Second Workshop on Theory-Informed User Modeling for Tailoring and Personalizing Interfaces (HUMANIZE): Workshop Preface

Mark Graus
Human-Technology
Interaction Group
Eindhoven University of
Technology
P.O. Box 513
5600 MB, Eindhoven, NL
m.p.graus@tue.nl

Bruce Ferwerda
Department of Computer
Science and Informatics
School of Engineering
Jönköping University
P.O. Box 1026
SE-551 11, Jönköping, SE
bruce.ferwerda@ju.se

Marko Tkalcic
Faculty of Computer Science
Free University of
Bozen-Bolzano
Piazza Domenicani 3
I-39100, Bozen-Bolzano, IT
marko.tkalcic@unibz.it

Panagiotis Germanakos[*]
UX, Mobile & Business
Services, P&I ICD
SAP SE
Dietmar-Hopp-Allee 16
69190, Walldorf, DE
panagiotis.germanakos@sap.com

ABSTRACT
The second workshop on **Th**eory-Informed **U**ser **M**odeling for **Ta**ilori**n**g and Personal**iz**ing Int**e**rfaces (HUMANIZE)[1] took place in conjunction with the 23rd annual meeting of the intelligent user interfaces (IUI)[2] community in Tokyo, Japan on March 11, 2018. The goal of the workshop was to attract researchers from different fields by accepting contributions on the intersection of practical data mining methods and theoretical knowledge for personalization. A total of eight papers were accepted for this edition of the workshop.

Author Keywords
User modeling, personalization, tailoring, user interfaces

INTRODUCTION
When designing interfaces practitioners often rely on knowledge and experience about the interface's intended users and their needs in order to provide the optimal interface for its users. When creating user interfaces that can be personalized, quite often a more data-driven approach is taken, where practitioners rely on methods that use implicit or explicit feedback to prescribe how to alter an interface.

The current workshop aims at soliciting work that investigates the potential of combining the more practical data mining/machine learning methods with a more theory-driven approach. Three aspects play an important role in taking a more theory-driven approach to personalization:

1. How to consider the users of a system and their individual differences.
2. How to infer these individual differences from interaction data.
3. How to translate individual differences into interface designs.

The characteristics that play a role in what a user needs or wants from a system need to be investigated. Knowing what users differ on allows us to alter the interface. These characteristics can then be used to construct a user model containing this information. Examples of characteristics that may play a role in how to design an optimal interface are cognitive style, personality, and susceptibility to persuasive strategies.

Secondly, there is a challenge of profiling a user in terms of these characteristic based on interaction data. Several approaches exist for this more computational challenge, for example mining data from social media and clickstream analysis.

---

[*]Also affiliated with the Department of Computer Science, University of Cyprus, P.O. Box 20537, 1678, Nicosia, Cyprus, pgerman@cs.ucy.ac.cy

[1] https://humanize2018.wordpress.com/
[2] http://iui.acm.org/2018/

A third aspect is knowing how to adapt an interface to match a certain type of user. When a user's characteristics are known, the interface can be altered to match this user. For example by reducing the number of search results for users under high cognitive load, or manipulating diversity.

These challenges are interconnected and there is no natural order in which these aspects need to be addressed when personalizing an interface. For example, by analyzing behavior data we can identify potential individual characteristics that play a role in people's needs.

HUMANIZE provides scholars and practitioners in the field of personalized user interfaces with a venue to discuss and explore the commonalities between the sub-problems involved with user interface personalization.

An non-exhaustive list of topics for this workshop:

- Identifying models that are (expected to be) useful for personalizing user interfaces (e.g., personality, level of domain knowledge, need for cognition, cognitive styles)
- Data mining methods to infer user profiles in terms of cognitive/psychological user characteristics from data (e.g., how to infer personality from social media or domain knowledge from clickstreams)
- Theory on how to tailor interfaces to better match certain user profiles (e.g., altering the number of search results, ordering of interface elements, visual versus textual representations)
- User studies investigating one or more of the aspects mentioned above

CONTRIBUTIONS
A total of eight papers were accepted: 3 long papers, 4 short papers, and 1 position paper. Papers were categorized into one of the three sessions: 1) Personality, 2) Social, or 3) Health & Wellbeing. Below a description of the accepted papers:

Personality. Lay and Ferwerda [5] proposes a new view on how to incorporate meta data of Instagram users to infer their personality traits. Similarly, Ferwerda and Tkalcic [1] analyzed the content of Instagram pictures and found distinct correlations with personality traits. Zheng [7] on the other hand investigated how personality traits influence individual and group decision making.

Social. Xu and Lee [6] explored what kind of products people choose to share on their social networks that they have bought online. Kunkel et al. [4] compared the effect of personal and impersonal recommendation sources, and investigated the influence of traits of personal recommendation sources on a user's trust in recommendations

Health & Wellbeing Korzepa et al. [3] describes how to use behavioral data for personalized hearing aid profiles. Zhou et al. [8] are using reinforcement learning to generate personalized motivators for fitness applications that are challenging but attainable. Graus et al. [2] showed that personalization based on parenting styles gained a higher perceived personalization and satisfaction than reading-based personalization.

REFERENCES

1. Bruce Ferwerda and Marko Tkalcic. 2018. You Are What You Post: What the Content of Instagram Pictures Tells About Users' Personality. In *Companion Proceedings of the 23rd International on Intelligent User Interfaces: 2nd Workshop on Theory-Informed User Modeling for Tailoring and Personalizing Interfaces (HUMANIZE)*.

2. Mark Graus, Martijn Willemsen, and Chris Snijders. 2018. Personalizing a parenting app: parenting-style surveys beat behavioral reading-based models. In *Companion Proceedings of the 23rd International on Intelligent User Interfaces: 2nd Workshop on Theory-Informed User Modeling for Tailoring and Personalizing Interfaces (HUMANIZE)*.

3. Maciej J Korzepa, Benjamin Johansen, Michael K Petersen, Jan Larsen, Jakob E Larsen, and Niels H Pontoppidan. 2018. Learning preferences and soundscapes for augmented hearing. In *Companion Proceedings of the 23rd International on Intelligent User Interfaces: 2nd Workshop on Theory-Informed User Modeling for Tailoring and Personalizing Interfaces (HUMANIZE)*.

4. Johannes Kunkel, Tim Donkers, Catalin-Mihai Barbu, and Jurgen Ziegler. 2018. Trust-related Effects of Expertise and Similarity Cues in Human-Generated Recommendations. In *Companion Proceedings of the 23rd International on Intelligent User Interfaces: 2nd Workshop on Theory-Informed User Modeling for Tailoring and Personalizing Interfaces (HUMANIZE)*.

5. Alixe Lay and Bruce Ferwerda. 2018. Predicting users' personality based on their 'liked' images on Instagram. In *Companion Proceedings of the 23rd International on Intelligent User Interfaces: 2nd Workshop on Theory-Informed User Modeling for Tailoring and Personalizing Interfaces (HUMANIZE)*.

6. Yu Xu and Michael J Lee. 2018. Shopping as a Social Activity: Understanding People's Categorical Item Sharing Preferences on Social Networks. In *Companion Proceedings of the 23rd International on Intelligent User Interfaces: 2nd Workshop on Theory-Informed User Modeling for Tailoring and Personalizing Interfaces (HUMANIZE)*.

7. Yong Zheng. 2018. Identifying Dominators and Followers in Group Decision Making Based on The Personality Traits. In *Companion Proceedings of the 23rd International on Intelligent User Interfaces: 2nd Workshop on Theory-Informed User Modeling for Tailoring and Personalizing Interfaces (HUMANIZE)*.

8. Mo Zhou, Yonatan Mintz, Yoshimi Fukuoka, Ken Goldberg, Elena Flowers, Philip Kaminsky, Alejandro Castillejo, and Anil Aswani. 2018. Personalizing Mobile Fitness Apps using Reinforcement Learning. In *Companion Proceedings of the 23rd International on Intelligent User Interfaces: 2nd Workshop on Theory-Informed User Modeling for Tailoring and Personalizing Interfaces (HUMANIZE)*.