



VIRTUAL RECOMMENDATIVE FITTING ROOM

VIETNAM
DATATHON
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Team
SuperSh-ive

VIRTUAL RECOMMENDATIVE FITTING ROOM

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INTRODUCTION

OVERVIEW ABOUT THE PROBLEM

Alongside the strong development of e-commerce in the fashion industry, numerous limitations in terms of product try-on experiences or immediate customer consultation, which are not always fulfilled.

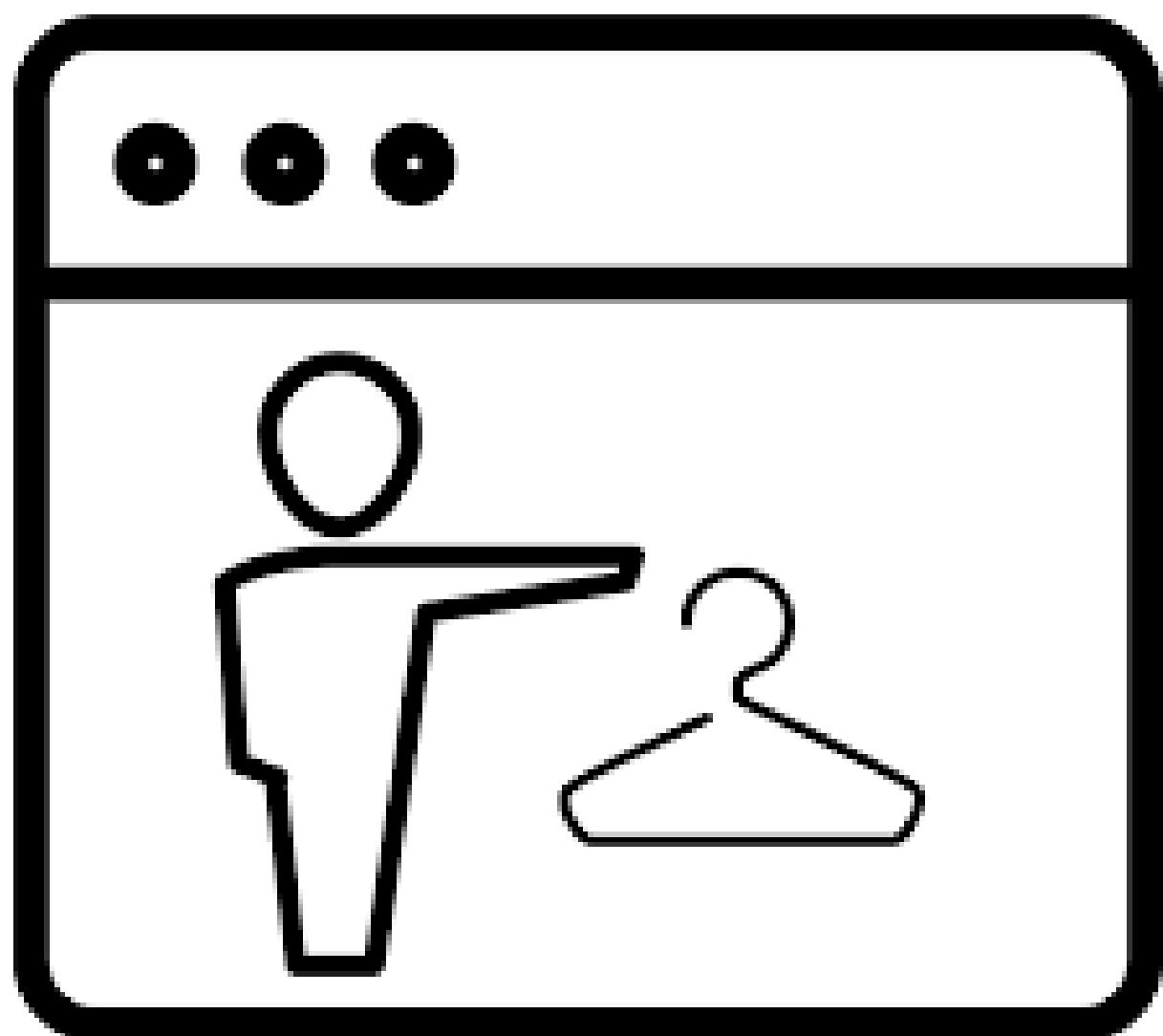
→ To enhance the customer shopping experience online, we have built a system for virtual product experience recommendations.



INTRODUCTION

OVERVIEW OF THE PRODUCT

- Utilize AI technology to generate personalized product models for customers.
- Enabling the simulation of these items onto their images or videos.
- Suggest similar products with shared characteristics according to customer's preferences.



PROBLEM STATEMENT

Online apparel shopping faces a notable constraint as customers lack the ability to physically try on the desired products

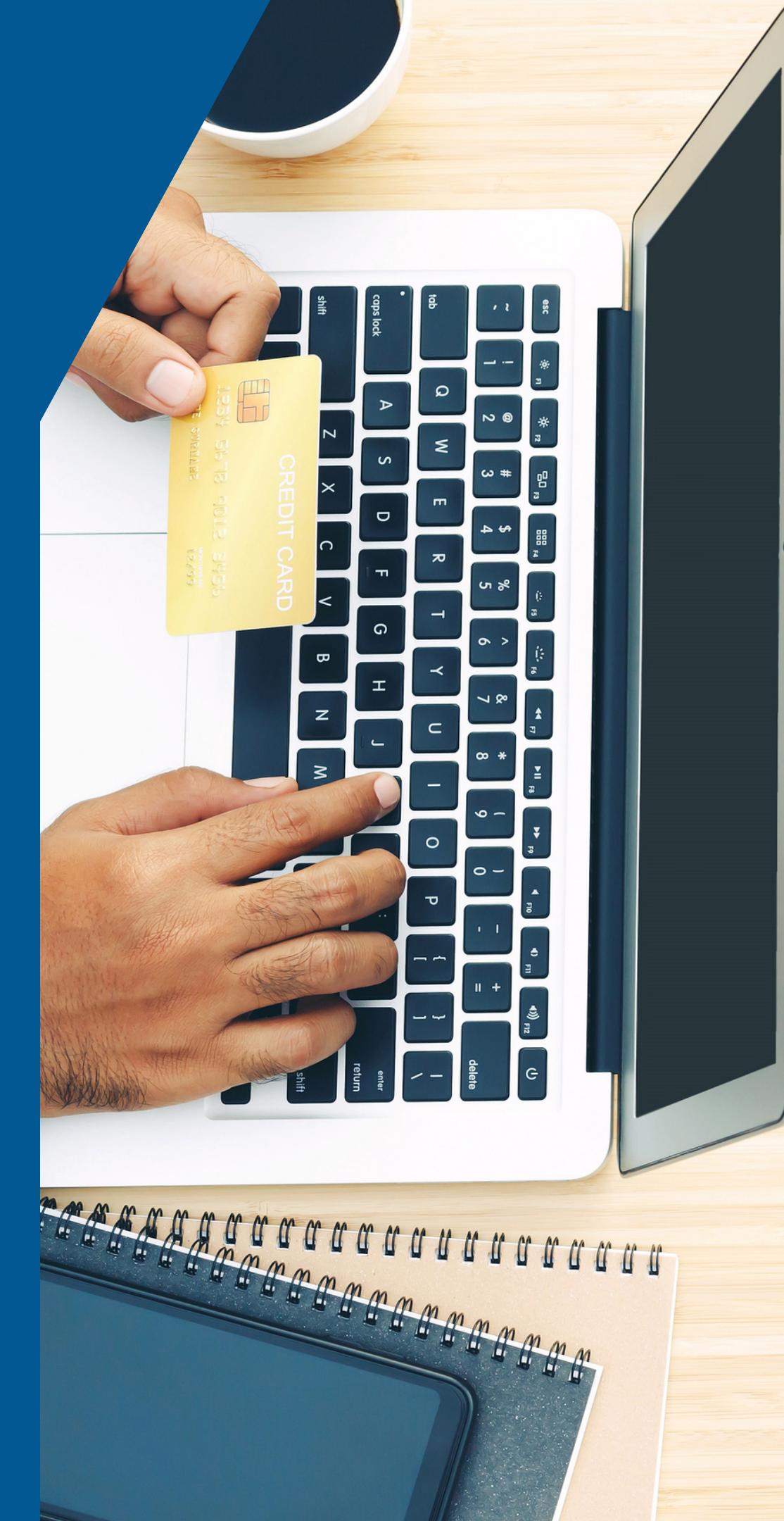
- The acquired items may not align well with the customer's physique, or when pairing diverse clothing and accessories.
- Clients may experience delays in obtaining guidance on items that match their preferences. These waiting periods could unfavorably impact how customers perceive the store.

SOLUTION OVERVIEW

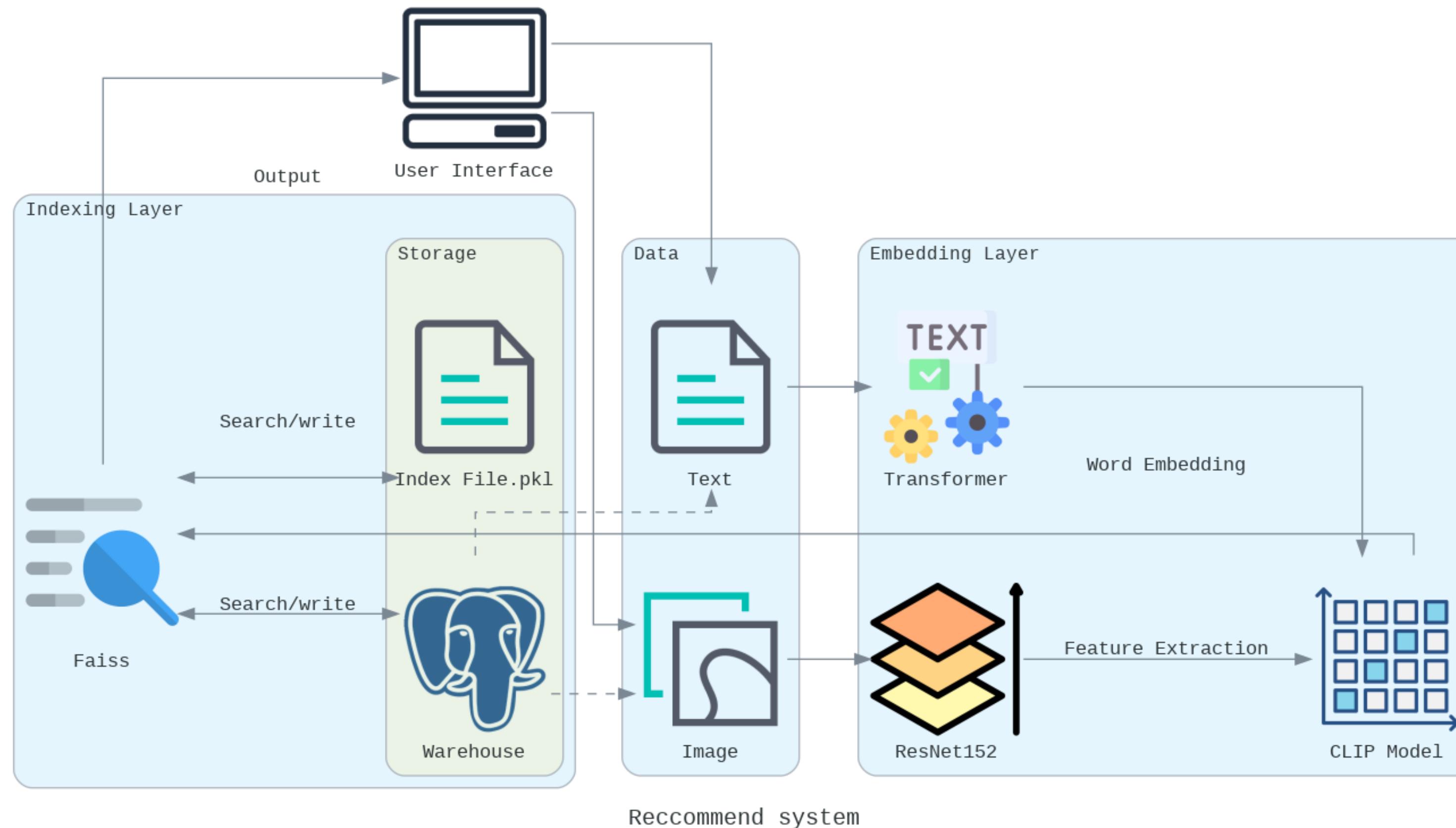
Virtual Recommendative Fitting Room is a technology solution that combines the functionality of a recommendation model with the virtual try-on experience TryOnDiffusion by utilizing AI technologies to process fashion-related data within the retail industry.

- Virtual Fitting Room: Utilizes deep learning to analyze and overlay products onto the user's image naturally, creating the feeling of a real wearing experience.
- Recommendation System: Uses machine learning models to suggest products based on information provided by users, helping them easily choose suitable products.
- Real-time Data Processing: Processes user data instantly to generate quick and accurate interactive experiences.

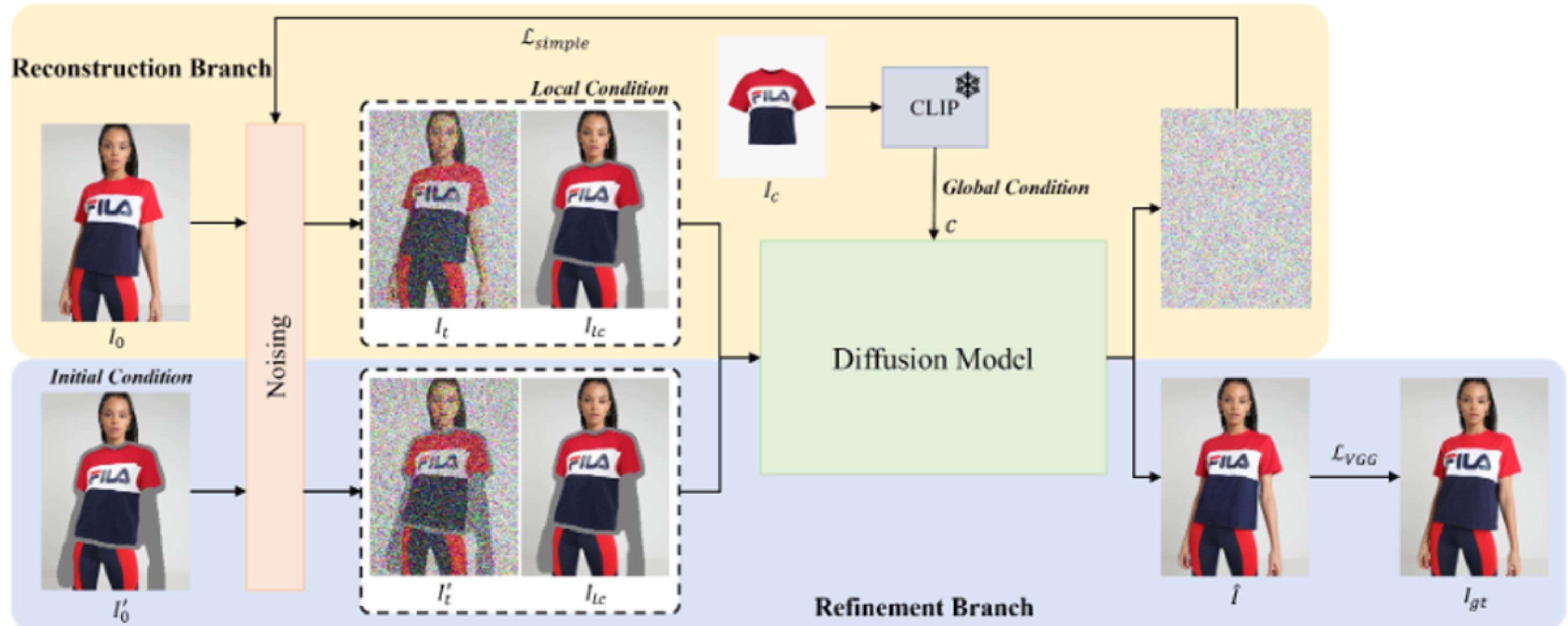
METHODOLOGIES



RECOMMEND SYSTEM

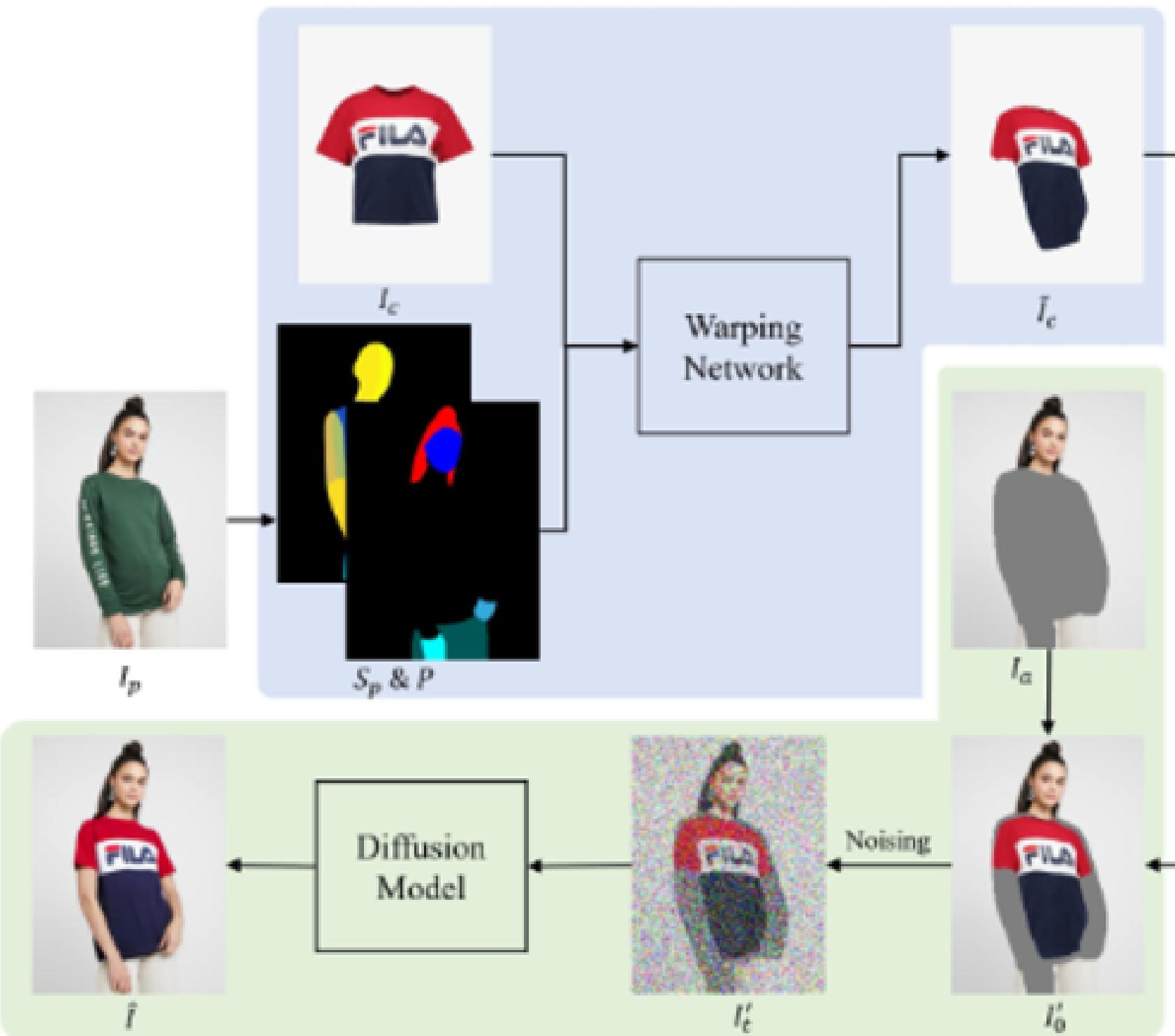


FITTING ROOM: DCI-VTON



Source: <https://arxiv.org/pdf/2308.06101.pdf>

FITTING ROOM: DCI-VTON



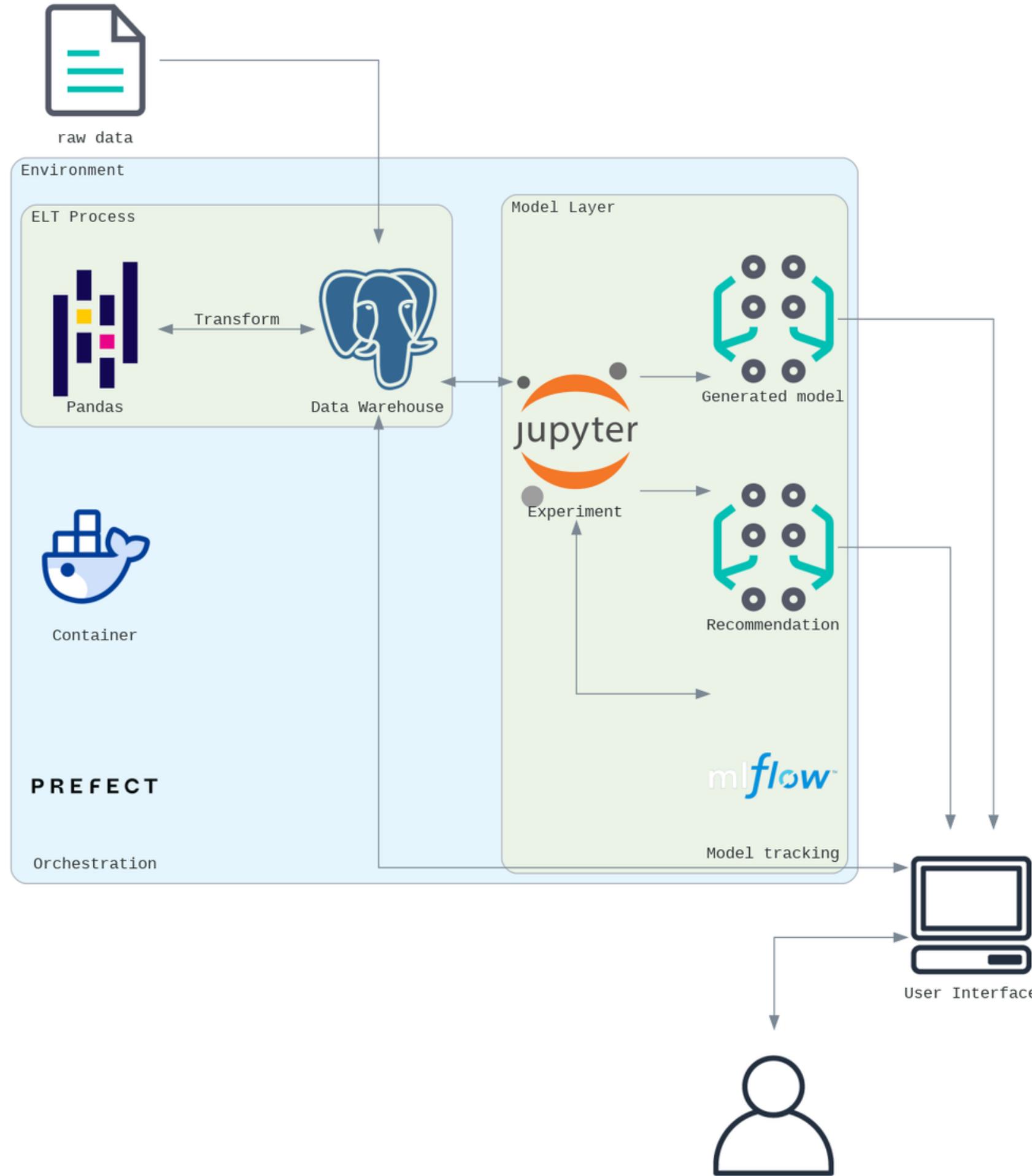
From the photo of person and the photo of outfit, we need to combine them to get an image of to create the feeling feel that person is wearing the outfit

Source: <https://arxiv.org/pdf/2308.06101.pdf>

SYSTEM DIAGRAM

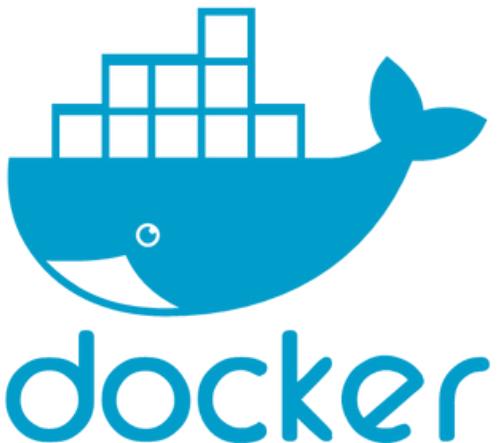
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METHODOLOGIES

ENVIRONMENT MANAGEMENT

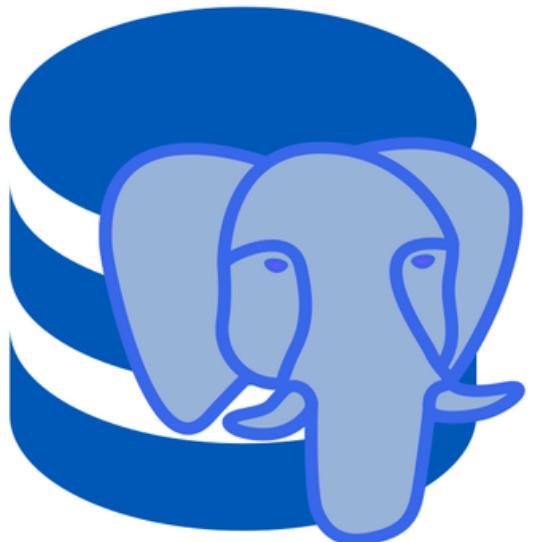


BUILD A DATA PIPELINE



PREFECT

DATA WAREHOUSE



ML LIFECYCLE
PLATFORM

mlflow™

MODEL IMPLEMENTATION



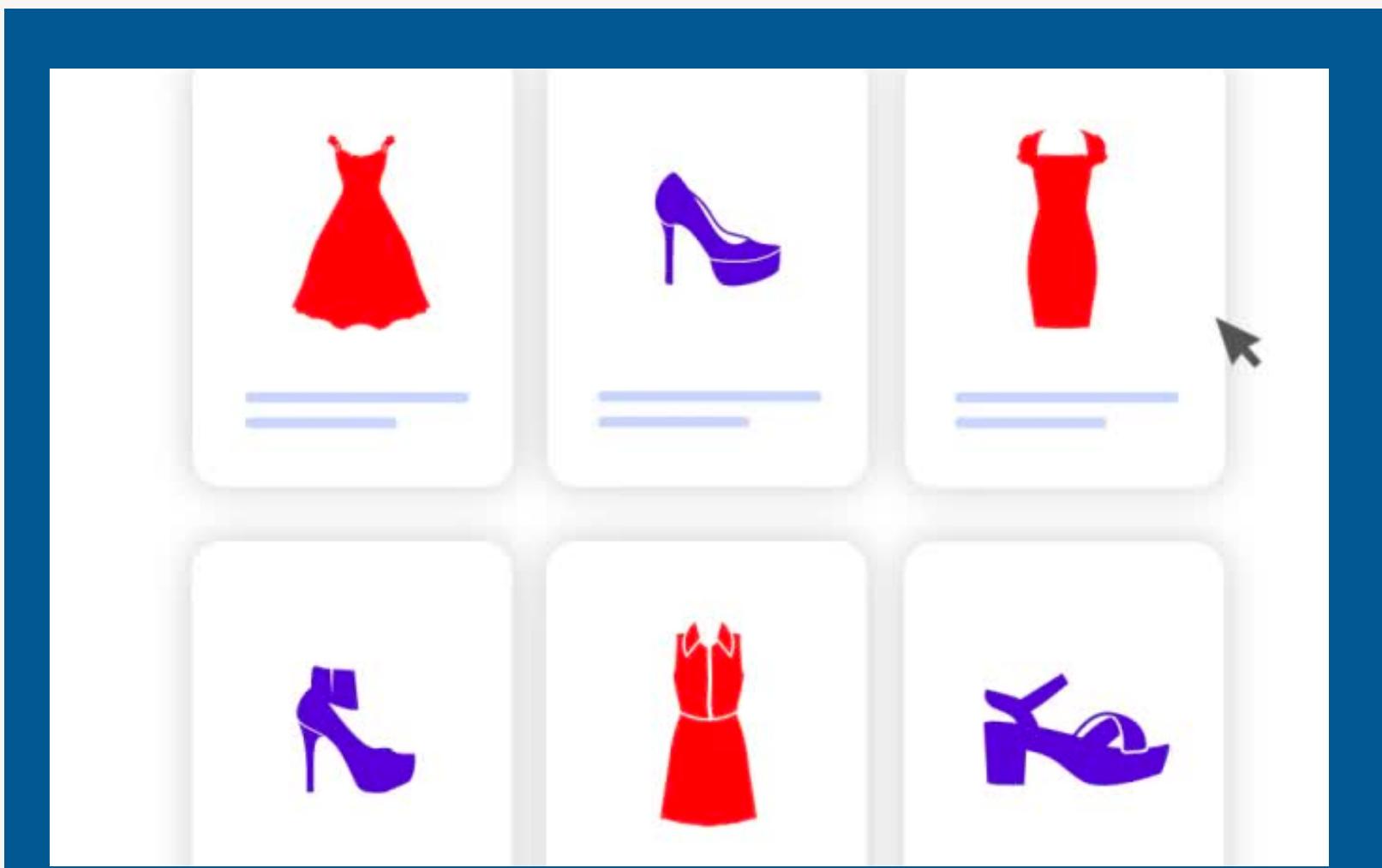
PERFORMANCE METRICS

- For CLIP: Use CLIP score $\text{CLIPScore}(I, C) = \max(100 * \cos(E_I, E_C), 0)$.
- For DCI-VTON use loss function: Since the appearance flow is a variable with a high degree of freedom, total-variation (TV) loss can solve this problem well for the smoothness of the final warping result. L_{TV} can be calculated by the following formula:

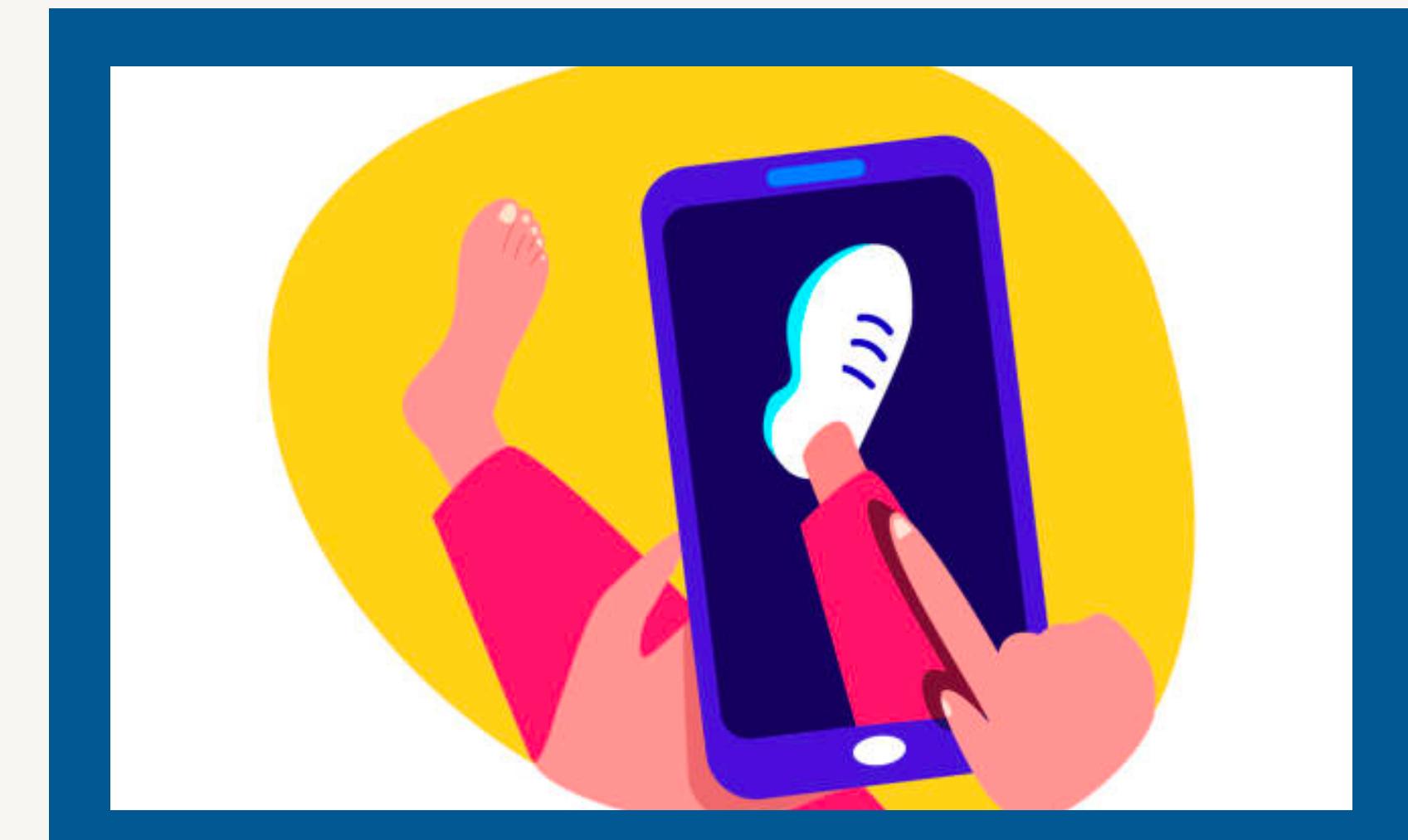
$$\mathcal{L}_{TV} = \sum_{i=1}^N \|\nabla F_i\|_1.$$

- Use two widely used metrics: Structural Similarity (SSIM) and Learned Perceptual Image Patch Similarity (LPIPS).

CORE FUNCTIONALITY



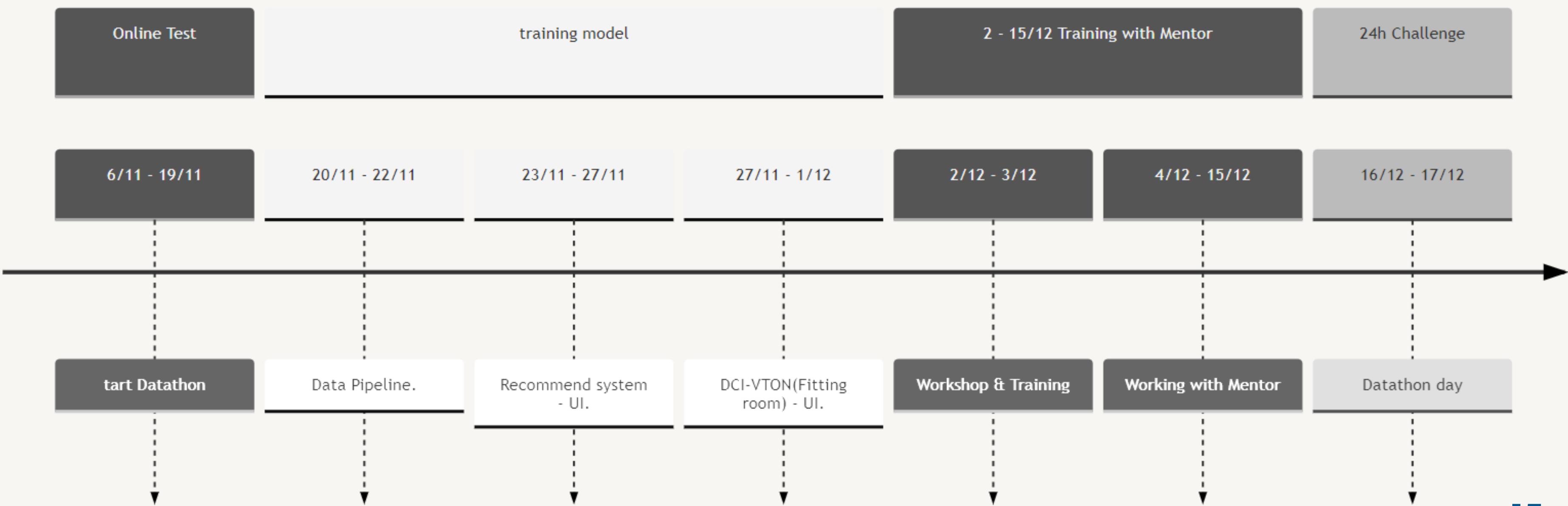
GIVING RECOMMENDATIONS



SIMULATING VIRTUAL FITTING
ROOM

TIMELINE AND ROADMAP

Timeline



USER INTERFACE

The screenshot shows a user interface for an e-commerce platform. At the top, there is a navigation bar with the brand name "Supersh-IVE" in bold black letters, followed by links for "Shop", "On Sale", "New Arrivals", and "Brands". A search bar with the placeholder "Search for products..." is positioned next to a shopping cart icon and a user profile icon.

The main content area features a large, light blue advertisement for a "VIRTUAL RECOMMENDATION FITTING ROOM". The text is displayed in a stylized, blocky font with three small black star-like sparkles. Below the text is a "Shop Now" button. To the right of the text is a large, light gray Nike sneaker with a translucent blue swoosh and a red and blue patterned sole. The background of the ad is a light blue gradient.

Below the advertisement, there are two statistics in white text on a dark background: "2,000+ High-Quality Products" and "30,000+ Happy Customers".

At the bottom of the page, there is a black footer bar containing the Nike and Adidas logos.

Illustrate the product's UI with Figma

USER INTERFACE

UI/UX



Figma



Color Hunt

FRONT-END

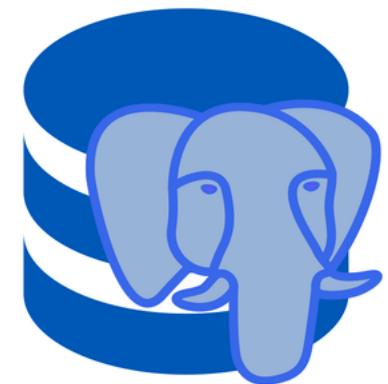


JavaScript



NEXT.js

BACK-END



spring®
17

USER INTERACTION

- For product recommendation system: Users input descriptions of desired items, body measurements or images of similar products by clicking on the suggestion feature. This system suggests a suitable product category that aligns with requirements.
- For virtual fitting room : By providing the system with body images or entering body measurements, users can experience virtual try-on.
- For feedback on products: Users can read and write reviews, engage in discussions with other users or directly share images and reviews of products from the application to their social networks.

LIMITATIONS

- Limitations on Performance
- Limitations in Natural Language Interactions
- Data Limitations

ENHANCEMENT

- 3D Interaction Interface
- Social media Intergration
- User rating feedback System
- Developing a Virtual Stylist feature

CONCLUSION

The Virtual Recommendative Fitting Room system is an innovative solution in the e-commerce and fashion industry that provides a direct and visual way to showcase product fit to shoppers, thereby enhancing the shopping experience.

The integration of computer vision, machine learning, and AI technologies delivers a realistic and personalized online shopping experience, making it easier for users to select and shop efficiently

This convenience will drive the growth of e-commerce in the retail sector; developing virtual online shopping spaces will enable retail businesses to effortlessly expand their global market without geographical limitations, saving display space, staff, etc. E-commerce brings convenience and flexibility to consumers.

REFERENCE

- Learning Transferable Visual Models From Natural Language Supervision:
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- Deep Residual Learning for Image Recognition:
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<https://arxiv.org/abs/1706.03762>
- FAISS: <https://faiss.ai/index.html>



THANK YOU

