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Integration of Haptics in VE : a Perception-Based Approach

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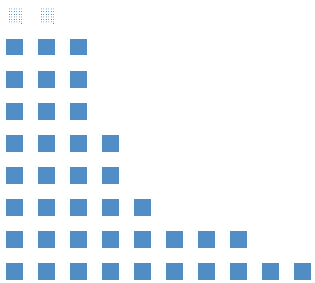
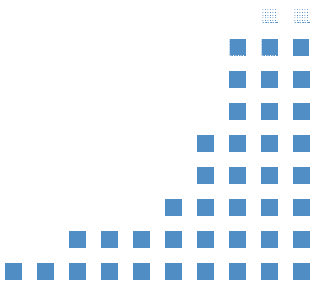
IEEE VR Tutorial, March 10th 2007





Contact

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Tutorial webpage

http://www.irisa.fr/bunraku/VRhaptic

(*associated materials will be made available online*)

Scope

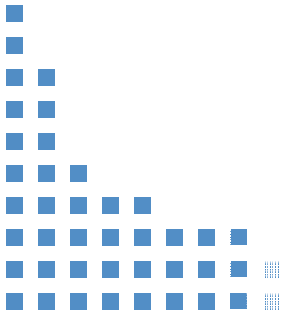
- Integration of Haptics in Virtual Environments: a Perception-Based Approach
- Provide answers to the following questions :
  - How to design virtual environments including haptic interfaces that are in line with the characteristics of the human perception?
  - How to use properties of human perception to simplify the components of virtual environments based on haptic displays?
  - How to take advantage of perceptual phenomena such as haptic illusions and cross-modal influences?

Topics

- Recent results in the field of human haptics and multimodal perception
- Design of VE and haptic interfaces based on human perception
- Software simplifications related to haptic perception, i.e., “perception-based haptic rendering”
- Use of visual feedback and cross-modal transfer to provide haptic sensations : haptic illusions and pseudo-haptic feedback

Speakers

- Lynette Jones, MIT
- Anatole Lécuyer, INRIA
- Miguel Otaduy, ETH Zurich
- Dinesh Pai, University of British Columbia
- Gunter Niemeyer, Stanford University
- Matthias Harders, ETH Zurich



Schedule

01:30	**01:30**	***Introduction***
01:30	**02:00**	Perceptual Issues in Haptic Interface Design, Lynette Jones
02:00	**02:30**	Pseudo-Haptic Feedback, Anatole Lécuyer
02:30	**03:00**	Transparent, Sensation-Preserving Haptic Rendering, Miguel Otaduy
03:00	**03:30**	***Coffee Break***
03:30	**04:00**	Interaction Capture and Synthesis, Dinesh Pai
04:00	**04:30**	Event-Based Haptics, Gunter Niemeyer
04:30	**05:00**	Determining Deformable Model Parameters and Assessing the Haptic Rendering Fidelity, Matthias Harders

Expected Attendees

- Heterogeneous audience
  - Designers of VE using haptic devices and haptic software solutions
  - End-users of haptic devices
  - Interested researchers in the field of applied perception
  - Builders of haptic rendering environments
- Level of expertise
  - No specific pre-knowledge or high level of expertise is required

Acknowledgements

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  www.intuition-eunetwork.net
- IEEE RAS/CS Technical Committee on Haptics
- IEEE VR 2007 organization team