How Can They Know That?
A Study of Factors Affecting the Creepiness of Recommendations

Motivation
- Modern algorithms used by recommender systems (RS) to increase prediction accuracy are often opaque to users
- If people cannot work out the reasoning behind it, they will sometimes feel that certain recommendations are “creepy”

This mixed emotion of fear, anxiety, surprise, and discomfort is familiar; but what are its implications in the context of RS?

Research Questions
- RQ1. How can we describe the creepiness of a recommendation using emotional dimensions?
- RQ2. Which user- and system characteristics influence the creepiness of a recommendation?
- RQ3. How does receiving a creepy recommendation influence users’ purchase intention and brand attitude, expectations about the platform, and trust in the RS?

Exploratory Study Design
- Online survey
- Within-subject
- 171 participants
  - 78 female (45.6%)
  - M_age: 36.57 years
  - SD_age: 11.62 years

- Social trust
- Institution-based trust
- Discomfort with ambiguity
- Decision-making style (REI)
- Current emotional state
- Basic demographics

- Exploration, open-ended
- Scenarios (3x3):
  - Health
  - Hotel
  - Movie

- Variables:
  - Accuracy
  - Causal ambiguity
  - Cross-platform presentation

- Impression of:
  - Brand, product, or service
  - (Recommendation) Platform
  - Future purchase decision
  - Usefulness of recommendation

- User expectations of:
  - Transparency
  - Explanations
  - Controllability
  - Personalized recommendations

Results and Discussion
- Creepiness from a recommendation is unpleasant & characterized by high arousal
  - Creepiness has 55 distinct tuples out of 125

Conducive to feelings of creepiness:
- Causal ambiguity
- Very high accuracy
- Delicate topics (e.g., health)
- Wrong context (e.g., alone)
- Temporal preferences or limited past interaction with the RS

Creepy recommendations affect users’ expectations and attitudes towards RS

Conclusion
- Creepy recommendations can cause intense negative feelings, which affect users’ perception of and trust in the RS
- RS evaluation should include an affective dimension as well
- Implicit preference elicitation, when not explained sufficiently, can contribute to the feeling of creepiness
- Transparency and control can help mitigate recommendation creepiness