

Evaluation in Human-Computer Interaction: Beyond Lab Studies

CHI '21 Course

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List of Papers and Links with Examples

Using Existing Stuff

Using existing data sets

- [Khamis et al., 2018] Khamis, Baier, Henze, Alt & Bulling. 2018. Understanding Face and Eye Visibility in Front-Facing Cameras of Smartphones used in the Wild. In Proc. CHI '18.
- Search engine for data sets: <https://datasetsearch.research.google.com/>

Using previously collected log data

- [Alt et al., 2020] Alt, Buschek, Heuss & Müller. 2021. Orbuculum - Predicting When Users Intend to Leave Large Public Displays. In Proc. IMMUT.
- [Henze et al., 2013] Henze, Sahami, Schmidt, Pielot, Michahelles. 2013. Empirical Research through Ubiquitous Data Collection. In IEEE Computer.

Mining existing information

- [Mäkelä and Schmidt, 2020] Mäkelä & Schmidt. 2020. I Don't Care as Long as It's Good: Player Preferences for Real-Time and Turn-Based Combat Systems in Computer RPGs. In Proc. CHI PLAY '20.

Meta studies, synthesis of research results, and literature review

- [Buschek et al., 2018] Buschek, Hassib & Alt. 2018. Personal Mobile Messaging in Context: Chat Augmentations for Expressiveness and Awareness. In ToCHI.
- [Showing Data about People: A Design Space of Anthropographics](#). TVCG

Web and App Usage

Tools

- SoSci: <https://www.soscisurvey.de>
- Search Engine for Data Sets: <https://datasetsearch.research.google.com/>

Recruiting

- Amazon Mechanical Turk: <https://www.mturk.com>
- XRDRN (Recruit VR participants remotely): <https://www.xrdrn.org>
- Prolific: <https://www.prolific.co>

Creating (stand-alone) applications

- [Schneegass et al., 2014] Schneegass, Steimle, Bulling, Alt & Schmidt. 2014. SmudgeSafe: geometric image transformations for smudge-resistant user authentication. In Proc. UbiComp '14).
- [von Zezschwitz et al., 2016] von Zezschwitz, Eiband, Buschek, Oberhuber, De Luca, Alt, & Hussmann. 2016. On quantifying the effective password space of grid-based unlock gestures. In Proc. MUM '16.

Piggybacking experiment

- [Buschek et al., 2018] Buschek, Bisinger & Alt. 2018. ResearchIME: A Mobile Keyboard Application for Studying Free Typing Behaviour in the Wild. In Proc. CHI '18.
- [Henze et al., 2013] Henze, Sahami, Schmidt, Pielot, Michahelles. 2013. Empirical Research through Ubiquitous Data Collection. In IEEE Computer.

How to ask for consent: <http://pielot.org/wp-content/uploads/2011/03/Pielot2011-Consent.pdf>

New Methods

Ethnographic

- Martin Porcheron, Joel E. Fischer, Stuart Reeves, and Sarah Sharples. 2018. Voice Interfaces in Everyday Life. In Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18). Association for Computing Machinery, New York, NY, USA, Paper 640, 1–12. DOI:<https://doi.org/10.1145/3173574.3174214>

Users at Home

Engage with users through remote communication

- [Fröhlich et al., 2021] Fröhlich, Wagenhaus, Schmidt, Alt. Don't stop me know! Exploring Challenges of First-Time Cryptocurrency Users. In Proc. DIS '21 (to appear)
- [Rivu et al., 2021]. Rivu, Mäkelä, Prange, Delgado Rodriguez, Piening, Zhou, Köhle, Pfeuffer, Abdelrahman, Hoppe, Schmidt, & Alt. 2021. Remote VR Studies: A Framework for Running Virtual Reality Studies Remotely Via Participant-Owned HMDs. arXiv preprint. [CASE STUDY 2]
- [Thomas and Holmquist 2021] Derianna Thomas and Lars E. Holmquist. 2021. Is Functionality All That Matters? Examining Everyday User Opinions of Augmented Reality Devices. In IEEE 7th Workshop on Everyday Virtual Reality (WEVR). IEEE. https://wevr.adalsimeone.me/2021/WEVR2021_Thomas.pdf

Create prototypes that can be experienced remotely

- [Rivu et al., 2021]. Rivu, Mäkelä, Prange, Delgado Rodriguez, Piening, Zhou, Köhle, Pfeuffer, Abdelrahman, Hoppe, Schmidt, & Alt. 2021. Remote VR Studies: A Framework for Running Virtual Reality Studies Remotely Via Participant-Owned HMDs. arXiv preprint. [CASE STUDY 1]

Supply study equipment to your users at home

- [Bramley et al., 2018] Bramley, Goode, Anderson, & Mary. 2018. Researching in-store, at home: Using virtual reality within quantitative surveys. International Journal of Market Research 60, 4 (2018), 344–351.
- [Prange et al., 2019] Prange, Tiefenau, von Zezschwitz, Alt. Towards Understanding User interaction in Future Smart Homes. In Proc. CHI EA'19.

New Approaches to Evaluation

Running studies in virtual reality

- [Mäkelä et al., 2020]. Mäkelä, Radiah, Alsherif, Khamis, Xiao, Borchert, Schmidt, & Alt. 2020. Virtual Field Studies: Conducting Studies on Public Displays in Virtual Reality. In Proc. CHI '20.
- [Rivu et al., 2021]. Rivu, Jiang, Mäkelä, Hassib, & Alt. 2021. Exploring Emotions and Emotion Elicitation Techniques in Virtual Reality. In Proc. INTERACT '21 (to appear).
- [Rivu et al., 2021]. Rivu, Mäkelä, Prange, Delgado Rodriguez, Piening, Zhou, Köhle, Pfeuffer, Abdelrahman, Hoppe, Schmidt, & Alt. 2021. Remote VR Studies: A Framework for Running Virtual Reality Studies Remotely Via Participant-Owned HMDs. *arXiv preprint*.

- [Saffo et al., 2021] Saffo, Di Bartolomeo, Yildirim, & Dunne. 2021. Remote and Collaborative Virtual Reality Experiments via Social VR Platforms. In Proc. CHI '21.

Use analytic and computational evaluation

- [Schneegaß et al., 2011] Schneegaß, Pfleging, Kern, & Schmidt. 2011. Support for modeling interaction with automotive user interfaces. In Proc. AutomotiveUI '11.

OpenFace 2.0: <https://github.com/TadasBaltrusaitis/OpenFace/releases>

OpenSense: <https://github.com/intelligent-human-perception-laboratory/OpenSens>

Change to technical evaluation rather than working with users

- [Hoppe et al., 2021] <https://thomaskosch.com/wp-content/papercite-data/pdf/hoppe2021odins.pdf>
Matthias Hoppe, Daria Oskina, Albrecht Schmidt, and Thomas Kosch. 2021. Odin's Helmet: A Head-Worn Haptic Feedback Device to Simulate G-Forces on the Human Body in Virtual Reality. Proc. ACM Hum.-Comput. Interact. 5, EICS, Article 212 (June 2021), 15 pages. <https://doi.org/10.1145/3461734>