UNIVERSITÄT D_U_I_S_B_U_R_G

Open-Minded

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

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

discomfort is familiar; but what are its implications in the context of RS?

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

User characteristics

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

Recommendation properties

- Exploration, open-ended
- Scenarios (3x3):



- Variables:
 - Accuracy

Implications of creepy recommendations

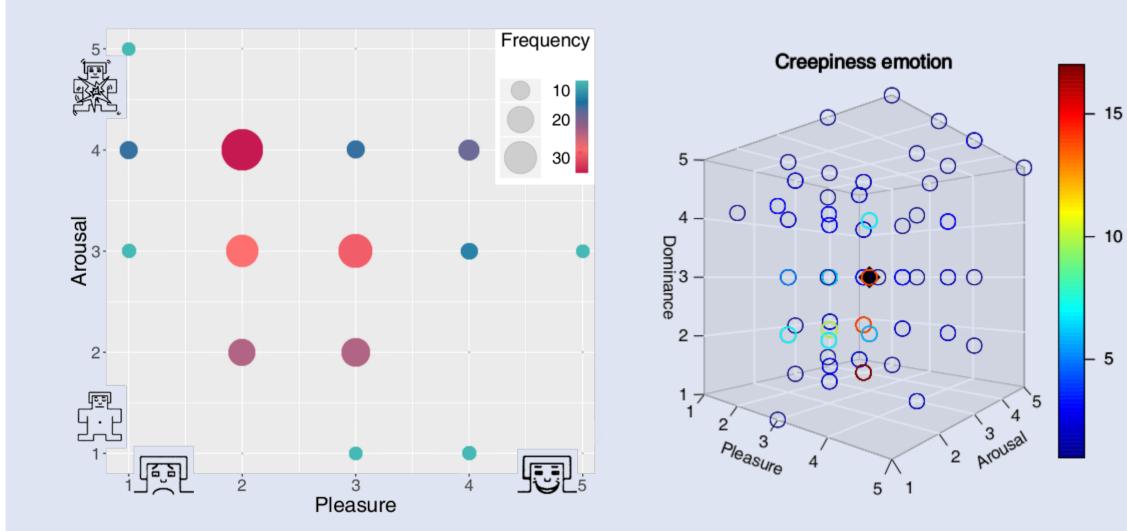
- Impression of:
- Brand, product, or service
- (Recommendation) Platform
- Future purchase decision
- Usefulness of recommendation
- User expectations of:
- Transparency
- Explanations

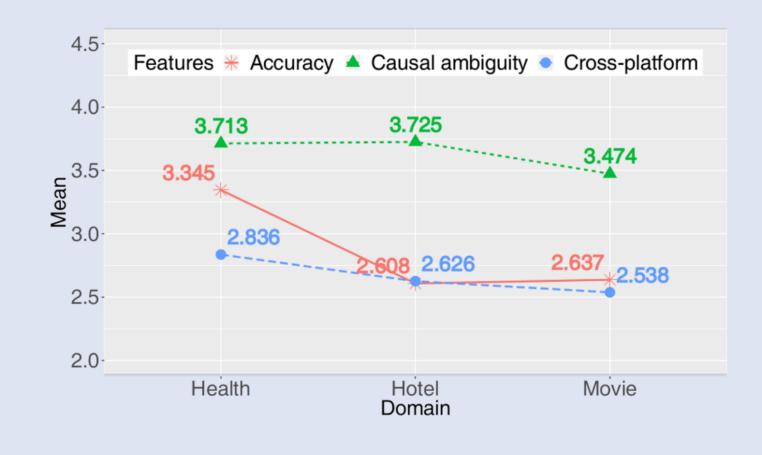
Causal ambiguity

- Cross-platform presentation
- Controllability
- Personalized recommendations

RESULTS AND DISCUSSION

Creepiness from a recommendation is **unpleasant** & characterized by **high arousal** — Creepiness has **55 distinct tuples** out of 125

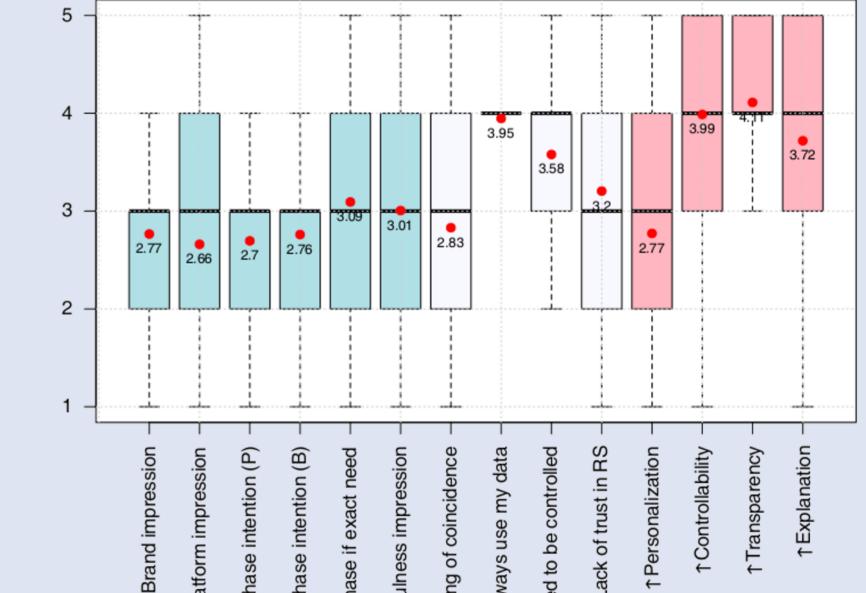




Conducive to feelings of **creepiness**:

— **Temporal** preferences or limited **past**

Creepy recommendations affect users' expectations and attitudes towards RS



interaction with the RS

— Delicate **topics** (e.g., health)

— Wrong **context** (e.g., alone)

CONCLUSION

Creepy recommendations can cause intense negative feelings, which affect users' perception of and trust in the RS

- Causal ambiguity

— Very high **accuracy**

- 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

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