INFORMATICS INSTITUTE OF TECHNOLOGY

In Collaboration with

UNIVERSITY OF WESTMINSTER

The University of Westminster, Coat of Arms

NORA AI

AI Powered Shopping Assistant for Clothing Stores

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Submitted in partial fulfilment of the requirements for the BEng (Hons) in Software Engineering degree at the University of Westminster.

April 2024

ABSTRACT

The retail clothing sector faces challenges in delivering seamless, personalized customer service, especially during peak shopping hours. Current chatbots rely heavily on rule-based systems or traditional machine learning and NLU, limiting their ability to provide dynamic, tailored responses, leading to reduced engagement and sales. Additionally, these systems often lack real-time fashion advice and personalized recommendations, failing to guide users from product selection to purchase.

This research develops an AI-powered shopping assistant using a hybrid approach. It integrates Retrieval-Augmented Generation (RAG) for FAQs and store-related queries along performance and sales prediction with sentiment Analysis, and a large language model (LLM) optimized through prompt engineering for the clothing domain to handle complex queries.

Evaluated through metrics like response accuracy, customer satisfaction, and engagement, the assistant demonstrated superior performance compared to traditional chatbots, delivering dynamic, context-aware interactions and personalized shopping experiences. This research significantly advances chatbot technology, offering a comprehensive, user-friendly solution tailored to the clothing retail sector.

Subject Descriptors:

- Computing methodologies >> Artificial Intelligence >> Machine Learning >> Generative Model
- Computing Methodologies >> Information Retrieval >> Information Retrieval Models
- Computing Methodologies >> Artificial Intelligence >> Knowledge Representation and Reasoning >> Knowledge Representation Languages
- Computing methodologies >> Artificial Intelligence >> Machine Learning >> Recommender Systems

- **Keywords:** AI Shopping Assistant, Natural Language Understanding (NLU), Retrieval-Augmented Generation (RAG), Natural Language Processing (NLP), Large Language Model (LLM)