SmartObjects: Fifth Workshop on Interacting with Smart Objects

Conference Paper · March 2017

DOI: 10.1145/3030024.3040249

6 authors, including:

Dirk Schnelle-Walka
modality.ai
72 PUBLICATIONS **215** CITATIONS
SEE PROFILE

Tobias Grosse-Puppendahl
Dr. Ing. h.c. F. Porsche
34 PUBLICATIONS **438** CITATIONS
SEE PROFILE

Max Mühlhäuser
Technische Universität Darmstadt
635 PUBLICATIONS **4,850** CITATIONS
SEE PROFILE

Oliver Brdiczka
96 PUBLICATIONS **2,467** CITATIONS
SEE PROFILE

SmartObjects: Fifth Workshop on Interacting with Smart Objects

Dirk Schnelle-Walka
Harman International
Germany
dirk.schnelle-walka@harman.com

Mohammadreza Khalilbeigi
TU Darmstadt
jkhalilbeigi@tk.informatik.tu-darmstadt.de

Tobias Grosse-Puppendahl
Microsoft Research
United Kingdom
tgp@microsoft.com

Benedikt Schmidt
TU Darmstadt
Germany
benedikt.schmidt@tk.informatik.tu-darmstadt.de

Kris Luyten
Hasselt University - tUL - iMinds, Expertise Centre for Digital Media, Belgium
kris.luyten@uhasslet.be

Oliver Brdiczka
Vectra Networks
USA
brdiczka@acm.org

Max Mühlhäuser
TU Darmstadt
Germany
max@informatik.tu-darmstadt.de

ABSTRACT
The increasing number of smart objects in our everyday life shapes how we interact beyond the desktop. In this workshop we discuss how the interaction with these smart objects should be designed from various perspectives.

Author Keywords
smart objects; HCI; novel interaction; multimodal and adapter interaction; context-awareness; embodied interaction; tangible interaction; enabling techologies

ACM Classification Keywords
H.5.m User Interfaces: Miscellaneous

INTERACTING WITH SMART OBJECTS
There is an ongoing trend to put computing capabilities into everyday objects, turning them into smart objects [6]. Well known examples range from smart kitchen appliances (smart coffee machines, smart knifes and cuttings boards) [1, 2], over smart (tangible) objects [4, 5] smart cars [13] to even urban infrastructures [10]. Other examples deal with the fabrication of smart objects [12], smart sensory augmentation [11] and smart spaces [3].

WORKSHOP CONTENT
While other venues have focused on the many technical challenges of implementing smart objects, far less research has been done on how the intelligence situated in these smart objects can be applied to improve their interaction with the users. This field of research poses unique challenges and opportunities for designing smart interaction. Smart objects typically have only very limited interaction capabilities. Yet, their behavior exhibits an amazing amount of intelligence. More information about the previous workshops can be found on our website at `http://www.smart-objects.org/`.

PARTICIPANTS AND WORKSHOP PUBLICITY
The workshop will have an interdisciplinary appeal. We expect participants from the areas of IUI, HCI, UbiComp, IoT and related areas like psychology and product design. The program committee comprises researchers that are active in these research areas and who, moreover, plan to encourage researchers, also from their institutes, to submit to this workshop. Thereby, we ensure active participation in preparation and execution of the workshop. We will especially encourage young scientists and Ph.D. students to submit papers to explore their research topics with domain experts. The call for papers and participation will be distributed through well-established mailing lists and websites in various research communities, including IUI, CHI, UIST, UbiComp, ITS and

TEI. We also plan to promote the workshop through our website and OSNs. The previous workshops were very successful and we expect word of mouth to attract others to our workshop as well. Based upon the good experience with our last workshop, we expect approximately 15 participants. The results of the workshop will be made available on the workshop website as well as in the CEUR proceedings.

FORMAT

We plan for a full-day workshop with submissions in the following three categories: (i) position papers and posters (2 pages) focusing on novel concepts or works in progress, (ii) demo submissions (2 pages) and (iii) full papers (4-6 pages) covering a finished piece of novel research. Our goal is to attract high-quality submissions from several research disciplines to encourage and shape the discussion, thus, advancing the research of interacting with smart objects. An invited talk of a renowned senior researcher will open the workshop with a keynote to inspire the participants. To stimulate discussion between the workshop participants we plan a poster and demo session to spark further in-depth discussions on selected topics. We also plan to collect topics during the workshop whereby we want to focus on combining complementary topics. Therefore, the workshop chairs will take special care about those topics that receive most attraction during the discussion and sort them. This will serve as a starting point for a dedicated agenda item to select topics to discuss. In the previous workshops this strategy lead to a lively and productive discussion during the remainder of the conference. We also plan to summarize the outcome and publish it on the workshops website in addition to the CEUR proceedings. This publication strategy will attract higher quality submissions, and increase the exposure of the workshop before and after the event.

ORGANIZERS AND PROGRAM COMMITTEE

Most of the organizers were already members of the first three workshops on interacting with smart objects, held in conjunction with IUI 2011 [2], 2013 [7], 2014 [8] and 2015 [9].

Dirk Schnelle-Walka is a Functional Owner for Speech & Dialog at the Connected Car Division of Harman International. His main research interest is on multimodal interaction in smart spaces and automotive.
Mohammadreza Khalilbeigi is a postdoctoral researcher at the Telecooperation Lab at TU Darmstadt. His focus is on enriching the interaction with computers by designing more physical ways of interacting with digital world.
Tobias Grosse-Puppendahl is a postdoctoral researcher at Microsoft Research, Cambridge, UK. He investigates and develops new methods of sensing human interactions with devices and environments.
Benedikt Schmidt is a postdoctoral researcher at the Telecooperation Lab at TU Darmstadt. His research focus are techniques to derive interests and habits from data collected with personal devices to identify and support individual intentions.
Kris Luyten is full professor at the Expertise Centre for Digital Media - iMinds, Hasselt University. His research focuses on engineering interactive systems, ubicomp, multitouch interfaces and HCI in general.
Oliver Brdiczka is a Principal Data Scientist at Vectra Networks, Inc. where he leads the research on insider threat and anomaly detection. Before that, he was area manager of Contextual Intelligence at Palo Alto Research Center (PARC) where his group's research focused on constructing models for human activity from various sensor inputs using machine learning.
Max Mühlhäuser is full professor and heads the Telecooperation Lab at TU Darmstadt. He has over 300 publications on ubicomp, HCI, IUI, e-learning and multimedia.

The preliminary list of program committee members is as follows: **Bo Begole** (Samsung, USA), **Marco Blumendorf** (smartB, Germany), **Aba-Sah Dadzie** (Open University, United Kingdom), **Alexander Kröner** (Technische Hochschule Nürnberg, Germany), **Germán Montoro** (UAM, Spain), **Patrick Reignier** (Inria, France), **Geert Vanderhulst** (Alcatel-Lucent Bell Laboratories, Belgium) and **Raphael Wimmer** (Universität Regensburg, Germany). PC members will help the organizers to publicize the event in more scientific communities and allow for a competent peer-review process. All submissions will be peer-reviewed by at least two reviewers.

REFERENCES

1. Filipponi, L., Vitaletti, A., Landi, G., Memeo, V., Laura, G., and Pucci, P. Smart city: An event driven architecture for monitoring public spaces with heterogeneous sensors. In *Sensor Technologies and Applications (SENSORCOMM), 2010 Fourth International Conference on*, IEEE (2010), 281–286.
2. Hartmann, M., Schreiber, D., Luyten, K., Brdiczka, O., and Mühlhäuser, M. Workshop on interacting with smart objects. In *Proceedings of the 16th international conference on Intelligent user interfaces*, ACM (2011), 481–482.
3. Helal, S., and Tarkoma, S. Smart spaces. *IEEE Pervasive Computing*, 2 (2015), 22–23.
4. Kortuem, G., Kawsar, F., Fitton, D., and Sundramoorthy, V. Smart objects as building blocks for the internet of things. *Internet Computing, IEEE 14*, 1 (2010), 44–51.
5. Molyneaux, D., and Gellersen, H. Projected interfaces: enabling serendipitous interaction with smart tangible objects. In *Proceedings of the 3rd International Conference on Tangible and Embedded Interaction*, ACM (2009), 385–392.
6. Molyneaux, D., Izadi, S., Kim, D., Hilliges, O., Hodges, S., Cao, X., Butler, A., and Gellersen, H. Interactive environment-aware handheld projectors for pervasive computing spaces. In *Pervasive Computing*. Springer, 2012, 197–215.
7. Schnelle-Walka, D., Huber, J., Lissermann, R., Brdiczka, O., Luyten, K., and Mühlhäuser, M. SmartObjects: Second IUI Workshop on Interacting with Smart Objects. In *Proceedings of the 2013 ACM international conference on Intelligent User Interfaces*, ACM (Santa Monica, CA, USA, Mar. 2013).

8. Schnelle-Walka, D., Huber, J., Radomski, S., Brdiczka, O., Luyten, K., and Mühlhäuser, M. SmartObjects: Third Workshop on Interacting with Smart Objects. In *Proceedings of the companion publication of the 19th international conference on Intelligent User Interfaces*, ACM (Mar. 2014), 45–46.
9. Schnelle-Walka, Dirk Radomski, S., Grosse-Puppendahl, T., Huber, J., Brdiczka, O., Luyten, K., and Mühlhäuser, M. SmartObjects: Fourth Workshop on Interacting with Smart Objects. In *IUI '15 Proceedings of the 20th International Conference on Intelligent User Interface*, ACM (2015), 453–454.
10. Shepard, M. *Sentient City: Ubiquitous Computing, Architecture, and the Future of Urban Space*. The MIT Press, 2011.
11. Shull, P. B., and Damian, D. D. Haptic wearables as sensory replacement, sensory augmentation and trainer–a review. *Journal of neuroengineering and rehabilitation 12*, 1 (2015), 59.
12. Tanenbaum, J. G., Williams, A. M., Desjardins, A., and Tanenbaum, K. Democratizing technology: Pleasure, utility and expressiveness in diy and maker practice. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, CHI '13, ACM (New York, NY, USA, 2013), 2603–2612.
13. Wu, Z., and Pan, G. Smart car space: An application. In *SmartShadow: Models and Methods for Pervasive Computing*, Springer (2013), 101–127.