

HAPTEX Newsletter

2006/01

About HAPTEX

The project "HAPtic sensing of virtual TEXTiles" (HAPTEX) is a research project on multimodal perception of textiles in the virtual environment. Its main goal is to develop a Virtual Reality System (including both software and hardware) for visuo-haptic interaction with virtual textiles. The overall coordinator of the Project is MIRALab, University of Geneva, under the direction of Prof. Dr. Nadia Magnenat-Thalmann (thalmann@miralab.unige.ch).



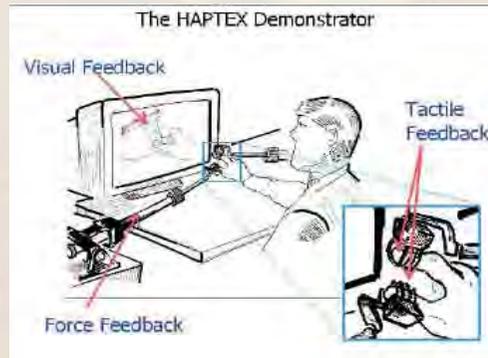
Project Description

HAPTEX aims to provide a multimodal system able to simulate virtual textiles in real time, allowing dynamic haptic interaction with the simulated objects.

The HAPTEX System will display a physical-based simulation of textiles animated in real-time. Final users will be able to select the simulated fabric from a range of 50 samples, and interact with it while perceiving the simulated fabric haptically. The haptic interaction and manipulation will take place through a novel haptic interface, developed in the context of this project, which will provide both force-feedback and tactile stimulation, thus giving the users of this system the sensation of touching, stroking, feeling the virtual garment.

Both the visual simulation and the haptic rendering are based on the actual physical properties of the simulated textile, taken from specific measurements on real textiles.

At the end of the project, HAPTEX will provide a demonstrator with different configuration options. A possible configuration of the HAPTEX System is depicted by the following figure:



Possible applications of the project results include the online-purchase of clothes, the adoption in the textile industry for research, and in game industry for entertainment. The main impact, however, will be the significant advancement of multimodal interaction tools, techniques and know-how.



IST Event 2006

IST Event is the most important European event in the field of Information Society Technologies. It will coincide with the launch of the EU's Seventh Framework Programme for Research and Development and will gather together all the key players of European information society technologies. The event concentrates on European policies, strategies, research activities and results in all areas of the Information Society.

The target audience includes decision-makers from the public sector, private industry and the world of research as well as interested citizens.

The event is organised by the European Commission in cooperation with Tekes, Finnish Funding Agency for Technology and Innovation, and the Ministry of Trade and Industry of Finland. More info: <http://www.ist2006.fi/>

HAPTEX Exhibition at IST2006

The IST2006 Exhibition, open to the general public, shows concrete results of research in and beyond Europe made possible by the IST Programme.

HAPTEX will participate to the Exhibition with an own Research and Technology stand showing cutting edge research results. More info on the HAPTEX website: <http://haptex.miralab.unige.ch>

IST Event 2006

Strategies for Leadership
Helsinki Fair Centre (Finland)
November 21-23, 2006

HAPTEX Workshop at IST2006

Workshops and Networking Sessions complement the conference and exhibition and contribute to one of the prime objectives of the European Commission in the area of R&D - to encourage forward thinking and collaborative initiatives for FP7.

The proposed HAPTEX'06 workshop has passed the validation phase of the Organising Committee and has been published on-line. The final decision of acceptance will depend on the interest shown by logged-in site visitors, we are now able to use the site's 'Express an Opinion' function to comment on each proposal in one of three ways:

- suggest a contribution - your idea will be forwarded to the session or workshop coordinator. If successful, you will be able to develop it further by adding documents;
- comment and indicate your intention to attend;
- comments on the session or workshop without attending the session (although you still can, of course).

Have your Say! - Express your interest Please feel free to show your interest in HAPTEX'06, and contribute to the organization of this workshop addressing challenges, problems and solutions when dealing with haptic simulation of deformable objects in virtual environments.

Progress Overview

One and a half year after the start of the project, the work is proceeding as scheduled. Several deliverables have been submitted, among others the specification of the System Requirements and Architectural Design (D1.1) and the Technical Specifications of the Integrated Haptic Interface (D4.1). Over 30 samples of fabrics have been selected so far and their physical properties have been measured in two sets of measurements (described in the

respective deliverables D3.1 and D3.2).

All deliverables submitted so far have a public dissemination level and are available for download on the project's website (<http://haptex.miralab.unige.ch>). Please refer to these documents for more detailed information.

Ongoing work includes the refinement of the fabric simulation model, the implementation of the haptic rendering software and the development of the separate kinesthetic and tactile hardware interfaces.



CASA2006

Computer Animation & Social Agents
University of Geneva (Switzerland)
July 5-7, 2006

HAPTEX workshop at CASA2006

The 19th annual conference on Computer Animation and Social Agents (CASA2006), organized by MIRALab (University of Geneva) with the support of the Computer Graphics Society (CGS), hosted the second HAPTEX workshop. During this event we presented the overall progress of the project and its future directions.

<http://casa2006.miralab.unige.ch>



Recent Publications

- N. Magnenat-Thalmann, U. Bonanni, "Haptics in Virtual Reality and Multimedia", IEEE MultiMedia, IEEE Computer Society, vol. 13, no. 3, pp. 6-11, Jul-Sept, 2006.
- A. C. Brady, I. R. Summers, J. Qu, C. Magnusson, "Discrimination of tactile rendering on virtual surfaces", Proc. ENACTIVE 06, Montpellier, Nov, 2006.
- Salsedo, F., Fontana, M., Tarri, F., Ruffaldi, E., Bergamasco, M., Magnenat-Thalmann, N., Volino, P., Bonanni, U., Brady, A., Summers, I., Qu, J., Allerkamp, D., Böttcher, G., Wolter, F.-E., Mäkinen, M. and Meinander, H., "Architectural Design of the Haptex System", Proceedings of the HAPTEX'05 Workshop on Haptic and Tactile Perception of Deformable Objects, Hanover, Dec, 2005.
- Volino, P., Davy, P., Bonanni, U., Magnenat-Thalmann, N., Böttcher, G., Allerkamp, D., and Wolter, F.-E., "From Physical Measured Parameters to the haptic feeling of fabric", Proceedings of the HAPTEX'05 Workshop on Haptic and Tactile Perception of Deformable Objects, Hanover, Dec, 2005.
- Mäkinen, M., Meinander, H., Luible, C. and Magnenat-Thalmann, N., "Influence of Physical Parameters on Fabric Hand", Proceedings of the HAPTEX'05 Workshop on Haptic and Tactile Perception of Deformable Objects, Hanover, Dec, 2005.
- Allerkamp, D., Böttcher, G., Brady, A., Qu, J., Summers, I. and Wolter, F.-E., "Tactile Rendering: A Vibrotactile Approach", Proceedings of the HAPTEX'05 Workshop on Haptic and Tactile Perception of Deformable Objects, Hanover, Dec, 2005.

Involved Partners and Task Distribution

Work Package Description	Partner in Charge
Requirements analysis, architectural design and physical based models	UNIGE - MIRALab University of Geneva
Research and development of the haptic renderer	UHAN - WelfenLab University of Hanover
Measurement of the textile properties and protocol definition	SWL - SmartWearLab Tampere University of Technology
Development of the complete haptic interface hardware	PERCRO Laboratory Scuola Superiore Sant'Anna
Multimodal integration and validation	UNEXE-Biomedical Physics Group University of Exeter
Management and dissemination	UNIGE - MIRALab University of Geneva

Next Meeting

The next HAPTEX meeting will take place in Hanover, Germany on October 30-31.

Next Newsletter

The Oct.-Dec. issue of the HAPTEX Newsletter will appear in December 2006.

HAPTEX Project Details

"HAPtic sensing of virtual TEXTiles"

Project Nr.:

IST-6549 (EU-FP6-IST)

Project Duration:

01.12.2004-30.11.2007 (36 months)

Funding agency:

Future and Emerging Technologies (FET)

Project Website:

<http://haptex.miralab.unige.ch>

Coordinator Contact Details

For publishable results, images or any information concerning HAPTEX, please contact the coordinator of the project:

Prof. Dr. Nadia Magnenat-Thalmann
MIRALab - University of Geneva
24, rue General Dufour
CH1211, Geneve-4
thalmann@miralab.unige.ch
<http://www.miralab.unige.ch>

