Ideation Phase

Literature Survey

Smart Fashion Recommender System

1. L. C. Wang, X. Y. Zeng, L. Koehl and Y. Chen, "**Intelligent Fashion Recommender System: Fuzzy Logic in Personalized Garment Design**," in IEEE Transactions on Human-Machine Systems, vol. 45, no. 1, pp. 95-109, Feb. 2015, doi: 10.1109/THMS.2014.2364398.

Wang *et al.* proposes a new intelligent fashion recommender system to select the most relevant garment design scheme for a specific consumer in order to deliver new personalized garment products.

Methodology Used :

- Fuzzy decision trees
- Fuzzy cognitive maps.
- Human perception-based fashion recommender system
- Sensory evaluation

Merits :

- The proposed system considers of complex perceptions of both design experts and general consumers.
- The proposed system originally treats human perception on body shapes and fashion themes.

Demerits :

- The accuracy of these systems is compromised as the system mostly works on inaccurate data and inputs.
- Update the rules of the Fuzzy Logic control system regularly.

2. X. Zhang et al., "**Trip Outfits Advisor: Location-Oriented Clothing Recommendation**," in IEEE Transactions on Multimedia, vol. 19, no. 11, pp. 2533-2544, Nov. 2017, doi: 10.1109/TMM.2017.2696825.

Zhang *et al.* developed a hybrid multilabel convolutional neural network combined with the support vector machine approach to capture the intrinsic and complex correlations between clothing attributes and location attributes.

Methodology Used :

- mCNN - SVM
- AlexNet
- latentSVM

Merits :

- Outperforms several baselines by over 10.52–16.38% in terms of the mAP for clothing item recognition.
- Outperforms several alternative methods by over 9.59–29.41% in terms of the mAP when ranking clothing by appropriateness for travel destinations.

Demerits :

- This model did not work for large data sets due to overhead.

3. Y. Ding, Y. Ma, W. K. Wong and T. -S. Chua, "**Modeling Instant User Intent and Content-Level Transition for Sequential Fashion Recommendation**," in IEEE Transactions on Multimedia, vol. 24, pp. 2687-2700, 2022, doi: 10.1109/TMM.2021.3088281.

Ding *et al.* proposed a novel Attentional Content Level Translation-based Recommender (ACTR) framework, which simultaneously models the instant user intent of each transition and the intent-specific transition probability.

Methodology Used :

- Matrix factorization-based methods
- Deep learning-based methods
- Translation-based methods
- Attribute-involved methods

Merits :

- Defined the user intent in fashion domain as the relationship of adjacent items he/she interacted, which is match, substitute or others.
- Proposed item-to-item transition to leverage the rich fashion attributes and model the content-level transitions.

Demerits :

- This model did not consider any long-tern intent or intent in certain session.
- The real-world relationships between two fashion items are more nuanced and are limited at category level

4. X. Liu, Y. Sun, Z. Liu and D. Lin, "**Learning Diverse Fashion Collocation by Neural Graph Filtering**," in IEEE Transactions on Multimedia, vol. 23, pp. 2894-2901, 2021, doi: 10.1109/TMM.2020.3018021.

Liu *et al.* has proposed a novel fashion collocation framework, Neural Graph Filtering, that models a flexible set of fashion items via a graph neural network by describing the inter-garment relationship as the edge between nodes.

Methodology Used :

- Neural graph filtering
- Style-Diversified Fashion Compatibility
- Style Classifier

Merits :

- This approach outperforms the state-of-the-art methods with over 10% improvements on the standard AUC metric.
- More importantly, 82.5% of the users prefer our diverse style recommendations over other alternatives in a real-world perception study.

Demerits :

- This process stops if either no candidate exists or the compatibility score including the chosen candidate starts dropping.