



ABCDE



Scientific Report

First name / Family name

Petra Sundström

Nationality

Swedish

Name of the *Host Organisation*

University of Salzburg

First Name / family name
of the *Scientific Coordinator*

Manfred Tscheligi

Period of the fellowship

01/10/2011 to 30/09/2012



I – SCIENTIFIC ACTIVITY DURING YOUR FELLOWSHIP

My main activity during my postdoctoral year has been the project I set up and ran with the design team, the car team and the basic team - *the safe seating project*. This was a project where we explored how we could make it fun for a small child (3-8) to sit still and thereby potentially more safe, while being transported by car. Taking an explorative stance we have developed three systems that explore this idea in three different ways, focusing on three different bodily aspects of sitting still, and using three different combinations of digital materials.

The three games we developed are *RainbowBalance*, *emoCar* and *GhostCatcher*. *RainbowBalance* is a game where we focus on balance and where we play with the accelerating forces everything in the car is exposed to while driving. In this game the goal is to balance a virtual ball that changes colour over time. This way a child can collect the colours of a full rainbow and get hold of the treasure at the end of the rainbow. Our second game, *emoCar*, is a game where the car itself is said to be getting emotional from how it is driven, i.e. angrier when having to break, happier when speeding up, and more sad when nothing happens, such as when standing still in front of a traffic light. In this game this affects the direction of a small avatar car driving on the roads between happiness, anger and sadness. The goal of the game for the child is to “catch” this avatar car (i.e. be on the same position) by expressing the emotion in the direction the avatar car is heading. Our last game, *GhostCatcher*, is a game that in contrast to the other two does not use an ordinary screen display. Instead it is a jar that expresses how many ghosts it holds through vibration and sound. The challenge for the child is to open the jar when the car is exposed to darkness, e.g. when driving into a shadow or a tunnel. By opening the jar in darkness, the child captures the ghosts in the jar, which then starts to vibrate and make noises. As long as there is darkness the child can hold the jar open and capture more and more ghosts (the vibration and noises will increase). If it then does not manage to close the jar before lightness takes place, i.e. before driving out of the shadow or the tunnel, the ghosts will all run away and the jar will stop moving and making sounds.

All three games have been extensively tested (publication to be submitted to CHI'13) and on a general level they have all shown to fulfil their purpose, making children 3-8 find it fun to sit still and thereby potentially more safe. What is especially interesting with these games is how they do not inform or educate children in the reasons for why they need to sit still (not that that is not important). Instead they provide an exciting experience the children want to engage in, where an effect of gameplay is that they sit as we want them to, i.e. sort of still, upright and leaned back, and thereby potentially more safe. In a way our games lure the children to sit safe by making it an integral part of gameplay, i.e. something they for various reasons want to do to advance in the games. But also the games do not award safe seating as such. For long-term motivation our strong conviction is that a game experience needs to be far more sophisticated than that. What might be further interesting as a take-away message from the safe seating project can therefore be how we used the car itself both to direct this design exploration but also as a “material” to take inspiration from. Gaming in cars, for safety reasons, cannot be like gaming at home, but also not should be. Gaming in cars has the potential though of making use of all the cool properties of the car itself, the practice of driving, and of driving as a socially shared experience.



This was a project I both directed and was the "inventor" of, and a project I am now writing up for CHI, the premier international conference for interaction design and HCI.

During my postdoctoral year I also took part in a project concerning books as becoming more and more digital, but how we see how physical books in the context of the home are being used for so many other things than simply for reading. They are for example used to brag and convey personality by showing them off in carefully selected ways, or as a way to create a feeling of hominess, or even as a way to balance an unbalanced table. For our project we used this understanding of the extended usage of books to direct a design exercise for how to create structure and overview in potentially large amounts of digital books.

Both these projects have had me work in truly multidisciplinary design teams where aspects of academic research that I have come to take for granted, such as explorative design as a valid research approach, have been questioned. This, have had me rethink certain things, but also it has had me find other and sometimes better ways of communicating the things I strongly believe in - such as how I believe interaction design needs a better grounding in digital materials, i.e. software, hardware and their compositions.

At large, my postdoctoral year has given me the opportunity to develop my more mentoring skills. This, in that Professor Manfred Tscheligi already from start put me in the role of "external advisor". My first task was to spend one week in each of the teams, the design team, the car team, the robot team, the basic team, and the team focusing on well being, read their latest papers, discuss with them, and if I could, propose alternative ways for how to do things. This guiding role has then continued in me trying to help with supervision and paper writing whenever I have felt capable in terms of research topic and scope.

II – PUBLICATION(S) DURING YOUR FELLOWSHIP

REFEREED CONFERENCES – FULL PAPERS

Kandlhofer, M., Steinbauer, G., Sundström, P., and Weiss, A. (2012) Evaluating the long-term impact of RoboCupJunior: A first investigation, RiE'12, Prague, Czech Republic. (authors in alphabetical order, paper prepared during fellowship)

Müller, I., Sundström, P., et al. (2012) Gaming After Dark – Visual Patterns and their Significance for Atmosphere and Emotional Experience in Video Games, ICEC'12, Bremen, Germany. (paper prepared during fellowship)

Fernaesus, Y., and Sundström, P. (2012) The Material Move – How Material Matters in Interaction Design Research, DIS'12, Newcastle, UK. (authors in alphabetical order, paper rewritten during fellowship)

Solsona, J., Lundén, M., Laaksolahti, J., and Sundström, P. (2012) Immaterial Materials: Designing with Radio, TEI'12, Kingston, Canada.



REFEREED CONFERENCES – NOTES, SHORT PAPERS & EXTENDED ABSTRACTS

Meneweger, T., Sundström, P., et al. (forthcoming in October at NordiCHI'12) How Designers can make Sense of Qualitative Research Findings: A Case Study, Short Paper at NordiCHI'12, Copenhagen, Denmark. (paper prepared during fellowship)

REFEREED CONFERENCES – PANEL PROPOSALS

Wiberg, M., Ishii, H., Rosner, D., Vallgård, A., Dourish, P., Sundström, P., Kerridge, T., and Rolston, M., (2012) Material Interactions – From Atoms & Bits to Entangled Practices. Panel at CHI'12, Austin, Texas.

REFEREED CONFERENCES – WORKSHOP PROPOSALS

Sundström, P., Wilfinger, D., et al. (2012) The Car as an Arena for Gaming, Workshop at MobileHCI'12, San Francisco, CA. (paper prepared during fellowship)

Obrist, M., Wurhofer, D., Sundström, P., Beck, E., Buie, E., and Hoonhout, J., (2012) The Message in the Bottle: Best Practices for Transferring the Knowledge from Qualitative User Studies, Workshop at DIS'12, Newcastle, UK. (paper prepared during fellowship)

WORKSHOP PAPERS

Perterer, N., Sundström, P., et al. (forthcoming in October at AUI'12) Social Activities In the Car: An Ethnographic Study of Driver-Passenger Pairs as Inspirations for Future “AcDAS” . At “The social Car” workshop at AUI'12, Portsmouth, NH. (paper prepared during fellowship)

Müller, I., Sundström, P., et al. (2012) The Games we have built make it Fun to Sit Safe! But are they Serious Games?, At the “Opportunities and Challenges when Designing and Developing Games with/for Kids” workshop at Fun and Games'12, Toulouse, France. (paper prepared during fellowship)

Meneweger, T., Sundström, P., and Tscheligi, M. (2012) From Typology to Design using Design Spaces and the Extreme Characters method, At the “The Message in the Bottle: Best Practices for Transferring the Knowledge from Qualitative User Studies”, Workshop at DIS'12, Newcastle, UK. (paper prepared during fellowship)

Sundström, P., Murer, M., et al. (2012) A Design Exploration of Cars, Kids, Calmness and Gaming, At the “from Materials to Materiality” workshop at CHI'12, Austin, Texas. (paper prepared during fellowship)

Sundström, P., Osswald, S., and Tscheligi, M. (2011) From tangible bits to seamful designs: Learnings from HCI research, At the “AutoNUI: Automotive Natural User Interfaces” workshop at AUI'11, Salzburg Austria. (2011). (paper prepared during fellowship)



FULL PAPERS IN SUBMISSION

Sundström, P., Baumgartner, A., Beck, E., et al. (in submission to CHI'13) Motionless Bodily Experiences – Games for Backseat Fun (paper prepared during fellowship)

Perterer, N., Sundström, P., et al. (in submission to CSCW'13) Come Drive with Me: An Ethnographic Study of Driver-Passenger Pairs to Inform Future In-Car Assistance (paper prepared during fellowship)

Meschtscherjakov, A., Wilfinger, D., Osswald, S., Perterer, N., Sundström, P., Tscheligi, M. (in submission to ToCHI) Born to be Wild: Challenges and Insights of Automotive In-the-wild Studies (paper prepared during fellowship)

III – ATTENDED SEMINARS, WORKHOPS, CONFERENCES

CHI 2012, Austin, Texas, USA. (<http://chi2012.acm.org/>)

- Panelist as part of the panel “Material Interactions – From Atoms & Bits to Entangled Practices”, see publications above
- Attended the workshop “from Materials to Materiality” with the workshop paper “A Design Exploration of Cars, Kids, Calmness and Gaming”, see publications above
- Co-Madness Chair

DIS 2012, Newcastle, UK. (<http://www.dis2012.org/>)

- Paper presentation “The Material Move. How Materials Matter in Interaction Design Research”, see publications above.
- Attended the workshop “The Message in the Bottle: Best Practices for Transferring the Knowledge from Qualitative User Studies“ with the workshop paper “”, A workshop I also co-organized, see publications above.

AUI 2011, Salzburg, Austria. (<http://www.auto-ui.org/11/>)

- Attended the workshop “Automotive Natural User Interfaces” with the workshop paper “From tangible bits to seamful designs: Learnings from HCI research”, see publications above

IV – RESEARCH EXCHANGE PROGRAMME (REP)

19-23/3 2012 Head of Competence Center Matthias Peissner (IAO, Fraunhofer, Stuttgart).

Gave a presentation and discussed potential future collaborations. During the stay I also visited the research team directed by Albrecht Schmidt at Stuttgart University situated right next to IAO.

17-21/9 2012 Doctor Leif Oppermann (FIT, Fraunhofer, Bonn).

Will go there during my second to last week on my fellowship period, i.e. after this document is due.