



Overcoming Choice Overload

Evolution and Applications of Recommendation Systems

Conrad V. Ibanez
Bellevue University



Abstract

We live in a world full of choices. With the growth of the Internet, products and information are more readily available and accessible. We are like kids in a candy store. Recommendation systems have become a common feature on many web-based applications, from ecommerce to social media to video streaming services and more. People interact with these systems to have a more highly personalized experience and to explore new products and connections. These systems are based on different algorithms and filtering methods, such as collaborative filtering and content-based filtering. They factor in different sources of information to predict and provide recommendations. This paper provides an overview of how recommendation systems have evolved since their early beginning and how they are being widely used in different ways today to drive and motivate behaviors.



Introduction

Recommendation systems offer suggestions to a user. We see many examples of these systems especially on ecommerce websites and mobile applications that offer products or services to customers.

The designs for recommendation systems mimic how people would choose candy in a candy store. Individuals would rely on current knowledge, preferences, or past experience, such as which candy they tried and liked or did not like. Additionally, they make decisions based on input from others around them such as family and friends.

There are several approaches to how recommendation systems are designed. One common approach is collaborative filtering. Collaborative filtering makes recommendations based on patterns of ratings or usage (e.g., purchases) without considering information about either items or users [16]. Another approach is content-based filtering where a system determines what a user would like by analyzing information describing the item while factoring in the user's preferences [5]. Other approaches for recommendations systems combine different aspects to form a hybrid approach.

There are different techniques used for recommendation systems. They include k- nearest neighbors, Bayesian networks, neural networks, and genetic algorithms [9].

Why is this topic Data Science?

Recommendation systems combine many of the principles of data science that includes problem definitions, algorithms, and approaches for gaining insights from large data sets. Suggestions for products, services, or behaviors are improved by the analysis of data.

We see many applications of recommendation systems in our daily lives. Video streaming services such as Netflix or Amazon Prime Video will recommend movies or shows based on what a person has watched in the past. Online retailers such as Amazon, Walmart, Target and many others will suggest other items to buy based on past purchases or current items in a virtual cart.

These systems influence behavior in society but must also consider the ethics surrounding the data that drives them. These systems have evolved to factor in more data surrounding the individual.

Conclusions

There has been a lot of interest in recommendation systems. With the growth of technology and the Internet, people are constantly interacting with these systems. Recommendation systems influence people's choices and behaviors.

There has been much research in academia to improve the techniques for deploying recommendation systems. Large companies have also started to incorporate and invest in these systems on their technology platforms to improve their bottom line. Recommendation systems will continue to advance as more data is analyzed and new innovations take place. Additionally, advancements in technology will allow for faster processing speeds and should facilitate support for multiple algorithms to be used to form even more advanced and highly personalized recommendation systems.

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What is the deliverable for this project?

This project provides an overview of the current state of recommendation systems and the current techniques to implement them. It will discuss the different ways that recommendation systems are used in our society. Additionally, this project will investigate opportunities for enhancing the performance of recommendation systems.

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Contact

Conrad V. Ibanez
Bellevue University
Email: conrad.ibanez@my365.Bellevue.edu
Phone: 706- 340-2178