

STYLE ADVISOR USING ARTIFICIAL INTELLIGENCE

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Abstract

People are presented with an overwhelming variety of options and style choices due to the fashion industry's ongoing evolution. An AI-driven style advisor system can be developed to help people make knowledgeable fashion decisions that are customized to their interests. The use of AI tools in the fashion industry to offer individualized style advice and recommendations is one of the quickest ways to compare and shop.

The style advisor AI can use user profiles, recent fashion trends, and visual inputs, machine learning techniques, computer vision, and natural language processing to give out the output. The technology creates personalized product recommendations and ensembles that coincide with individual style choices by building a thorough user profile that includes preferences, body shape, and budget.

1. PROBLEM STATEMENT

With a wide variety of options, fluctuating trends, and personal style preferences, individuals in the fashion sector frequently confront difficulty in making confident and informed style decisions. Existing tools and resources frequently fail to deliver personalized and accurate style recommendations that are matched to individual needs. As a result, there is a need for an AI-powered system that can handle these restrictions while also providing a complete and personalized style advising solution.

The main challenges faced by the users mainly are limited personalization, mistakes or uncertainty in fitting and size, and not finding the right product due to limited integration of technology. These are some of the basic problems dealt with by the user, which can be sorted out by the AI.

2. MARKET/CUSTOMER/BUSINESS NEED ASSESSMENT

The market's demand for an AI-style advisor is fueled by factors such as rising fashion consciousness, the need for personalization and customization, the prevalence of online purchasing, and the need for trustworthy fashion advice. Customers seek inspiration, time optimization, and certainty in fit, while businesses get a competitive advantage, greater conversion rates, increased customer loyalty, and data-driven insights. Creating an AI-style advisor fulfils these market, customer, and business requirements, resulting in a beneficial solution for the fashion sector.

Customers want personalized experiences in all areas of their lives, including fashion. There is an increasing demand for style advice solutions that can adapt to individual preferences, body types, and style aesthetics, providing customized recommendations and guidance. Clients want solutions that will help them make more informed fashion decisions. With so many possibilities, customers are searching for AI-style advisors who can curate and present them with personalized fashion choices, saving them time and effort in filtering through an infinite number of products. Customers frequently encounter fit and sizing issues, especially when shopping online. There is a demand on the market for AI style consultants who can offer precise and trustworthy size suggestions, virtual try-on experiences, and input on how apparel would appear and fit various body types.

3. TARGET SPECIFICATION AND CHARACTERIZATION

- Personalized recommendations for each individual according to their likes
- Saving time and effort by comparing all the possible recommendations instead of comparing an infinite number of selections.
- Accurate fit and size, according to the client, eliminate the confusion after getting the product in the client's hand.
- Allowing clients to try on styles well before buying to check if they suits the consumer

4. EXTERNAL SEARCH

Here are some of the links that provide how an existing or to be used AI style advisors work and how they deliver their output to the client.

- <https://yesplz.ai/resource/introducing-the-worlds-first-ai-stylist-powered-by-chatgpt-for-fashion.html>
- <https://tracxn.com/d/trending-themes/Startups-in-AI-Based-Personalized-Stylist>
- <https://hallandpartners.com/thinking/experience/your-ai-personal-stylist/>
- <https://in.fashionnetwork.com/news/Myntra-launches-ai-stylist-tool,1517873.html>

5. BENCHMARKING

In the present-day world, many style advisors are available. One such style advisor who is in use is Vue.ai which helps the e-commerce industry business. This stylist is currently being used by famous online shopping retailers. The "My stylist" feature in the Myntra app was a startup that collaborated with Myntra, where suggestions are made based on their preference, body types and the latest fashion trends. It collects data from the user and provides a search engine based on the filters showing visually similar styles.

Apart from that, there are many various online styling websites which use machine learning to help their clients with their preferences. There are also many AI-integrated apps like outfit generators, clothes changer apps, stylist apps etc.

6. APPLICABLE PATENT

There are mainly two patents that we can actually demand for

- Design Patent: The design and visual representation or layout of the AI Style Advisor user interface can be protected under User Interface design Patents covering the non-functional aspects of the app.
- Algorithm Patent: If our app incorporates a unique machine learning algorithm or technique, we can patent those algorithms used by other organizations using it by copyrighting

7. APPLICABLE REGULATION

- Data Protection and Privacy
- Intellectual Property Regulation
- Consumer Protection Regulation
- Export Control Regulation
- Licensing App

8. APPLICABLE CONSTRAINTS

- Technical Constraints
- Data Availability and Accuracy
- Practical Constraints like user experience
- Transparency of the app to the clients

9. BUSINESS MODEL (MONETIZATION IDEA)

- **Start a freemium model of the app:** This should contain basic features and also provide some of the premium features for a limited period of time.
- **Premium Features:** Add premium features to the app if the consumer is willing to pay one-time payments to access specific premium packs.
- **Subscription:** Advertise the normal users about the available subscriptions, which are monthly and yearly pay etc.
- **Collaboration:** Collaborate with fashion retailers to use the AI feature, making it advertise to a whole lot of people.
- **Advertisement:** Advertise the AI feature as display ads on online and offline platforms.

10. CONCEPT GENERATION

The concept of creating an AI-style advisor was taken into consideration after understanding the demand of potential time that was wasted surfing through infinite options presented to the client at a time. Reducing the time and effort that a consumer has to put in yet provide the service of the highest was the primary goal, which landed to the idea of creating an AI-style advisor to make the job easier.

11. FINAL PRODUCT PROTOTYPE

The final Prototype of an AI-style adviser would likely include all of the previously described components into a unified system. Here's a quick rundown of the final Prototype:

The AI-style advisor's user interface is intended to be intuitive and user-friendly. Users can enter their choices, such as preferred style, occasion, body type, and colour preferences. A virtual closet, where users may upload photographs of their current garments, may also be included in the interface.

- **User Interface:** The AI-style advisor's user interface is designed to be intuitive and user-friendly. It allows users to input their preferences, such as their desired style, occasion, body type, and colour preferences. The interface may also include features like a virtual wardrobe, where users can upload images of their existing clothes.
- **Input Module:** The input module processes user inputs effectively. For example, it can use image recognition algorithms to analyze uploaded images of clothing items or use NLP techniques to interpret textual descriptions provided by users.
- **Style Database:** The style advisor's database contains a wide range of fashion styles, trends, and clothing items. It is continually updated with the latest fashion information, including images, descriptions, and attributes associated with various styles.
- **Recommendation Engine:** The core functionality of the AI-style advisor lies in its recommendation engine. It uses advanced machine learning algorithms to analyze user preferences and match them with appropriate fashion styles and clothing items from the database. The engine takes into account factors such as body type, colour palettes, and occasion to generate personalized recommendations.
- **Styling Tips and Insights:** In addition to style recommendations, the AI style advisor can provide styling tips, outfit suggestions, and insights on how to mix and match different clothing items to create cohesive looks. It may also offer advice on accessorizing, coordinating colours, or following specific fashion trends.

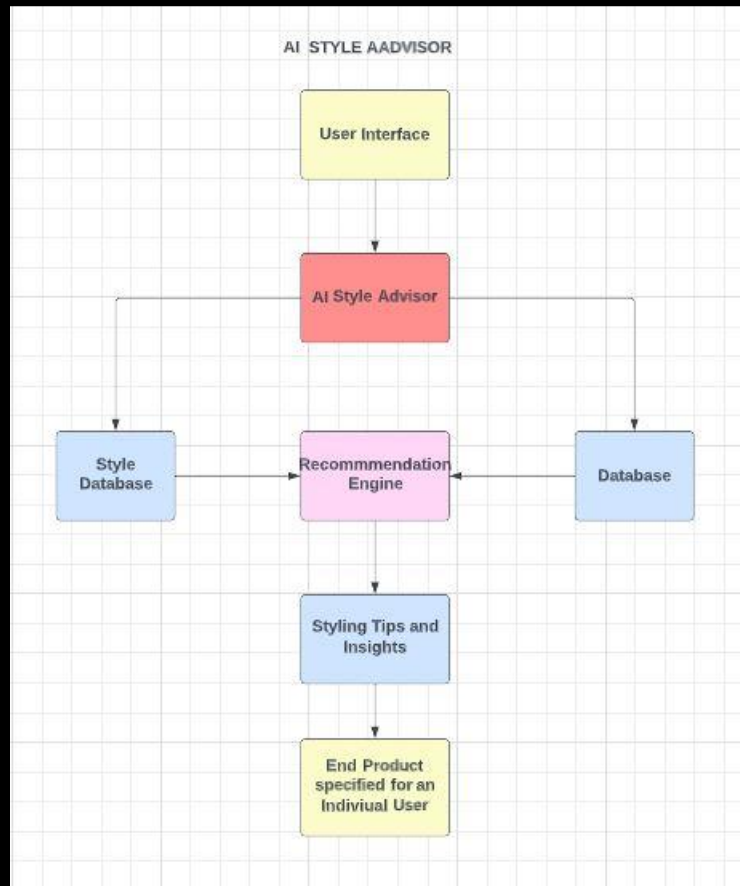


Figure 1: Flow diagram of the Prototype

12. PRODUCT DETAILS

- How does it work?

Firstly data relevant to our project is taken, after which we gather information about the client for the first time, and those details can also be altered according to the user. Then the collected data and user data are compared to show the items. Side by side, the AI also shows personalized recommendations for the client. Towards the end, the user is asked about any further changes or feedback that the AI can improve during its next operation.

- Data Sources

Sources from where the AI can obtain data are fashion websites and blogs, Social Media Platforms, E-Commerce Platforms, User-generated interests and feedback, Fashion Databases, events, runway programs etc.

- Algorithms, frameworks, software

- Classification Algorithms such as vector machines etc
- CNN for understanding clothing items, style classification
- Natural Language Processing
- Dimensionality Reduction
- Open CV
- Tensor Flow and Keras
- Pytorch
- Big Data Frameworks
- UI(HTML,CSS,JAVA)
- AWS
- Python

14. CONCLUSION

In conclusion, an AI styling adviser is a technologically advanced tool that uses user data, computer vision, machine learning, and fashion suggestions to offer individualized style guidance. An AI styling adviser helps customers find new outfits, coordinate clothing combinations, and remain up to speed on the newest fashion trends by analyzing fashion trends, user preferences, physical characteristics, and numerous data sources. It provides an easy and personalized approach to fashion styling, allowing users to improve their wardrobe selections, experiment with new trends, and make educated fashion judgments. The creation of an AI styling advisor necessitates the use of algorithms, software tools, data sources, and a professional development team. The cost of developing such a system varies based on the extent, complexity, and specifics of the project. Overall, an AI styling advisor offers an innovative and interactive way for users to enhance their personal style and fashion choices.