#### **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<sub>Age</sub>: 36.57 years
  - SD<sub>Age</sub>: 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

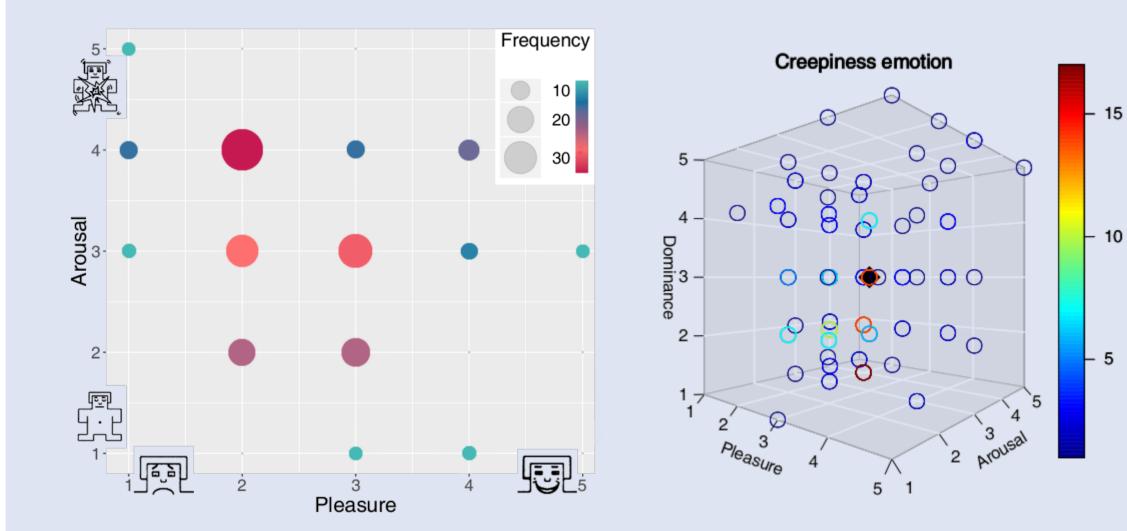
- Impression of:
- Brand, product, or service
- (Recommendation) Platform
- Future purchase decision
- Usefulness of recommendation
- User expectations of:
- Transparency
- Explanations

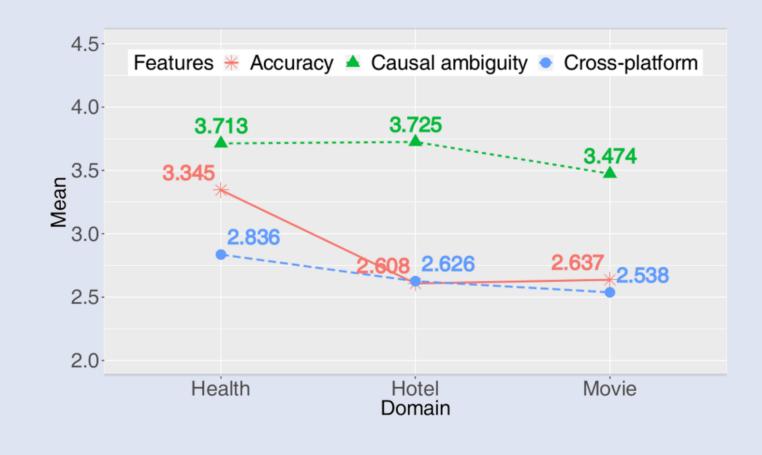
Causal ambiguity

- 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

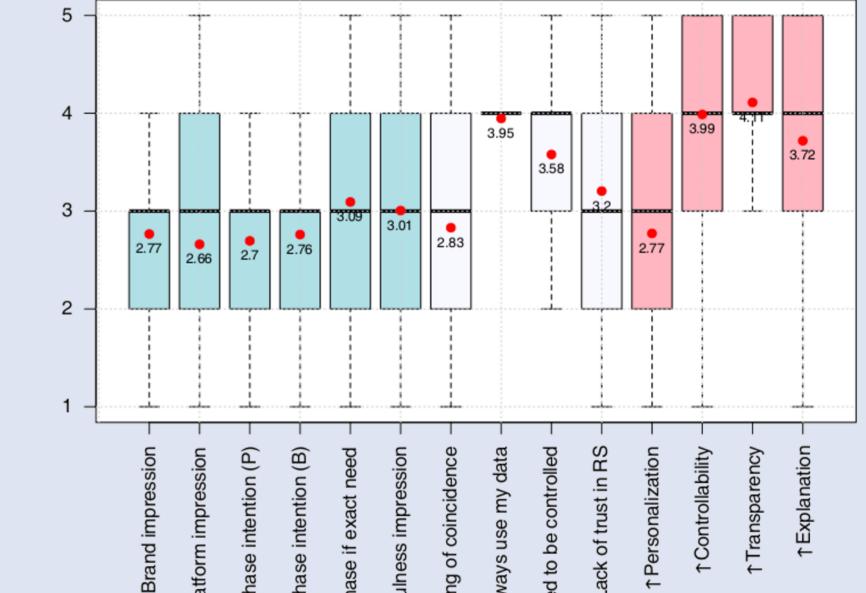




Conducive to feelings of **creepiness**:

— **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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