PhD Lecture

In partial fulfillment of the terms for obtaining the PhD degree, Henrik Sørensen will give a lecture on the following subject:

**Proxemics in Digital Ecosystems**

on Tuesday 12th of January 2016, 13:00, in room 0.2.13 at Selma Lagerlöfs Vej 300

**Abstract:**
In our daily lives, we wirelessly connect digital devices, use them together and switch between them during various activities. This forms what can be described as digital ecosystems that creates something more than the sum of the individual devices. The research presented in this thesis, is driven by the problem of how to use proxemics theory to understand and build such ecosystems. The problem is investigated through two research sub-questions, looking at different approaches to proxemics in digital ecosystems. The first question looks at interaction proxemics, which is an analytical lens through which interactions with digital devices can be observed and analyzed. The second question looks at proxemic interactions, which is an interaction form that makes devices aware of proxemic relations to people and devices around them.

The two research questions are addressed by three papers each, where two papers present contributions in the form of applications, and one paper in the form of concepts. In the case of applications, each demonstrates novel interaction designs in digital ecosystems, and two applications additionally implement proxemic interactions. Evaluations of the applications contribute to the results of the thesis. Two applications were evaluated in controlled settings, and the others through field-studies providing results from real-life contexts. Conceptual contributions are based on analysis of existing systems both commercially available and from research.

The primary results of the thesis are:

1) Complementary interfaces can restrict or expand proxemic relations in digital ecosystems, where specifics about the interaction mechanisms can be influential to spatial organization. A further contribution is the definition of the 4C framework that breaks interaction in digital ecosystems down into concepts addressable through interaction proxemics.

2) Interface migration through proxemic interactions can either be device-dependent or user-dependent in digital ecosystems. Furthermore, diversity in proxemic dimensions means that there is no single technological solution to proxemic interactions.

3) Interaction proxemics and proxemic interactions can address similar challenges of digital ecosystems, but understanding the effects of introducing proxemic interactions is important, as well as acknowledging that there are conceptual differences to proxemics in interpersonal communication.

Members of the assessment committee are Professor Jakob E. Bardram, IT University of Copenhagen, Professor Geraldine Fitzpatrick, Institute of Design and Assessment of Technology and Associate Professor Ivan Aaen, Aalborg University. Professor Jesper Kjeldskov is Henrik Sørensen’s supervisor. Moderator Associate Professor Jeni Paay, Aalborg University.

All interested parties are welcome. After the defense the department will be hosting a small reception in cluster 5.