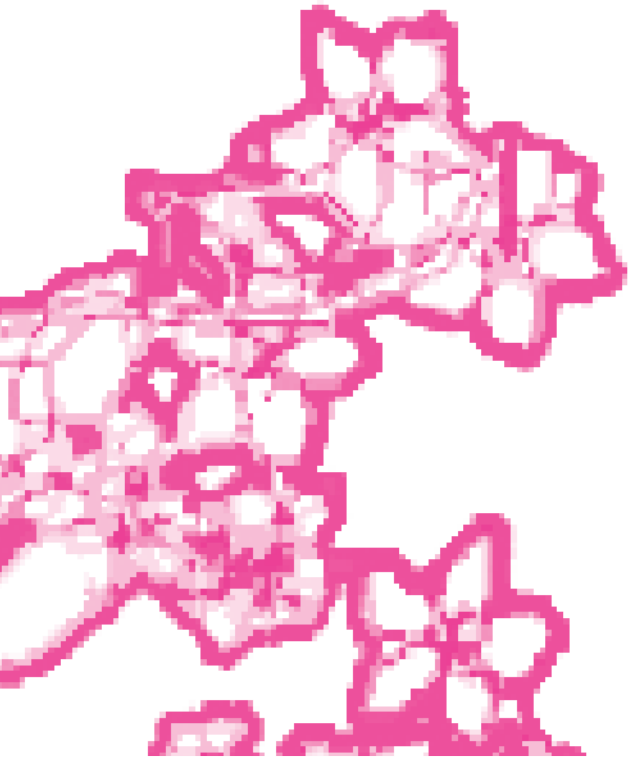
Mobile Life
VINN Excellence Centre

.....the first year



Contents

Mobile Life – The First Year

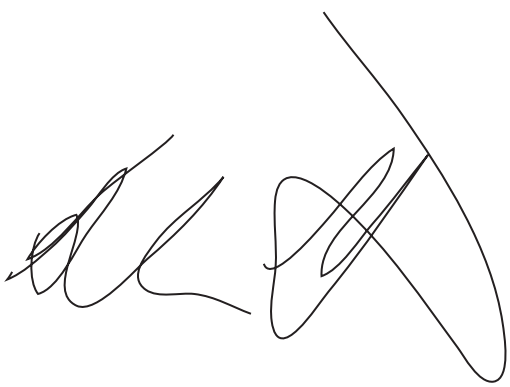
Mobile Life VINN Excellence Centre started in April 2007 and will continue until March 2017. After slightly more than a year of work, we are now proud to present the results from the Centre for the time period April 2007 – August 2008.

The Mobile Life Centre at Stockholm University in Kista, Sweden, does research in mobile services and ubiquitous computing. The topic of the Centre includes research on consumer-oriented mobile and ubiquitous services spanning all areas from entertainment and socialization to work and society. The Centre joins forces with local research organization such as SICS and Interactive Institute. It has major partners from the IT and telecom industry, including Ericsson Research, TeliaSonera, Sony Ericsson and Microsoft Research Ltd. Partnerships in the public sector, including City of Stockholm Municipality and Kista Science City secure societal relevance, and collaboration with Stockholm Innovation and Growth ensures that results are integrated in the innovation system. In the Centre, this academic, industrial and public partnership will be able to jointly work on strategically important projects that can provide a sustainable growth for Sweden. The Centre is funded by VINNOVA on a 10 year grant, 2007 - 2017.

The Centre adopts a fundamentally user-oriented perspective on services for the future mobile life. It provides a neutral arena where researchers and industrial partners together develop:

- New interaction models and platforms that provide a unified interface across different applications and terminals
- Efficient and user-oriented methods for developing mobile services
- A deepened understanding of the unique properties of the future mobile life
- A future mobile service eco-system where we explore alternative universes for infrastructure, business models and the industry's new roles
- New mobile and ubiquitous services in areas such as pervasive games, social, emotional and bodily communication and new mobile media.

Kristina Höök



Partner descriptions

Research organisations

Stockholm University

Mobile Life is organized as a unit under the Department of Computer and Systems Sciences (DSV) in Kista. The Centre is physically located in the Kista campus in the Electrum building. Through Stockholm University, the research in the Centre is well connected with undergraduate and graduate educations. Students employed the Centre are enrolled in the masters and doctorate programs within the University, primarily in the Computer and Systems department. Senior researchers will be actively involved in the formation of new such programs, primarily in this department but also in other departments within Stockholm University and the Royal Institute of Technology (KTH).

SICS and Interactive Institute AB (II)

The role of SICS and Interactive Institute AB in Mobile Life Centre will be that of a co-executor of research together with Stockholm University, some of the research will be contracted to SICS and Interactive Institute. Both have their main offices in Kista.

Industry partners

The group of industry partners for the Centre is expected to grow during the Centre life time, reflecting that the industry for mobile services will grow and to some extent mature during this period. Here, we describe the set of partners that are involved from start.

Ericsson AB

Ericsson is a world-leading provider of telecommunications equipment and related services, to mobile and fixed network operators globally. Ericsson Research will provide the Centre with concrete technology as well as deep knowledge in the opportunities and limitations of future telecommunications systems and their interaction with other technology such as WiFi and peer-to-peer networking.

TeliaSonera AB

TeliaSonera is the leading telecommunications company in the Nordic and Baltic region. TeliaSonera bring to the Centre its vast experience of service provisioning, both from a cultural and business technology but also on multiple platforms including both fixed and mobile telephony, hot spot wireless communication, portals and communities.

Sony Ericsson AB

Sony Ericsson Mobile Communications is a global provider of mobile multimedia devices, including feature-rich phones and accessories, PC cards and M2M solutions. Sony Ericsson brings to the Centre both the technical, practical, and business requirements associated to the development of novel and innovative mobile devices.

Microsoft Research Ltd

Microsoft Research Ltd has identified three key domains in which support from Microsoft will enable University researchers to achieve the greatest progress: the emerging computing environment, transformation of science through computing, and advancing computer science curriculum. Through its focus on social and mobile services, the Mobile Life Centre targets the first of these areas. The researchers of the Centre have a well-established collaboration with Microsoft Research Ltd in Cambridge, furthering in particular the deep understanding of information technology use in everyday life activities.

Public sector representatives

City of Stockholm Municipality

Within Sweden as a whole, the Stockholm region and Kista play a crucial role in the establishment of a consumer-oriented service industry. This role has been recognised by the City of Stockholm that has chosen to establish and participate in several initiatives focused on this sector, including the Mobile City Initiative (MCI), the Kista Mobile Showcase, and now to participate in the Mobile Life Centre. The City of Stockholm plays a natural central role in the Mobile Life Centre, through providing multiple channels for local collaboration, dissemination, and take-up with both small and large companies. The city of Stockholm contributes to the Centre by being prepared to be test-users representing the public sector. Furthermore the City strives at coordinating and cooperating regarding the various mobile initiatives in the city.

Kista Science City AB

Kista Science City brings to the competence Centre its project 'Kista Mobile Showcase' as well as several contact networks for small- and medium sized service development companies in the Stockholm area. The Kista Mobile Showcase is a physical test- and demonstration platform for the concrete presentation and dissemination of results, where the industry partners have provided both hardware and software for demonstration purposes. Kista Science City will set up a framework which enables its showcase partners and network members to participate in the Mobile Life Centre activities, further strengthening the dissemination and take-up potential for the Centre.

Innovation system partner

STING

Stockholm Innovation & Growth (STING), founded 2001, is a support 'system' for technology startups. The ambition is to generate more technology startups through a well-designed extensive support system. STING provides support for entrepreneurs at a very early stage continuing throughout the growth process. The aim of STING is to commercialize ideas from the IT-university, research institutes and spin-offs from company employees. STING offers support for entrepreneurs in four sequential programs named Startup, Business Lab, Business Accelerator and Go Global. STING also offers pre-seed capital via Sting Capital, a new venture capital company for technology startups.

Projects

The research in the Centre is organized in centre-spanning *theme projects* which tackle problems of general concern to the Centre; and *domain projects*, which for instance explore a specific usage group or a novel technology.

Theme project: Mobile Eco-Systems

The Centre will do justice to the users' role as customers of mobile services. We will study, and also do experimental research, on the organisational and economical landscape in which the service is placed.

In our vision, the mobile eco-system of the future will be an abundant market for mobile services, targeted to please different customers and different interests. It will be possible to share mobile services between users irrespective of their choice of mobile device, operator or country. The industry will support a rich and dynamic generation of services, even including the users themselves as service providers.

Our ambition is to approach the future mobile service market in the same innovative and experimental way as we approach the individual domains: by experiments with alternate market spaces for mobile services and ubiquitous technology. The key goal is to understand how a mobile service eco-system can be made to work.

During the first year of Mobile Life, the Eco-system project has made progress through a series of workshops. A white paper was produced which describes the eco-system of today, the technology and market opportunities and obstacles, as well as outlines the research needed to make progress towards the Centers' vision.

The Mobile Eco-systems project will continue in the second year of Mobile Life as a series of workshops focusing on critical issues. Based on these discussions, the Eco-system project steering group will initiate concrete investigations as experiments and prototype projects. Large-scale tests will be organized in collaboration with testbed communities both within the company organizations as well as external. One such project was already started, the Mobile 2.0 project which has taken its core issues from the discussions in the Eco-system workshops.

Contact: Annika Waern, annika@sics.se

Theme project: Generalized interaction models for mobile services

This project aims to develop generalised models for how users can interact efficiently and intuitively with a wide range of mobile services, without having to learn a new interface or metaphor for each one.

Currently, mobile devices often make use of variations of the desktop metaphor, originally developed by Xerox PARC in the 1970's for document processing on stationary computers. This is problematic for several reasons. The obvious one is the small size of the device as such, which can make pointing and direct manipulation problematic. More interestingly, mobile devices are used in shifting contexts and many mobile and ubiquitous services weave together environmental factors such as the context, other devices, other people and physical artefacts with the core functionality. They also often make heavy use of various wireless technologies, which can offer widely different capabilities according to the different circumstances in which the user is situated.

We believe that mobile services should not imitate the models invented for stationary workstations, but find their own shape and nature. This will make it possible to better situate mobile services in the real-world contexts in which they are a part. For example, it may be that most services will be seen as spread resources than can be accessed through other people's mobile devices or through wireless connections, rather than as services that need to be downloaded to my particular device and used from there. New technical developments also make it possible to make use of sensors, tangible devices, haptics, wearable computing, and other materials that allow for more physical interaction with the mobile and ubiquitous services.

To understand the problem, this project has started from two different perspectives. The first is based on the mobile services developed in the centre so far. We generalise from the interfaces we have implemented so far and our experiences of what worked and what did not. The second perspective defines the problem top-down – trying to tie down what is uniquely mobile. For example, during a workshop, we went back to the roots of the desktop metaphor and physical interaction, and brainstormed on how a physical, embodied interaction could be formulated for a mobile setting.

These two perspectives, top-down and bottom-up from our own experiences, will help us find new ways of addressing general problems of mobile interacting, and to the formulation of a unified set of interaction primitives and input/output operation that can be generalised over a whole range of different mobile services.

Contact: Kristina Höök, kia@dsv.su.se

Domain project: (Em)bodied Emotional Interaction

Digital products that attempt to set the scene for emotional experiences, bodily interactions, persuasive processes, aesthetic experiences and other experiential qualities, are gaining grounds both in the commercial world and in the so-called "third-wave of HCI"-movement within academia. The first wave of Human-Computer Interaction (HCI) was inspired by industrial engineering and ergonomics, focusing on optimizing the fit between humans and machines, mainly in the setting of one user – one computer. The second wave of HCI had to deal with networked computers used in workplaces, and therefore involved designing for collaborative work (CSCW). Focus was put on efficiency, functionality and usability of systems. In the third wave of HCI, given the development of games, everyday use of technology as part of our lives, mobile technology, and ubiquitous technology, user experience has been put at core. Desired qualities include designing for aesthetic experiences, affect, emotions, fun and embodiment. In face-to-face communication it is not only what is being verbalized that carries valuable information. By looking at people's body language, listening to their voice or catching up on their vibes, we communicate and influence each other. Emotion processes cannot and should not be seen as singular state that exist within one person alone, but instead they permeate the total situation, changing and drifting as a process between all users involved.

Based on our understanding of how people create and do emotional, embodied interaction, we have created two prototype systems: Friend Sense and Affective Health.

FriendSense allows groups of friends to communicate physically, together as a group, using so-called sensornetwork nodes. Groups of users at TeliaSonera and at Mobile Life used the system during a few weeks. We found that a system that allows users to express themselves physically emotionally to one-another may open a new channel where closeness, conflicts and group binding activities are acted out. This has the potential of strengthening group ties, but obviously needs to be handled carefully in order not to spur conflicts.

Affective Health empowers people to monitor and understand their own stress levels vis-à-vis their everyday activities. By providing users with easy to grasp visualizations of data captured from body sensors bio-feedback loops are created. When mirrored back to the user, the relationship between activities in the world and how their bodies respond to them can help users to build meaningful relationships between their experiences and how that affects their bodies.

Contact: Kristina Höök, kia@dsv.su.se

Domain project: Mobile 2.0

The market for mobile devices is fragmented and there are many barriers to development and deployment. At present, it is difficult to create efficient and attractive mobile services that make use of advanced capabilities of modern terminals and servers, such as absolute location, sensors, near-field communication, proximity of other users or services, etc. We call this Mobile 2.0 services, since they represent as much of a quantum leap from current mobile services as Web 2.0 represents from the original World Wide Web.

In this project, we envision a new type of environment where advanced mobile services run on a common platform, similar to a web browser on traditional computers, but with added capabilities for the mobile domain. We want to make it easy for creative actors to create new services quickly, making mobile service development more like web design than application development. We also want to make it possible to distribute services to a large number of different devices, and thus achieve critical mass.

We are approaching this problem from two angles: first, by prototyping a set of examples of Mobile 2.0 services based on a variety of different platforms and technologies; and second, by creating a standardised environment for rapid development of such services.

We have prototyped a number of example services, including native applications, Java applications, and completely web-based mobile services. The applications use a range of technologies, such as location awareness and local sharing. They cover various media and domains, such as photography, chatting and social awareness. We are now going to user test these services and deploy them to a wide range of users. This work will help us understand and hopefully address some of the problems that are currently facing developers when trying to reach the mass-market.

Furthermore, we are developing an environment that will make it as easy to develop advanced mobile services as it already is to create advanced web services, and builds on the expertise of web developers and interaction designers. This requires a standard that is closer to HTML and existing Web development tools such as Flash, Javascript and Ruby, than the advanced development environments of iPhone and Android, or web add-ons like Google Gears.

To this end, we are now in the process of specifying a Mobile Markup Language (MML), which takes the form of an HTML extension that expands standard HTML to include mobile hardware and sensors, such as location, camera, accelerometers, and near-field communication. We will also develop an MML-capable browser, which runs on a large number of terminals and is capable of interpreting the MML extension. Finally, we will specify an MML server environment, which would off-load important work from the mobile terminal, such as relative location finding, push messaging, etc.

If this environment becomes sufficiently standardized and open, and there is free browser software that runs on a large number of handsets, it would have the potential to bring both the creativity and high number of users of Web 2.0 to the mobile domain, thus creating an explosion of new Mobile 2.0 services.

Contact: Lars Erik Holmquist, leh@sics.se

Domain project: More Video!

This project concerns future Mobile TV, and will specifically focus on the generation of new and innovative services supporting the local and collaborative production, distribution and consumption of mobile media, and especially TV and video. The design will be informed by ethnographic studies on current media usage in mobile situations as well as ethnographic studies of professional TV production.

Motivated by a number of contemporary trends of media production and media sharing on the Internet in the area of user content creation, such as blogging, podcasting, and wikis, and by similar attempts made by mobile phone manufacturers to incorporate mobile blogging and high quality video recording functionality, we argue that the scope of research and development efforts around mobile media should be extended.

It is possible to envision mobile, collaborative and mundane user content creation, which may result in local production, distribution and consumption of mobile TV on the spot. We envision applications whereby the media material will be locally, collaboratively and timely produced and shared with others within their peer group in mobile situations. Thus, More Video! will be generated in new social situations by non-professionals.

Contact. Oskar Juhlin, oskarj@tii.se

Domain project: Socially Expanded Games

The main attraction of pervasive games is that they are reality-based, drawing upon a real world which is richer, more varied, and emotionally and historically more interesting than any made-up game world can be.

Pervasive games provide a 'lense' through which we see our ordinary environments and activities in a new perspective; mundane activities of ordinary life can be perceived as a playful and enjoyable experience.

Games are usually considered to take place inside a defined social boundary – a magic circle – which serves as a protective frame defining playful events as happening outside the players' ordinary lives.

Pervasive games – games that take place in the real world and integrated in everyday life - are however typically socially expanded. A socially expanded game does not maintain a clear boundary between the participants and the non-participants of the game; instead the roles become ambiguous and the games offer opportunities to shift in and out of the player role. Social expansion is a core design feature of pervasive games that we can draw upon to games culturally rich and meaningful, but that also can prove ethically problematic if the design goes astray.

The goal of this project is to set up and study a range of pervasive games that are socially expanded. During 2007 and 2008, the project focused on studying a large Swedish Television production "Sanningen om Marika" which was a pervasive game that integrated a TV drama and debate program, Internet activities, mobile technology and real-world events to create a fully immersive fictional game world. The results of the study provide valuable insights into how socially expanded games can be designed to create strong and valuable experiences, but also where the risks lie.

Contact: Annika Waern, annika@sics.se

Publications

Journal publications

1. Brown, B., Laurier, E., Lorimer, H, Jones, O., Juhlin, O. et al. (2008) Driving and passengering: notes on the natural organization of ordinary car travel. *Mobilities*, Vol. 3, No. 1, pp 1-23, Taylor and Francis.
2. Esbjörnsson, M., Juhlin, O. and Weilenmann, A. (2007) Drivers Using Mobile Phones in Traffic: An Ethnographic Study of Interactional Adaptation. *International Journal of Human Computer Interaction*, Special issue on: In-Use, In-Situ: Extending Field Research Methods, Vol. 22, Issue 1, pp. 39-60, Lawrence Erlbaum Associates.
3. Fernaeus, Y., Tholander, J., Jonsson, M. (in press). Beyond representations: Towards an action-centric perspective on tangible interaction. *International Journal of Arts and Technology,* special issue on tangible and embedded interaction.
4. Gaye, L., Håkansson, M., Ljungblad, S., Holmquist, L.E. (2007). Context Photography. *Vague Terrain,* special issue locative, Toronto, Canada.
5. Isbister, K., Höök, K., (2007). Evaluating affective interactions. Editorial Introduction, *International Journal of Human-Computer Studies*, Special issue on Evaluating Affective Interfaces, vol. 65, issue 4, pp. 273—274.
6. Isbister, K., Höök, K., Laaksolahti, J., Sharp, M., (2007). The Sensual Evaluation Instrument: Developing a Trans-Cultural Self-Report Measure of Affect. *International Journal of Human-Computer Studies*, Special issue on Evaluating Affective Interfaces, vol. 65, issue 4, pp. 315--328.
7. Perry, M., Juhlin, O., Normark, D., (in press) Laying waste together: the shared creation and disposal of refuse in a social context, Space and Cultur: *International Journal of Social Spaces*, Sage Publications.
8. Ståhl, A., Höök, K., Svensson, M., Taylor, A., and Combetto, M. (2008) Experiencing the Affective Diary. *Journal of Personal and Ubiquitous Computing*, June 18, Springer.
9. Sundström, P., Ståhl, A. and Höök, K., (2007). In Situ Informants Exploring an emotional Mobile Messaging System in Their Everyday Practice. *International Journal of Human-Computer Studies,* Special issue on Evaluating Affective Interfaces, vol. 65, issue 4, pp. 388—403.
10. Tholander, J., Fernaeus, Y. (in press). Four challenges when designing for children's everyday digital literacy. *Nordic Journal of Digital Literacy*, special issue on Interaction Design in Pedagogical Practice.

Peer-reviewed conference papers

1. Bichard, J.P. and Waern, A. (2008)Pervasive Play, Immersion and Story: designing Interference, *Digital Interactive Media in Entertainment & Arts conference (DIMEA)*, Athens, Greece.
2. Brown, B., Lundin J., Rost M., Lymer G., and Holmquist L.E., (2007). Seeing ethnographically: Teaching ethnography as part of CSCW. In *Proceedings of ECSCW, 10th European Conference on Computer- Supported Collaborative Work,* Limerick, Ireland.
3. Denward M. and Waern, A. (2008) Broadcast Culture Meets Role-Playing Culture. In Montola, Markus and Stenros, Jaakko, *Playground Worlds. Creating and Evaluation Experiences of Role-Playing Games*, pp. 248-261, Jyväskylä, Ropecon.
4. Engström, A., Esbjörnsson, M. and Juhlin, O. (2008) Mobile Collaborative Live Video Mixing. In *Proceedings of Mobile HCI 2008, 10th International Conference on Human-Computer Interaction with Mobile Devices and Services*, Amsterdam, the Netherlands.
5. Esbjörnsson, M., Engström, A., Juhlin, O., Perry, M. (2008). Producing Collaborative Video: Developing an Interactive User Experience for Mobile TV. In *Proceedings of uxTV, First International Conference on Designing Interactive User Experiences for TV and Video,* Silicon Valley (San Francisco Bay Area), California, USA.
6. Fernaeus, Y., Tholander, J. and Jonsson, M. (2008). Towards a New Set of Ideals: Consequences of the Practice Turn in Tangible Interaction. In *Proceedings of Tangible and Embedded Interaction 2008*, ACM Press.
7. Ferreira, P., Sanches, P., Höök, K, and Jaensson, T. (2008). License to Chill! How to empower users to cope with stress. In *Proceedings of Nordic forum for human-computer interaction research (NordiCHI)* ACM Press, Lund.
8. Friedman, B., Höök, K. et al. (2008). Personlig Integritet. A Comparative Study of Perceptions of Privacy in Public Places in Sweden and the United States. In *Proceedings of Nordic forum for human- computer interaction research (NordiCHI)*ACM Press, Lund.
9. Holmquist, L E., (2008). Bootlegging: Multidisciplinary Brainstorming with Cut-Ups. *In Pro-ceedings of Participatory Design Conference 2008*, Bloomington, IN, USA. ACM Press.
10. Holmquist, L.E., Höök, K., Juhlin, O. and Waern, A., (2007). Mobile Life: A Research Foundation for Mobile Ser-

vices. In *Proceedings of Global Mobility Roundtable*, June 1-2, Marina Del Rey, California.
11. Håkansson, M., Rost M. and Holmquist L. E., (2007). Gifts from friends and strangers: A study of mobile music sharing. In *Proceedings of ECSCW 2007, 10th European Conference on Computer- Supoorted Collaborative Work*, Limerick, Ireland.
12. Håkansson, M., Rost M., Jacobsson M. and Holmquist L. E. (2007). Facilitating Mobile Music Sharing and Social Interaction with Push!Music. In *Proceedings of HICSS-40 2007*, Hawaii, USA, January 3-6.
13. Håkansson, M., and Gaye L., (2008). Bringing Context to the Foreground: Creative Engagement in a Novel Still Camera Application. In *Proceedings of ACM Designing Interactive Systems 2008*, February 25-27, Cape Town, South Africa.
14. Höök, K., Ståhl, A., Sundström, P. and Laaksolahti, J. (2008) Interactional Empowerment. *Proceedings of the ACM SIGCHI conference on Human Factors in Computing Systems*, Florence, Italy, ACM Press. (Best paper nominated)
15. Jacobsson, M., Ljungblad S., Bodin J., Knurek J. and Holmquist L. E. (2007). GlowBots: Robots That Evolve Relationships. In Adjunct *Proceedings of SIGGRAPH 2007 (Emerging Technologies exhibition)*, San Diego, USA, August 5-9.
16. Jacobsson, M., Bodin J. and Holmquist L. E., (2007). The see-Puck: A Platform for Exploring Human-Robot Relationships. In *Proceedings of CHI 2008*, ACM Conference on Human Factors in Computing Systems, April 5-10, Florence, Italy.
17. Jarkiewich, P., Frankhammar-Ovsiannikow M. and Fernaeus, Y. (2008). In the hands of children: Exploring the use of mobile phone functionality in casual play settings. In *Proceedings of Mobile HCI 2008*, 10th International Conference on Human-Computer Interaction with Mobile Devices and Services, Amsterdam, The Netherlands.
18. Jonsson, S., Waern, A., Montola, M. and Stenros, J. (2007) Game Mastering a Pervasive Larp.Experiences from Momentum. In *Proceedings of the 4th International Symposium on Pervasive Gaming Applications*, PerGames 2007, Salzburg, Austria.
19. Juhlin, O., Weilenmann, A. (2008). Hunting for Fun: Solitude and Attentiveness in Collaboration, In *Proceedings of Computer Supportive Cooperative Work (CSCW),* San Diego USA.
20. Juhlin, O. and Weilenmann, A. (2008) On movement, sound and radio talk in deer hunting. In *Proceedings of the Space, Interaction, Discourse 2008 Conference*, Aalborg University, Denmark.
21. Ljungblad, S., (2007) Designing for New Photographic Experiences: How the Lomographic Practice Informed Context Photography. In *Proceedings of DPPI'07, conference on Designing Pleasurable Products and Interfaces*, Helsinki, Finland.
22. Ljungblad, S. and Holmquist L. E., (2007). Transfer Scenarios: Grounded Innovation with Marginal Practices. In *Proceedings of CHI 2007*, *ACM Conference on Human Factors in Computing Systems*, 28 April - 3 May, San Jose, California, USA.
23. Rost, M. and Holmquist L E., (2008). Tools for Students Doing Mobile Fieldwork. In *Proceedings of WMUTE 2008*, *Wireless, Mobile and Ubiquitous Technologies in Education*, Beijing, China.
24. Stenros, J., Montola, M., Waern, A. and Jonsson, S. (2007). Play it for Real: Sustained Seamless Life/Game Merger in Momentum. In *Proceedings of DiGRA 2007 Situated Play conference*, pp. 121-129, Tokyo, Japan.
25. Ståhl, A. and Höök, K. (2008). Reflecting on the Design Process of the Diary Affective, In *Proceedings of the design track of Nordic forum for human-computer interaction research (NordiCHI)* ACM Press, Lund.
26. Wetzel, R., Lindt, I., Waern, A. and Jonsson, S. (2008). The Magic Lens Box: Simplifying the Development of Mixed Reality Games, In *Proceedings of Digital Interactive Media in Entertainment & Arts (DIMEA)* conference, Athens, Greece.

Keynote talks

1. Holmquist, L.E. Grounded Innovation of Future Applications. Ubiquitous Content conference, Keio University, February 8, 2008, Tokyo, Japan,
2. Holmquist, L.E. Grounded Innovation of Future Applications. SIDeR'08 Student Interaction Design Research Conference, March 27-28, 2008, Sønderborg, Denmark
3. Höök, K. Affective loop experiences – what are they? Persuasive Technology Conference 2008, June 4-6, Oulu, Finland.
4. Höök, K. The Future Mobile Life, Invited keynote presentation at the 13th Nordic Conference on Information and Documentation (Nord I&D), Stockholm, 18-19 June 2007.

Workshop papers

1. Engström, A., Esbjörnsson, M. and Juhlin, O. (2008) Nighttime visual media production in club environments.Presented at the Night and darkness: Interaction after dark workshop, CHI 2008, Florence, Italy.
2. Engström, A., Esbjörnsson, M., Juhlin, O. and Norlin, C. (2008) Mobile Collaborative Live Video Production. Presented at the workshop Mobile Multimedia – Content Creation and Use, Mobile HCI 2008, Amsterdam, The Netherlands.

Popular articles

Holmquist, L. E. (2007) On the Edge: Mobile 2.0.<interactions>, Volume 14, Issue 2, ACM Press.

Awards

Mindtrek Award

2007, MoO - Mobile Outside was awarded with the 2nd Prize in the Nokia Ubimedia MindTrek Awards.

Best paper award nomination

2008, Best of CHI nominee: Höök, K., Ståhl, A., Sundström, P. and Laaksolahti, J. Interactional Empowerment. Proceedings of the ACM SIGCHI conference on Human Factors in Computing Systems, Florence, Italy, ACM Press.

March 2008. The Mobile Ecosystems project organised a workshop at Sony Ericsson in Lund.

February 2008. Mobile 2.0 applications workshop with Mobile Life researchers, Sony Ericsson, Ericsson research, TeliaSonera.

January 2008. IperG business day: all partners invited to share results from the IperG project (EU-funded – done in collaboration with Mobile Life). New business models for Pervasive Games were presented and discussed.

November 2007. Generalized Interaction Models Workshop, at Microsoft Research Cambridge. Particpants from MSR, Sony Ericsson, Ericsson Research, Telia Sonera.

August 2007. Mobile Eco-system project workshop at Ericsson Research in Kista.

August 2007. Inauguration of Mobile Life. http://www.mobile-life.org/inauguration.php

May 2007. Mobile Eco-system workshop organized in Japan during our visit.

May 2007. Study visit to Japan for all Mobile Life researchers and representatives of our partners. We visited e.g. Location: Keio SFC Campus, Okude Lab and Inakage Lab, Ericsson Research, near Akihabara, and Sony CSL Interaction Lab.

March 2007. Mobile Eco-system project kick-off workshop on the in Mobile Life office.

Seminars

June 2008. Adrian Cheok, Director of the Mixed Reality Lab, National University of Singapore. Title: “From Human Pacman to Poultry Internet”.

May 2008. Marie Denward, Ph.D. student at Mobile Life. Title: ”Sanningen om Marika (The truth about Marika) - a study of a large-scale alternate reality drama”.

May 2008. Ylva Fernaeus, researcher at Mobile Life. Title: ”In the hands of children: Exploring the use of mobile phone functionality in casual play settings”.

May 2008. Alex Olwal from Royal Institute of Technology. Title: “SurfaceFusion: Unobtrusive Tracking of Everyday Objects in Tangible User Interfaces”.

May 2008. Andie Nordgren, master thesis student at Mobile Life. Title: “Sanningen om Marika (The truth about Marika) – experiences from game-mastering a large-scale alternate reality drama”.

May 2008. Peter Karpati, postdoctorate fellow at the department of Computer and Information Science at the Norwegian University of Science and Technology in Trondheim. Title: “Messaging as a means for collaboration”.

April 2008. Mikael Kindborg, guest researcher at Computer and System Sciences, Stockholm University. Title: “Home-made computer games”.

April 2008. Alina Pommeranz, master thesis student at Mobile Life. Title: “Exploring and Designing for Emotional Closeness between Friends”.

April 2008. Several researchers at Mobile Life presented CHI highlights presentations, interesting papers from the CHI conference.

April 2008. Magnus Jändel, guest researcher at Mobile Life. Title: “Multiagent avatar societies as user representation in mobile applications”.

March 2008. Alex Olwal, from Royal Institute of Technology. Title: “Rubbing and Tapping for Precise and Rapid Selection on Touch-Screen Displays”.

People

Brunnberg, Liselott. (2008) *Playing with the Highway Experience – Pervasive Games on the Road*. Doctoral Thesis, Applied Information Technology, IT-University of Göteborg.

We explore how the dynamic and vivid context of road travel, i.e. the highway experience, can be used to provide drama and challenge to pervasive games. The aim has been to gain insights into this novel application area and to understand the potential and implications for design. The thesis embraces a design-oriented research approach, where knowledge has been gained through the process of designing, implementing and evaluating experimental prototypes. The research has resulted in three prototypes, i.e. Backseat Gaming, Road Rager and Backseat Playground, which in various ways illustrate the potentials and problems in the proposed design space.

Backseat Gaming makes use of roadside objects to create a contextualised game experience as the player travels along a specific route. The intention with the prototype has been to explore the characteristics of the fictitious linkage between the game and road-context. We have particularly looked at what types of roadside objects that could be integrated to create an understandable and engaging pervasive game. Road Rager is a multiplayer game where children that meet in traffic duel against each other. We suggest that the temporal and unpredictable character of an encounter, as well as the proximity, can provide for interesting game-play. A critical challenge is to enable multimodal interaction when the lifetime of a game-event is very limited. The

Backseat Playground is a murder mystery game, which takes place in the physical landscape outside the window of the vehicle. The prototype particularly explores the prospect of automatically scaling the game to vast geographical areas through integration with digital maps. Additionally, it explores how to provide sequential storytelling that fits with the journey through the landscape. We will hereafter refer to these types of games as journey games.

In this thesis we will explore four issues, which we argue are of crucial significance when designing experiences, which combine pervasive game play with the highway experience. First, we will tease out what parts and types of a digital game that fits with this experience. Second, we will look at ways to design the game interface so that the player's can combine a visual attention on the road-context with game play. Then, we will investigate how to utilize the passengers' cursory experience of the swiftly passing road objects. Finally, we look at how to provide game-content, which match to the temporal unfolding of the surrounding road-context.

Laaksolahti, Jarmo. (2008) *Plot, Spectacle, and Experience: Contributions to the Design and Evaluation of Interactive Storytelling*. Doctoral thesis, Stockholm University, Faculty of Social Sciences, Department of Computer and Systems Sciences (together with KTH).

Interactive storytelling is a new form of storytelling emerging in the crossroads of many scholarly and artistic traditions. In interactive stories the reader/spectator moves from being a receiver of a story to an active participant. By allowing participants to influence the progression and outcome of the story new experiences will arise.

This thesis has worked on three aspects of interactive storytelling: plot, spectacle, and experience. The first aspect is concerned with finding methods for combining the linear structure of a story, with the freedom of action required for an interactive experience. Our contribution has focused on a method for avoiding unwanted plot twists by predicting the progression of a story and altering its course if such twists are detected.

The second aspect is concerned with supporting the storytelling process at the level of spectacle. In Aristotelian terms, spectacle refers to the sensory display that meets the audience of a drama and is ultimately what causes the experience. Our contribution focuses on graphically making changing emotions and social relations, important elements of dramatic stories in our vision, salient to players at the level of spectacle. As a result we have broadened the view of what is important for interactive storytelling, as well as what makes characters believable.

So far not very much research has been done on evaluating interactive stories. Experience, the third aspect, is concerned with finding qualitative methods for evaluating the experience of playing an interactive story. In particular we were interested in finding methods that could tell us something about how a players experience evolved over time, in addition to qualities such as agency that have been claimed to be characteristic for interactive stories. Our contribution consists of two methods that we have developed and adapted for the purposes of evaluating interactive stories that can provide such information. The methods have been evaluated on three different interactive storytelling type games.

Ljungblad, Sara. (2008) *Beyond Users: Grounding Technology in Experience.* Doctoral Thesis, Stockholm University, Faculty of Social Sciences, Department of Computer and Systems Sciences (together with KTH).

This thesis goes beyond a user-centred design approach to explore potential future applications and modes of interaction. With several design cases, we investigate how early technology ideas can be matched with a specific practice to inspire novel design. This involves learning about existing experiences, interests and activities that can be relevant for a potential application, but which are not necessarily found among the intended users. Starting with early technology ideas and then finding a suitable practice to learn from is an alternative perspective of design activities. This can be useful for researchers and designers in Human Computer Interaction (HCI) who are interested in complementing approaches compared to user-centred design. Our approach is also relevant for researchers that face technology-driven starting points, and want to investigate future applications by grounding the design in existing practices.

A set of design cases show how the overall research goes from a usability-oriented perspective towards a more experience-oriented one, in order to accommodate technology-driven design situations. The design cases have involved different technical starting points, including information display technologies, surface-based networking, digital photography, and robot technology for everyday settings. The overall design process evolves towards matching the technology with a practice, and to investigate applications by developing one or more research prototypes. This has resulted knowledge of novel applications and interaction for the technology in question, as well as knowledge on how to employ empirical data to inspire novel design. Finally, we provide an overall reflection of the research process and show how a design approach that goes "beyond users" can benefit the design process.

Financial Report

May 2008. Sara Ljungblad in Helsingborgs Dagblad about the Interactive Wallpaper.
April 2008. Mattias Esbjörnsson interviewed in the TV4 news about the use of mobile phones while driving.
April 2008. Interactive TV production The Truth About Marika won an Emmy. Mobile Life was involved through the work by Annika Waern and Marie Denward.
February 2008. Mattias Esbjörnsson is interviewed in the February issue of Monitor where he comments on the future media landscape.
February 2008. Kristina Höök. Computer Sweden.
Febuary 2008. Interference. NyTeknik.
Febuary 2008. Article on IPERG and Interference. Svenska Dagbladet.
February 2008. "Stromausfall in Düsseldorf"@mveltjournal
February 2008. "Realität der Zukunft am Rhein."
February 2008. Ny Teknik "Datorspel med levande figurer"
January 2008. "Spelforskare gör gatan till sitt Labb" Svenska Dagbladet
January 2008. "Europeisk spelforskning blir spel på Stockholms gator" Spelfeber
January 2008. "Datorspel som familjedrama" Computer Sweden
January 2008. Trends in Mobile Technology. Metro Teknik.

November 2007 The Affective Diary, Metro Teknik.
November 2007. Veckans Affärer.
October 2007. Results from IperG on pervasive games Metro Teknik.
October 2007. Backseat Playground. Metro Teknik
September 2007. Press release from Microsoft on Mobile Life Centre in Science Direct.
October 2007.Mobile Life contributes to the SVT production Sanningen om Marika,.
September 2007. Mobile Life is a dream team according to Metro Teknik,.
September 2007. Winner in the Mobile 2020 competition. Elektroniktidningen,.
August 2007 Several demos from the inauguration of Mobile Life are shown in this newsflash from TV4.
August 2007. At Kistaportalen lots of nice photosare shown from the inauguration as well as a really good summary of what happened,.
August 2007. Norwegian newsletter named Kommunikasjon reports on the Mobile 2020 competition,.
August 2007. Another Norwegian newsletter named mobilen.no also reports on the Mobile 2020 competition.
August 2007. Dagens industri discusses the Mobile 2020 competition.
August 2007. IDG.se also talks about the Mobile 2020 competition Mobil telekomidag.com
August 2007. About the Mobile Life inauguration at Stockholm University.
July 2007. Kristina Höök talks about emotional communication and mobiles. Computer Sweden. The whole Mobile Life Centre is presented with really nice pictures in the newspaper Mobil.
August 2007. Oskar Juhlin discusses whether the Backseat Playground game can become too realistic and scary in IDG.se.
June 2007. Kristina Höök was elected to the IT-council of the Swedish minister Åsa Torstensson. She was interviewed in Computer Sweden, 2007-07-02, in the newspaper Evertiq 2007-06-21, and in Telecom Idag 2007-06-21.
June 2007. Backseat playground appears in paper edition of Mobil.
June 2007. Contributions to our Mobile 2020 competition on the future mobile phone. Dagens Industri.
June 2007. The future mobile phone. PC fur Alles.
May 2007. Annika Waern is mentioned on position 34 and Kristina Höök on position 50 at Computer Sweden's list of the top 50 most influential IT-women in Sweden.
April 2007. The newspaper NyTeknik writes about our Mobile 2020 competitions.
April 2007. Annika Waern is named the most influential and important woman in the games industry in Sweden.

Doctorates

Kristina Höök, Professor, Centre Director
Oskar Juhlin, Associate Professor, Assistant Director
Lars Erik Holmquist, Associate Professor, Senior Researcher
Annika Waern, Ph D, Associate Professor, Senior Researcher

Anna Ståhl, Ph.Lic. Design.
Andie Nordgren, Master student
Anton Gustafsson, Ph.D. student
Arvid Engström, Ph.D. student
Barry Brown Associate Professor, guest researcher
Claus Weymann, D.student
Elsa Kosmack-Vaara, MA Interaction designer
Jarmo Laaksolahti, Ph.D.
Liselott Brunnberg, Ph.D.
Markus Bylund, Ph.D.
Magnus Jändel, Ph.D. Guest researcher
Maria Håkansson, M.Sc.
Marie Denward, Ph.D student
Mattias Esbjörnsson, Ph.D.
Mattias Jacobsson, M.Sc.
Mattias Rost, M.Sc.
Nicolas Belloni, M.Sc. student
Pedro Ferreira, M.Sc.
Petra Sundström, Ph.Lic.
Staffan Jonsson, Project coordinator
Sara Ljungblad, Ph.D.
Tove Jaensson, M.Sc.
Ylva Fernaeus, Ph.D.

The Board

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Press

April 2007 – March 2008

Statement of contributions and costs, ksek

Project contributions	**Cash***
VINNOVA	2 500
Ericsson	200
TeliaSonera	200
Microsoft	200
Sony Ericsson	In-kind
SICS	500
Stockholm University	500
Stockholm City	In-kind
Kista Science City	In-kind
STING	In-kind
Total project contributions	**4 100**

Operating expenses	
VINNOVA	3 041
Stockholm University	500
SICS	561
Ericsson	193
TeliaSonera	193
Microsoft	193
Total operating expenses	**4 681**
Result	*- 581*

*In-kind contributions are not included in the result.