

HAPTEX - HAPtic sensing of virtual TEXTiles



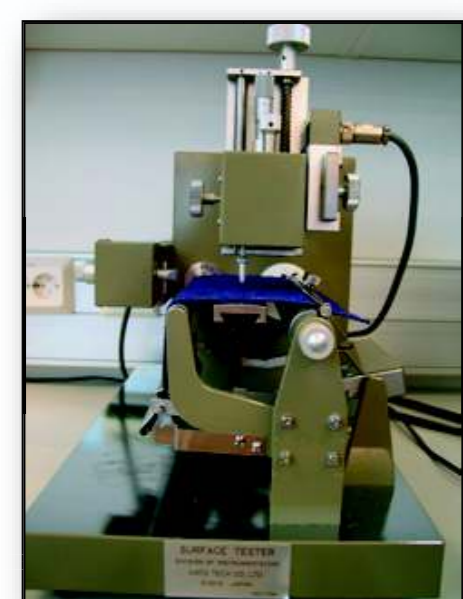
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About HAPTEX

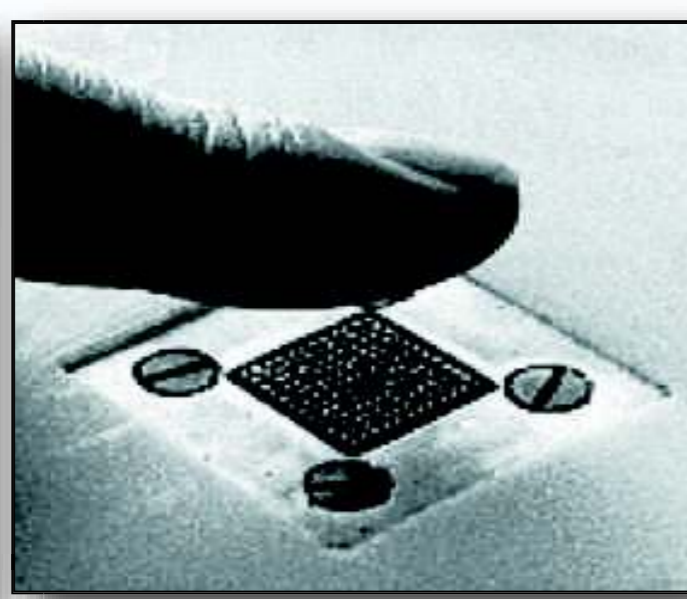
HAPTEX - "HAPtic sensing of virtual TEXTiles" - is a research project on multimodal perception of textiles in virtual environments. Its main goal is to develop a Virtual Reality System (including both software and hardware) for visuo-haptic interaction with virtual textiles.

The HAPTEX System will display a realistic 3D representation of the simulated virtual textile animated in real time. Users of the system will be able to "feel" the displayed virtual textile through a novel haptic/tactile interface. The project will provide several demonstrators to test different integration phases of the overall system. Each demonstrator will be a step towards the realization of an integrated haptic/tactile interface for the real-time manipulation of deformable objects.

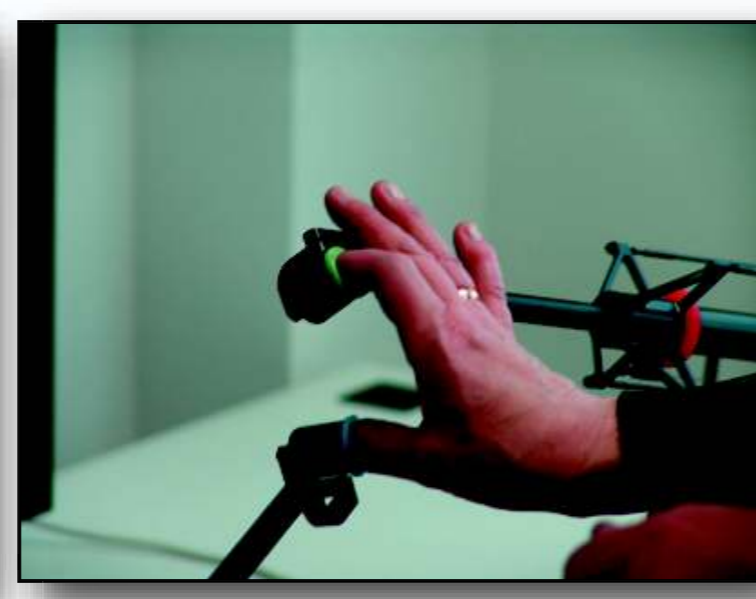
We expect HAPTEX to investigate how far it is possible to provide a user with a completely reliable sense of fabric through a virtual experience. The project has many applications for the textile industry, but the main impact will be the significant advancement of multimodal interaction tools, techniques and know-how.



Kawabata equipment



Tactile display



Prototype of force-feedback device

Goals

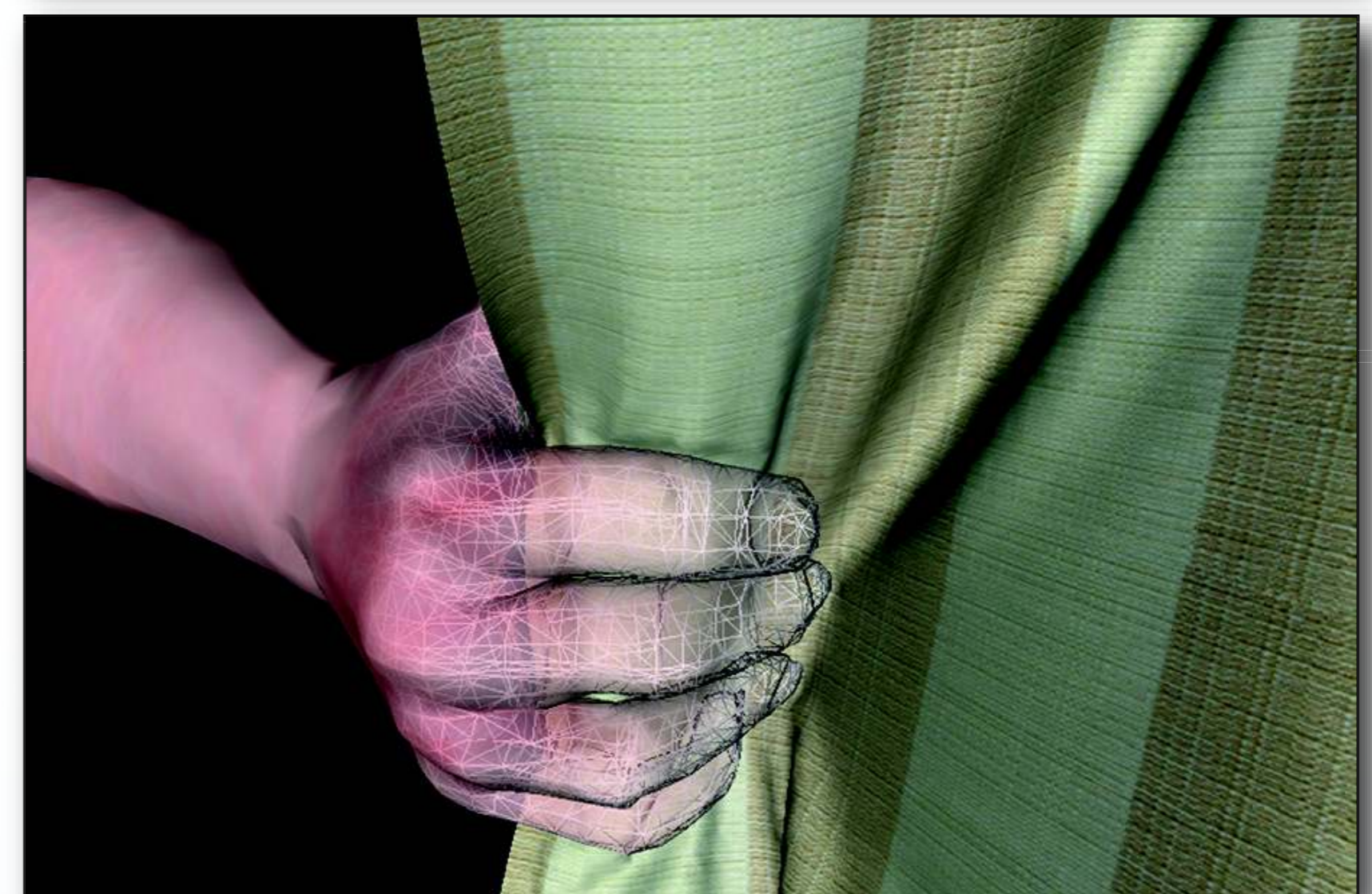
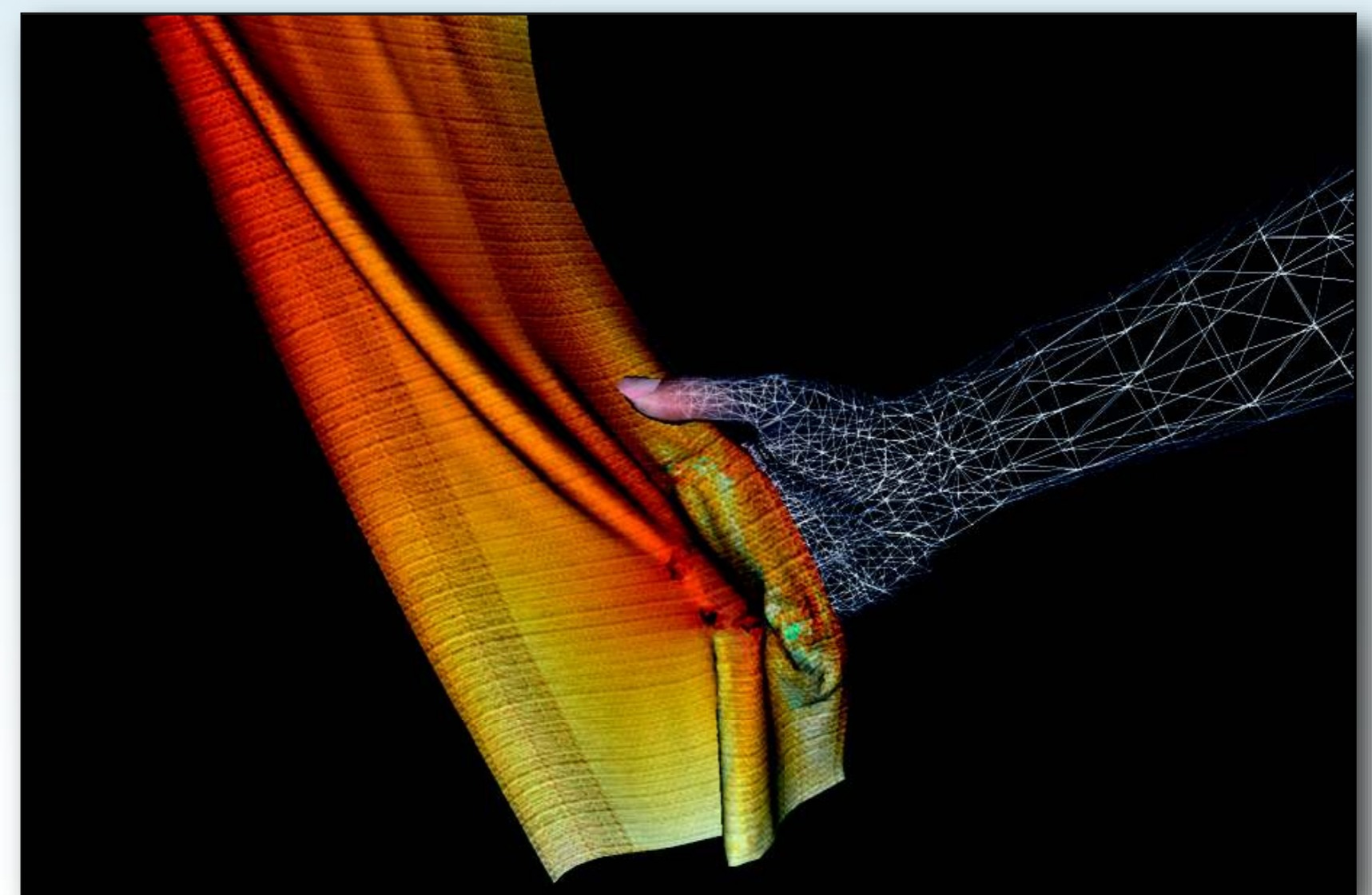
- Fundamental research in the domain of multisensory simulation
- Integration of force feedback & tactile perception
- Physical simulation of textiles in real time
- Synchronization of visual and haptic rendering

Applications

- Online-purchase of clothes
- Entertainment Industry
- Textile Industry
- Integration of haptic feedback within VR Simulations

Research

- Mechanical models for physical-based simulation of deformable objects in real-time
- From physical parameters to realistic visualization and haptic perception of textiles
- Haptic and tactile rendering algorithms
- Novel haptic interfaces for multi-point interaction



Virtual garment simulation with collision handling

Work Package Distribution

ID	Task description	Leader
WP1	Requirements analysis, architectural design and physical based models	MIRALab
WP2	Research and development of the haptic renderer	UHAN
WP3	Measurement of the textile properties and protocol definition	SWL
WP4	Development of the complete haptic/tactile interface hardware	PERCRO
WP5	Multimodal integration and validation	UNEXE
WP6	Management and dissemination	MIRALab

Funding

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

Acronym
Full title
Website
Contract No.
Coordinator

HAPTEX
HAPtic sensing of virtual TEXTiles
<http://haptex.miralab.unige.ch>
IST-6549 (01.12.2004 – 30.11.2007)
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