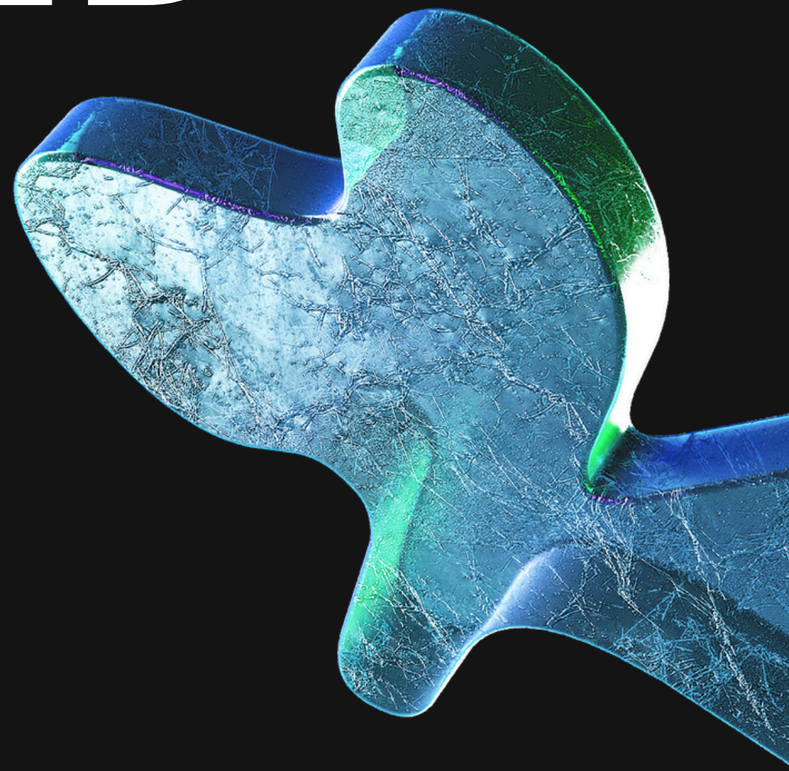
RECOMMENDED SYSTEMS



What it is and why it's important

Recommmended systems

What you need to know

What is recommended systems

Types of recommended systems

How recommended system works ?

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Importance of recommended systems

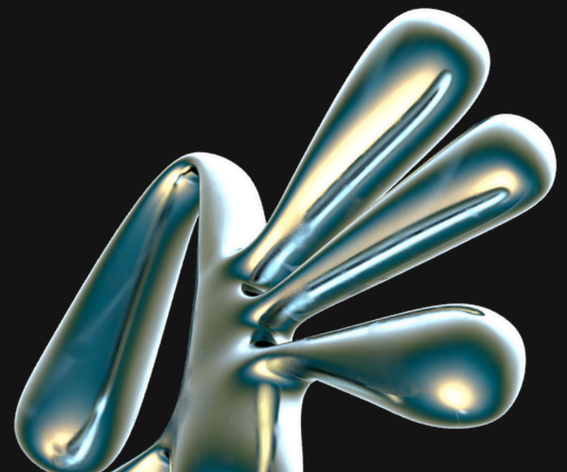
What is Recommended systems?

Recommendation systems, often known as recommender systems, are a type of information filtering system that attempts to forecast the "rating" or "preference" that a user would assign to an item. They are common in today's digital scene, serving an important role in online shopping, streaming services, social networking, and other platforms where personalization and user experience are critical..

Types of recommended systems

There are mainly three methodologies for Recommendation Systems:

- collaborative filtering,
- content-based filtering
- hybrid systems.



Collaborative filtering:

Collaborative filtering operates by evaluating user interactions and determining similarities between people (user-based) and things (item-based).

How it works : if User A and User B like the same movies, User A may love other movies that User B enjoys. A method used in recommendation systems to forecast items which user may enjoy based on the preferences of other users who have similar likes. It works by analyzing user interactions and identifying similarities between individuals (user-based) and objects (item-based).

Types of collaborative filtering:

There are two types of collaborative filtering

USER-BASED COLLABORATIVE FILTERING

This technique predicts products that a user could appreciate based on ratings provided to that item by other users who share the target user's preferences. The steps are as follows:

- Finding similarities between users and the target user
- Predict the missing rating of an item:

ITEM-BASED COLLABORATIVE FILTERING

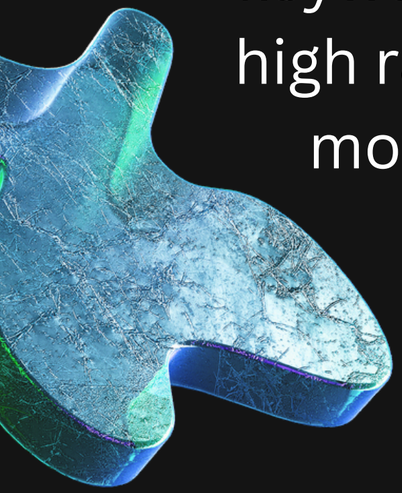
This method predicts which things a user would enjoy based on their similarity. The steps are as follows:

- Item to item similarity
- Prediction Computation:

Content-based filtering:

Content-based filtering is a technique used in recommender systems to suggest items that are comparable with an item a user has shown interest in, based on the item's attributes.

How it works : It uses machine learning algorithms to classify similar items based on inherent characteristics such as genres, directors, or keywords associated with previously seen movies. If a user has given high ratings to action movies, the algorithm will propose more action movies based on genres, directors, or keywords connected with previously loved movies.



How Recommended systems work

Recommender systems operate by filtering and predicting user preferences using sophisticated algorithms and extensive data analysis. The basic mechanics of recommender systems includes several critical elements:

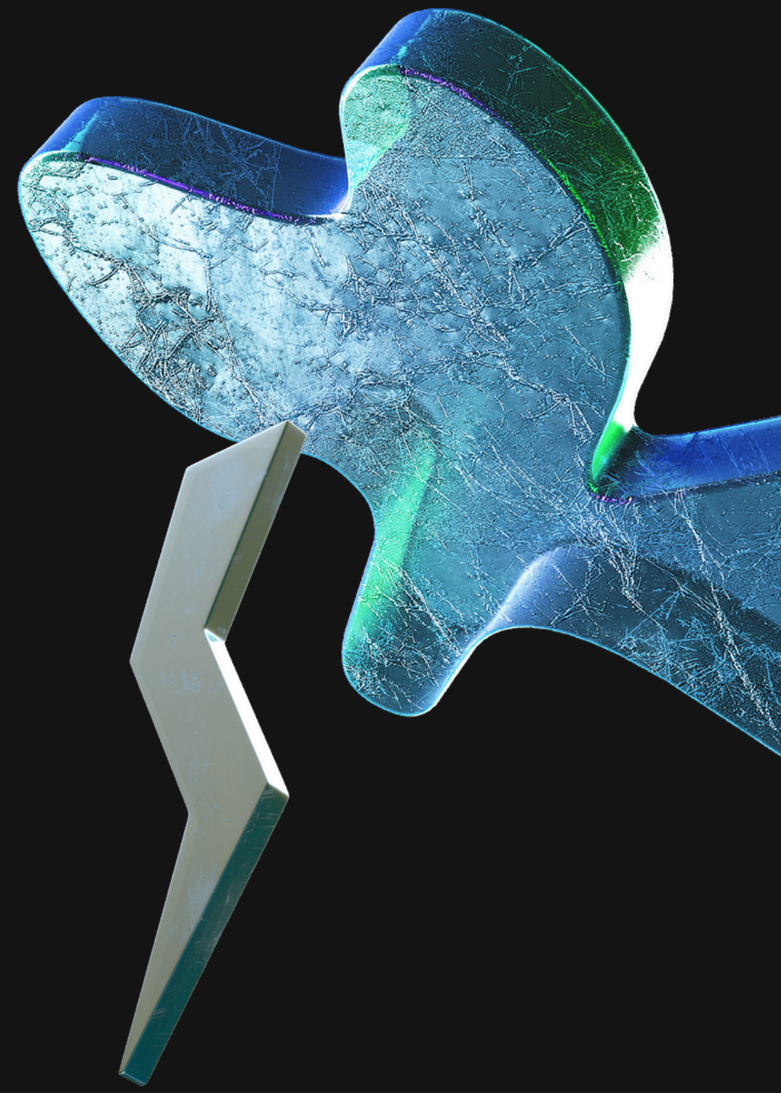
- User profiles are built using both explicit data, such as ratings and reviews, and implicit data, including browsing history and click habits.
- Item profiles provide information about the objects, such as genre, actors, and movie keywords.

THE RECOMMENDATION ALGORITHMS THEN EXAMINE THESE PROFILES USING METHODS SUCH AS MATRIX FACTORIZATION, WHICH BREAKS DOWN USER-ITEM INTERACTIONS INTO LATENT ELEMENTS, OR DEEP LEARNING MODELS, WHICH DETECT COMPLICATED PATTERNS IN BIG DATASETS

REAL LIFE EXAMPLE :

Image-Based Recommendation

An image-based recommender system is a type of content-based recommendation system that makes suggestions by analyzing and comparing visual features in images.



An image-based recommender system is a type of recommendation system that makes suggestions by analyzing and comparing visual features in images. It’s commonly used in fields where visual appeal is essential, such as fashion, interior design, and lifestyle products. Unlike traditional recommendation systems that rely on user-item interactions or text-based features, image-based systems focus on visual similarity, leveraging computer vision techniques to understand the content within images.

- The system uses deep learning algorithms, primarily Convolutional Neural Networks (CNNs), to analyze the images
- Once images are encoded as feature vectors, the system calculates the similarity between images by comparing their vectors.
- The system suggests items with high similarity scores, providing users with items that look similar to what they are currently viewing or have previously shown interest in.

Pinterest’s Visual Search

- Pinterest is a visual discovery engine where users can save and discover new ideas in the form of images or "pins."
- The Visual Search Tool allows users to search for visually similar items by selecting a part of an image (pin) they are interested in.
- To help users find similar or related products or images based on visual similarity, enhancing the discovery experience and increasing user engagement with relevant content.

Advantages of Pinterest's Image-Based Content Recommendation

- Personalization through Visual Preference: Unlike text-based recommendations, Pinterest's visual search is based entirely on what users find visually appealing, capturing their style without needing explicit tags or metadata.
- Enhanced Discovery: Users can discover new items that match their tastes. If a user finds a specific item they like, Pinterest can quickly help them find related items they may not have otherwise seen.
- Granularity: By allowing users to select a part of the image, Pinterest's Visual Search Tool enables a fine-grained level of recommendation that helps find specific visual matches, such as a particular pattern on clothing or decor items.

Importance of Recommendation Systems

Recommender systems have become essential for organizations since they can significantly boost income by making tailored suggestions that result in improved sales.

- Faster Decision-making: Recommender systems increase user tendency to purchase suggested things, boost loyalty and overall happiness, lower transaction costs, and improve decision-making process and quality.
- Personalized user experience: Making highly relevant and valuable suggestions, recommender systems improve the user experience.
- Increase engagement: Recommendation systems help users interact with a system by providing them material, goods, or services that they are likely to be interested in.

THANK YOU

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