

# Multi-Agent System for Customer Behavior Tracking Using Shoppers' Path or Traversal

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**Abstract**—Customer/consumer enters a super market and traverses certain path to buy articles he/she wants. Here consumer/customer is a person who buys a product or service for his personal consumption or use. Can we predict what could be the path followed by customer/consumer and which article he/she is going to buy next? The path followed by consumer is depictive of his behavioral pattern, his likings and needs. Overall path tells us about his buying pattern and can help us to learn about articles he/she is planning to buy. Associations among these traversal paths could help us to predict traversal path of similar customers. This can allow us to suggest personalized paths for customers and also to rearrange articles dynamically based on majority of customers expected on a particular day. This can even help in positioning and sequencing of articles on retail websites. This paper proposes an algorithm for associating traversal paths and consumer psychology to predict behavior of the customer on website or in a particular shop. We have tested our algorithm for five major traversal paths of over 3000 records and 1000 customers from grocery shops. It not only produced encouraging insights but also gave us additional threads for research related to customer path traversal. The algorithm can find many applications in consumer psychology and also in the areas of predicting sales, positioning objects in shops or on websites, etc.

**Keywords**—*Machine Learning, Artificial Intelligence, Consumer Psychology, Pattern Matching, Data Mining*

\*This paper will be available on IEEE explorer shortly. The link for conference [ICECCT](#)