate more confirmation biases, wishful thinking, and illusion of explanatory depth? Will LLMs, rather than liberate, further colonialize the minds of certain groups of people, especially those who speak 'weaker' languages?

Consider, for example, the power of serendipity has increased the risk of Western tech firms exploiting more "efficiently" resources from countries in low-resource settings, such as African ones, from farmers (Kim Harrisberg, 2023) to science communities (Shannon Tse, 2023). There are many other examples of bad exports of scientific concepts to the wider public. With LLMs, the risk is even greater as solutions to the 'hallucinations' problem are nowhere in sight. One can imagine social media influencers using LLMs to generate science-sounding content and causing confusion and even real harm in the world. Or there will be situations where researchers who use LLMs stumble upon misleading interpretations of certain scientific concepts and suffer, at best, the opportunity costs of days or weeks' worth of unfruitful investigation, at worst, the derailments of their careers, their colleagues', and students' (Vuong, 2018).

Fourth, is the issue of information security and how nations and individuals might adapt. Considering this example: During 30 years of ICT development in Vietnam, despite growing strongly and becoming a solid foundation for long-term development, the issue of programmers'

language, including programming language and English, has never really reassured strategists. Today, global hackers have found methods to train AIs to breach programming platforms. In this process, there is not even a language barrier. Now, the AI training is very methodical, and thanks to the rise of LLMs, finding security vulnerabilities becomes less costly, e.g., maliciously crafted prompts can trick LLMs into giving up sensitive information). Here lies a new dimension of the human-machine relationship, which poses new challenges for people who use ICT systems honestly for development purposes to adapt.

Fifth, is the issue of cost of LLMs for future generations. A recent estimate shows that the process of training OpenAI's GPT-3 emitted around 500 tons of carbon dioxide. As LLMs have been scaled up, people and businesses started to adopt this technology for everyday use, and many countries are now joining the race to produce its own LLMs (Hornyak, 2023), the environmental cost of LLMs as one of hidden human costs must be considered in developing our new corporate social responsibility and eco-friendly practices. This process will require interdisciplinary and non-linear approaches (Ho et al., 2023; Vuong & Ho, 2024).

Finally, we consider the hidden human cost articulated by Aronsson (2020), who studied emotional care by robots in Japan: "As we start to treat machines as if they were almost human, we may begin to develop habits that will have us treating human beings as almost-machines." Indeed, in the short term, many jobs will be displaced and disrupted by the rise of conversational AIs and LLMs. In the long term, like the job of samurai, they will disappear completely, and their use will be restricted to metaphors. As LLMs start to dominate our everyday activities, there might be an unrealistic expectation of how people in institutional settings, such as schools, workplaces, governments, etc., need to behave and perform. We might lose our humanity in this process. Now, there is an ever-urgent need for developing a set of values, ethics and codes of conduct actions, i.e., the *dao* of working with our new AI partners might be the saving grace for humans.

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