Leveraging Neurodiversity to Enhance Communication with Large Language Models

By Elliot Joseph Fox

Large language models offer great potential for aiding humanity, but it is crucial that they are used ethically, equitably, and responsibly. People on the autism spectrum, who have long played a role in software development, can help us better understand how to communicate with these models.

Individuals on the autism spectrum often struggle to understand context in different situations, which presents both benefits and challenges. This challenge can lead to extraordinary out-of-the-box thinking and creativity. However, the difficulty in understanding context without clear and literal word choice can be a challenge.1 Additionally maintaining context can be challenging during conversation, this can be seen in the fluid topic jumping conversational dynamic in groups of people on the autism spectrum.2

These challenges correspond to the current weaknesses of large language models. For instance, Open AI's ChatGPT has been observed to have difficulty understanding the context of requests. The model benefits directly from literal language, which minimizes the demand on the model's neural network to infer the user's intent.3 Additionally LLMs struggle to maintain context over long conversations due to limitation in memory4 The current solution tends toward referencing external sources to store memory, as seen in the architecture of BabyAGI5 and AutoGPT.6

The similarity in characteristics between individuals with autism and large language models enables individuals with autism to better understand what will make communication more effective between humans and AI. This can benefit businesses by enabling efficient prompt engineering and user experience analysis. Moreover, it encourages diverse hiring practices from underrepresented populations that can bring unique perspectives to the table.

In conclusion, the unique minds of people on the autism spectrum can help us better understand how to communicate with large language models. By leveraging these insights, we can develop more effective communication strategies with LLMs, which will benefit both individuals and businesses alike, while improving inclusiveness and diversity.

1. Vicente, Agustín, and Ingrid Lossius Falkum. “Accounting for the Preference for Literal Meanings in Autism Spectrum Conditions.” *Mind &amp; Language* 38, no. 1 (October 12, 2021): 119–40. https://doi.org/10.1111/mila.12371.

2. Own Analysis

3. welldesign. “ChatGPT: The Pitfalls of Using a Language Model to Create Content.” Phil Gerbyshak, January 24, 2023. https://philgerby.com/modern-selling/chatgpt-the-pitfalls-of-using-a-language-model-to-create-content/.

4. Li, Yucheng. “Unlocking Context Constraints of Llms: Enhancing Context Efficiency of Llms with Self-Information-Based Content Filtering.” arXiv.org, April 24, 2023. https://arxiv.org/abs/2304.12102.

5. yoheinakajima. “GitHub - Yoheinakajima/Babyagi.” GitHub. Accessed April 26, 2023. https://github.com/yoheinakajima/babyagi.

6. Significant-Gravitas. “GitHub - Significant-Gravitas/Auto-GPT: An Experimental Open-Source Attempt to Make GPT-4 Fully Autonomous.” GitHub. Accessed April 26, 2023. https://github.com/Significant-Gravitas/Auto-GPT.