Measuring the Synergy Across Customer Touchpoints using Transformers

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Abstract:
When observing a sequence of customer interactions, it is important for a firm to understand how these interactions relate to key objectives – qualified customer leads, customer conversion events, or churn. Inspired by recent development in Large Language Models (LLM), this research proposes a transformer-based framework that models the sequence of customer interactions in a way that resembles modeling a sequence of words in a sentence. Our proposed model accounts for the varying effects of an interaction when it occurs at different times and the complex interactions between the various touchpoints on other touchpoints and events. We present an application in the multi-channel marketing context where the firm observes sequences of customer-firm encounters across multiple touchpoints. We show that our model successfully predicts the next touchpoint and the evolution of conversion rate over time at the individual level, as well as the contribution of each touchpoint to the conversion event. By unraveling the patterns within rich customer interaction data, our model provides a useful tool to help managers better understand and manage the customer journey. In addition, our model has wide applicability in other areas, such as patient journeys in healthcare.

Keywords: Customer Journey, LLMs, Transformer