

# Problem Statement

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## Assignment to submit:

“Submit the problem statement as described in the [research project document](#) as a pdf or a doc file, and submit your advisor's signature sheet as well.”

## Research Topic:

Inclusive LLM for Autistic Population

(Google Scholar Search: "[autism](#)" AND "[language preference](#)" AND "[disability](#)")

## Research Project Title:

Autism Inclusive Language & Accessibility Framework in the Introspection of LLM

## Problem Statement:

With the emergence of Large Language Models (LLMs) as a transformative AI technology, there is a significant gap between the promised outcomes by LLMs and their actual performance in delivering outputs that are sensitive and inclusive of individuals with Autism. LLMs often generate responses that promote harmful stereotypes and enable biases with the ableist responses contributing to accessibility barriers for the Autistic community.<sup>[1]</sup> Within the intersectionality of Disability and Inclusion, Human-Computer Interaction, and Accessibility within AI, there is a need for research that addresses the shortcomings of current LLM tools in serving Autistic people.<sup>[2]</sup>

The goal of this research is to create a specialized dataset of inclusive and non-ableist responses tailored and defined for Autistic individuals and to fine-tune LLMs using this dataset. Through the rigorous dataset creation process, the research will investigate methods to identify and interpret ableist language in LLM outputs, while carefully considering the complexities of ableism.<sup>[3]</sup>

Furthermore, it will explore effective strategies to fine-tune LLMs that are well-aligned with the needs, preferences, and communication styles of the Autistic community. Therefore, this research aims to improve LLM outcomes, foster inclusivity, and empower Autistic individuals through more accessible and respectful Human-AI interactions.

[1] How Toxicity Classifiers and Large Language Models Respond to Ableism (2024), Mahika Phutane, Ananya Seelam, Aditya Vashistha, <https://doi.org/10.48550/arXiv.2410.03448>

[2] Avoiding Ableist Language: Suggestions for Autism Researchers (2021), Kristen Bottema-Beutel, Steven K. Kapp, Jessica Nina Lester, Noah J. Sasson, and Brittany N. Hand, <https://doi.org/10.1089/aut.2020.0014>

[3] Anti-ableism and scientific accuracy in autism research: a false dichotomy (2023), Kristen Bottema-Beutel, Steven K. Kapp, Steven K. Kapp, Noah Sasson, Morton Ann Gernsbacher, Heini NatriHeini Natri, Monique Botha, <https://doi.org/10.3389/fpsy.2023.1244451>