

Multimodal Interactions

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The MUMIN Workshop and PhD course

Kristiina Jokinen* Kari-Jouko Rähä** Patrizia Paggio***, and Arne
Jönsson****

* University of Art and Design and University of Helsinki
email: Kristiina.Jokinen@uia.fi

** University of Tampere
email: kjr@cs.uta.fi

***Center for Sprogteknologi, Copenhagen
email: patrizia@cst.dk

**** University of Linköping
email: arnjo@ida.liu.se

Abstract

This paper reports on the Nordic Workshop and PhD course on multimodal interaction and interfaces, organised by the MUMIN network, in Helsinki and Tampere in November 202. We give an overview of the objectives of the two events, and describe the presentations, lectures and demonstrations during the inspiring week.

Keywords: multimodal interfaces and dialogue management, multimodal systems, multimodal research and resources in the Nordic countries

1 Motivation and objectives

The MUMIN network was established in January 2002 to stimulate Nordic research in the area of multimodal interfaces. Besides creating a network of contacts and a pool of shared knowledge, the goals of the network include

encouraging joint activities among the ten participating institutions, and organising PhD courses and research workshops on issues related to multimodal interaction. More information about the network, its themes, goals and the participating institutions can be found in the papers Paggio, Jokinen, and Jönsson (2002a) and (2002b), and on the network's web page at <http://www.cst.dk/mumin>.

In line with the goals of the network, a workshop and a PhD course were organized in Finland in November 2002. The workshop was held in Helsinki on 15-16 November, and the PhD-course took place in Tampere immediately afterwards on 18-22 November. The combined event aimed at bringing together researchers and graduate students from Nordic research institutions who work in the area of human-computer interaction and on multimodal interfaces in particular, to share their research results and knowledge with each other. The workshop was especially targeted to the members of the MUMIN network: to provide them with an opportunity to present and discuss their latest research results and to discuss the role and activities of the network. The course, on the other hand, was planned first of all for Nordic graduate students, and it addressed the issue of multimodal interfaces from a theoretical as well as a practical point of view, giving the participants the opportunity to get hands-on experience in the use of a number of different interaction modalities and their combinations.

2 MUMIN Workshop in Helsinki

The two-day workshop was hosted by the Human-Computer Interaction Group <http://www.mlab.uiah.fi/taichi/> at the MediaLab at the University of Art and Design Helsinki <http://www.mlab.uiah.fi/>. The workshop served both as an introduction of the participants to each other, and as an advanced research workshop on multimodality. The workshop programme included presentations from the various network sites, and discussions of the network's future activities, e.g.: future workshops, the web site, survey of multimodal research results, additional participants, mobility grants, and opportunities for joint research.

The workshop featured Associate Professor Slavko Milekic from the University of the Arts in Philadelphia as an invited speaker. Dr Milekic's research interests include digital design, the psychology of human/computer interaction and building of WWW-based tools for knowledge transfer, and his child-friendly digital environment (KiddyFace) has already been implemented in a museum setting. He was the principal interface designer for the "Theory of Language", the first CD ROM-based text (Weisler and Milekic 1999).



Slavko Milekic presented an idea of a “touch phone”.

Slavko Milekic talked about tangible virtualities (Milekic 2002), and presented an overview of some of the currently available interaction technologies, the conceptual barriers that limit their use and the case for the creation of interaction mechanisms that make abstract (virtual) information more tangible. His argumentation was based on Bertrand Russell’s quote “not only our geometry and our physics, but our whole conception of what exists outside us, is based upon the sense of touch”. The association of virtual and abstract information with multimodal sensory experiences creates a new layer of knowledge and action spaces which Milekic calls tangialities. They are claimed to be more natural and efficient for humans, and they increase ease of use, since e.g. they use body (biological) knowledge, allow grasping and manipulation of complex objects without the need for explicit formalization, and reduce cognitive load and strain of one sense (vision).

Professor Milekic’s invited talk was followed by fourteen additional presentations by the participating sites in the network covering all aspects of multimodal communication ranging from human communication and sign languages to multimodal human computer interaction.

3 MUMIN PhD course in Tampere

The PhD course took place at the University of Tampere, see <http://www.uta.fi/english/>, and it was hosted by the TAUCHI group <http://www.cs.uta.fi/hci/>.

The course consisted of lectures, demonstrations and lab exercises covering the following topics:

- multimodal interaction by humans
- gaze-controlled interfaces
- haptics in multimodal interfaces
- multimodal speech interfaces
- adaptive brain interfaces

The teachers on the course were Jens Allwood, Olov Engwall, Jaakko Hakulinen, Kristiina Jokinen, John Paulin Hansen, Tommi Nykopp, Roope Raisamo, Kari-Jouko Rähä, Mikko Sams, and Markku Turunen.

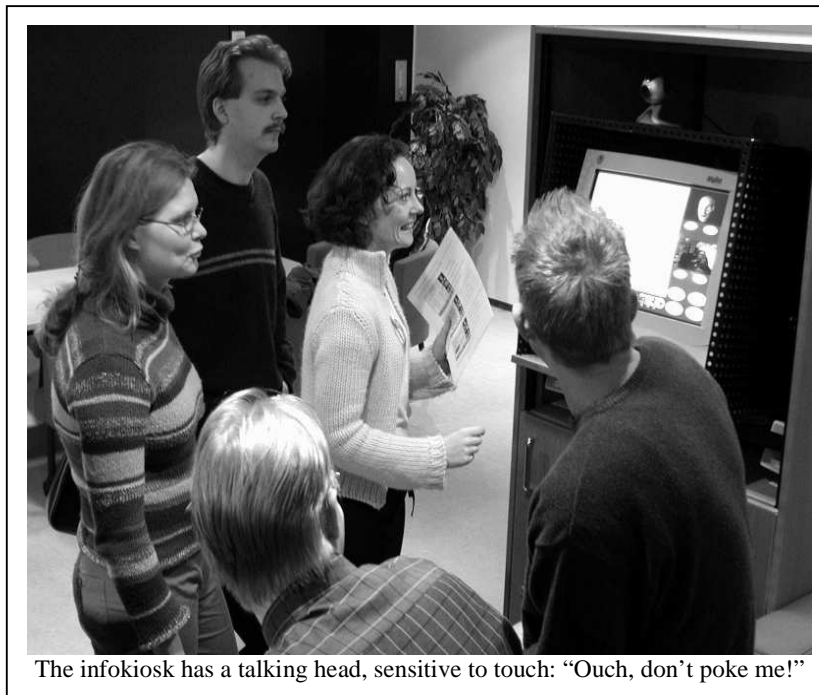


There was also time for the participants to discuss their work with appointed tutors and with each other. The students were encouraged to give short presentations of their own projects and to give comments on the other students' projects. 11 students gave presentations of their thesis work during the week.

A typical daily schedule of the course was:

9–12 Lectures
12–13 Lunch
13–15 Student presentations
15–18 Demonstrations

Most of the demonstrations took place on site in the labs of TAUCHI. Students and advisors were grouped to groups of 4–6 people, and there were many sites to explore during each demo session. This gave the participants a hands-on feel of the current research on multimodal interfaces in the Nordic countries. Six institutions (two from each participating country) were involved in demonstrating their research prototypes.



To provide some variation to the programme, and to give participants a chance to see some of Tampere, one demonstration session was organized at Tampere University of Technology, some 8 kilometers outside downtown Tampere. There

we were given a chance to experience the immersiveness of interacting in a state-of-the-art virtual reality cave.



Experiencing the Virtual Reality Center.

A one week event on multimodal interaction also gives plenty of time for social activities. The organisers arranged a welcome dinner and a traditional Finnish sauna party where graduate students and faculty were given opportunities for informal contacts. And in spite of the spirited discussions in these social events, students faithfully showed up in class at 9 o'clock in the following morning! We believe that such events play an important role for further collaborations. Informal contacts are important, especially for PhD students, who can talk with advisors from other departments and disciplines on more detailed aspects of their work. We also know that many of the PhD students that participated in the event have had contacts afterwards, discussing common research interests. The MUMIN mobility program, for instance, attracted more applicants than we had originally expected.

At the closing dinner, each student was given a certificate of participation in the course. Feedback forms were collected to help in planning future events. In general, the students were happy with the course. Their main complaint was that the programme was too packed – which admittedly is true, everyone was rather exhausted after the week. But, as they say, we felt that most were also “tired, but happy”.



4 Conclusion

The combined workshop and PhD course on Nordic research in multimodal interfaces were successful events, with a very interesting programme and the participation of about 40 researchers and PhD students.

The workshop and PhD course promoted the Nordic collaboration in research and education, and it is largely due to these events that the MUMIN mobility grants

were successful and four applications were accepted and given to PhD students for one week short stay in the MUMIN institute.

The workshop also created the necessary infrastructure to carry out joint activities that could not be managed by the individual efforts of the individual partners. For instance the ambitious objective of contributing to the establishment of a common research agenda for Nordic researchers working with multimodal interfaces was exemplified by the active communication in the meetings. Also, it is important that the activities promoted by the network are related to those of the international community in order for the network to contribute to the general progress in the area. We hope to be able to build on the interest raised so far by supporting exchange programmes and international events not only next year, but also in the future. In this manner, the MUMIN network supported the 1st “Nordic Symposium on Multimodal Communication” in September 2003 in Marienlyst, Denmark with international participation.

In conclusion, the workshop and PhD course on multimodal interfaces successfully fulfilled the goals of the MUMIN network, and contributed to the development of a very promising area in which Nordic research stands a good chance of achieving remarkable international results.

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