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Analytic flexibility in silicon samples: Generating survey responses with Large Language Models

A growing body of research uses Large Language Models (LLMs) to simulate human survey responses by prompting them to answer survey questions. Potential applications of such *silicon samples* range from questionnaire development to survey data imputation. However, many design decisions in *silicon sampling* remain poorly understood. In this talk, I share findings from large-scale evaluations of commonly used persona prompt formats and response generation methods, and I discuss the survey response biases that LLMs can exhibit. I highlight how seemingly small design decisions can shape outcomes in *silicon sampling* and offer practical recommendations for generating survey responses with LLMs.