Catalyzing Social Interactions in Mixed Reality using ML Recommendation Systems

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ABSTRACT: We create an innovative mixed reality-first social recommendation model, utilizing features uniquely collected through MR systems to promote social interaction, such as gaze recognition, body language, proximity, environment, and device type. We compare these results to the state-of-the-art recommendation methodologies which have not previously been applied to mixed reality (MR). We further extend these models to include right-time features to deliver timely notifications. By creating a new intersection of user features, MR features, and right-time features, we observe a significant boost in performance.

KEYWORDS
mixed reality, social networks, recommendation systems, collaborative filtering.

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1 INTRODUCTION
[TODO]

2 BACKGROUND
[TODO]

3 METHODOLOGY
[Tentative plan below]

- We wish to conduct a study which collects data from real-life users to enable prediction of three output classes – “Want to meet”, “Want to chat”, and “Reject”.
- The collected data will include MR-related features (e.g., gaze, body language, proximity, environment, device type), non-MR user features (e.g., profile picture, hobbies, personality), and right-time features (e.g., location, time of day, ambient noise, conversation intensity).
- We will create four models, trained on four different subsets of the features:
    1. MR and non-MR features only.
    2. MR, non-MR, and right-time features.
    3. Non-MR features only.
    4. Non-MR and right-time features only.

4 EVALUATION
[Tentative plan below]

- Two of the four models we produce which are trained excluding MR features are similar to existing recommendation systems, whereas the other two models which include MR features are our novel recommendation models.
- Performance metrics of these four model types will be compared, comparing the models that include/exclude MR features and the models that include/exclude right-time features.

5 RESULTS
[TODO]

6 DISCUSSION
[TODO]

RELATED WORK
[TODO]

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REFERENCES

[1]