

HAPTEX Newsletter

2007/01

About HAPTEX

The project "HAPtic sensing of virtual TEXTiles" (HAPTEX) is a European Research Project on multimodal perception of textiles in virtual environments. Its main goal is to develop a multimodal Virtual Reality System (including both software and hardware) for visuo-haptic interaction with virtual textiles. The HAPTEX System will consist of a novel haptic interface connected to a PC running the HAPTEX software. The application will display a physical-based 3D simulation of textiles animated in real-time. The user will select the simulated fabric from a wide range of different samples and manipulate it interactively by means of the HAPTEX haptic hardware. The virtual models of the simulated textiles take as input parameters the physical properties of the real fabrics, which are extracted through specific measurements on the textiles. The project is coordinated by MIRALab, University of Geneva, under the direction of Prof. Dr. Nadia Magnenat-Thalmann (thalmann@miralab.unige.ch).



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

In This Issue

- Progress Overview: new deliverables submitted
- HAPTEX Showcase at Tweakfest 2007 (May 24-26, Zurich, CH)
- EUROGRAPHICS Tutorial (September 3, Prague, CZ)
- HAPTEX'07 Workshop (October 24, Hanover, DE)
- Recent Publications

Next Meeting

The next HAPTEX meeting will take place in Hanover, Germany on October 23.

Next Newsletter

The next and final issue of the HAPTEX Newsletter will appear in November 2007.

Progress Overview

We are in the final integration and validation phase of the HAPTEX System. Deliverables submitted in June 2007:

D1.3: «Physical Sim. Framework»

The physical simulation framework of the HAPTEX project handles the real-time simulation of the piece of textile and its visualization. This deliverable describes all components of the visual representation of the global cloth. The focus of this layer is to define the large-scale behaviour of the textile, in contrast to the small-scale behaviour, which is linked to the haptic rendering of the textile and is described in the HAPTEX deliverable D2.3.

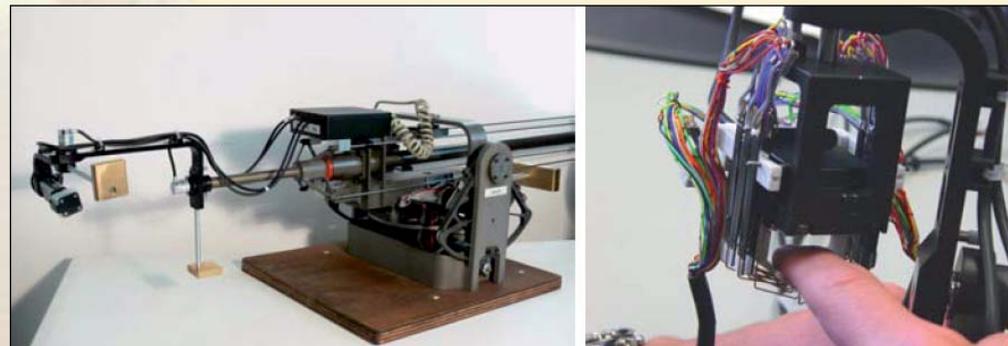
D2.3: «Software Modules for the Integration of the tactile and the haptic renderer into one single system»

In the HAPTEX Project, the software responsible for the haptic rendering of fabrics has been developed separately as a force-feedback and a tactile renderer. Both renderers have been designed, implemented and tested independently from each other but already with the integration in mind. This report describes the integration of these two rendering modules.

All deliverables submitted so far with a "public" dissemination level can be downloaded from the HAPTEX website: >>Downloads>>Documents>>Deliverables

Force-feedback and Tactile Hardware Integration

A preliminary integration of the GRAB force-feedback device and the tactile arrays has been successfully achieved (see figure below). The resulting interface is capable of rendering forces and tactile stimuli at the same time. In parallel, a novel force-feedback exoskeleton, the Hand Exos (developed within the HAPTEX project) is currently being integrated with new dorsal tactile arrays. The tactile modules will be located on the dorsal side of the last phalanx of the exoskeleton.



The picture above shows the modified GRAB System (left) and an integrated tactile array (right).



Tweakfest 2007
Zurich, Switzerland
May 24-26 2007

The HAPTEX Project has been presented with an interactive demo showcase at Tweakfest 2007, the 2nd Festival for Media Culture & Digital Lifestyle held in Zurich, Switzerland.

Tweakfest is a networking platform for the global Digital Avantgarde and has been an occasion for innovative creatives, researchers and managers to take part in various debates and presentations.

<http://www.tweakfest.ch>

Tutorial at EG'07
Prague, Czech Republic
September 3, 2007



The Annual Conference of the European Association for Computer Graphics will take place from the 3rd to the 7th September 2007 in Prague, Czech Republic. The event is organized by the Computer Graphics Group.

A tutorial on "Haptic Simulation, Perception and Manipulation of Deformable Objects" will take place within the Eurographics 2007 conference involving several HAPTEX partners.

<http://www.cgg.cvut.cz/eg07/>



Speakers:

- Nadia Magnenat-Thalmann
MIRALab - University of Geneva
- Ian Summers
University of Exeter
- Massimo Bergamasco
PERCRO - Scuola Superiore Sant'Anna

HAPTEX'07 Workshop at CyberWorlds 2007
Hanover, Germany, October 24, 2007



The annual HAPTEX workshop has been organized this year in Hanover within the Cyberworlds'07 Conference. The goal of the workshop is to disseminate the project's results and to bring together the haptics community in Europe. The workshop was open to external submissions and all submissions were peer reviewed. The best papers will be published in a special issue of "The Visual Computer". A showcase will exhibit the latest HAPTEX demonstrator presenting the project's results.

The workshop program and additional information can be found on the Haptex website: [Work Progress>>Events](#)

Program and Workshop Co-Chairs:

- Nadia Magnenat-Thalmann
MIRALab - University of Geneva
- Franz-Erich Wolter
Leibniz Universität Hannover

Recent Publications

- N. Magnenat-Thalmann, P. Volino, U. Bonanni, I. R. Summers, M. Bergamasco, F. Salsedo, F. E. Wolter, "From physics-based simulation to the touching of textiles: The HAP-TEX Project", to appear in Proc. of the International Conference on Entertainment Computing (ICEC'07), Shanghai, China. September 2007.
- N. Magnenat-Thalmann, P. Volino, U. Bonanni, I.R. Summers, A. C. Brady, J. Qu, D. Allerkamp, M. Fontana, F. Tarri, F. Salsedo, M. Bergamasco, "Haptic Simulation, Perception and Manipulation of Deformable Objects", Tutorial Notes, to appear in Proc. of EUROGRAPHICS '07, Computer Graphics Forum, vol. 26. September 2007.
- H. Meinander, "Mechanical properties as a base for haptic sensing of virtual fabrics", Proc. of Autex 2007 Conference, Tampere, Finland. June 2007.
- C. Luible, N. Magnenat-Thalmann, "Suitability of Standard Fabric Characterisation Experiments for the Use in Virtual Simulations", Proc. of Autex 2007 Conference, Tampere, Finland. June 2007.
- S. Marcheschi, F. Salsedo, M. Fontana, F. Tarri, M. Bergamasco, "High performance explicit force control for finger interaction haptic interface", Proc. World Haptics Conference 2007, Tokyo, Japan. March 2007.
- D. Allerkamp, G. Böttcher, F.-E. Wolter, A. C. Brady, J. Qu, I. R. Summers, "A vibrotactile approach to tactile rendering", The Visual Computer, Springer Berlin/Heidelberg, vol. 23, no. 2, pp. 97-108. February 2007.
- P. Volino, P. Davy, U. Bonanni, C. Luible, N. Magnenat-Thalmann, M. Mäkinen, H. Meinander, "From Measured Physical Parameters to the Haptic Feeling of Fabric", The Visual Computer, Springer Berlin/Heidelberg, vol. 23, no. 2, pp. 133-142. February 2007.

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:

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