

# VR 2007

## **Mixed Reality User Interfaces: Specification, Authoring, Adaptation**

Workshop @ IEEE VR 2007, Sunday March 11



[www.mrui2007.org](http://www.mrui2007.org)

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Workshop Organizers

# Welcome!

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# International Program Committee

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- Wolfgang Broll, Fraunhofer FIT
- Raimund Dachsel, Dresden University of Technology
- Steven Feiner, Columbia University
- Pablo Figueroa, Universidad de Los Andes, Bogota
- Christian Geiger, Duesseldorf University of Applied Sciences
- Michael Haller, Upper Austria University of Applied Sciences
- Ernst Kruijff, Graz University of Technology
- Irma Lindt, Fraunhofer FIT
- Dirk Reiners, University of Louisiana, Lafayette
- Dieter Schmalstieg, Graz University of Technology
- Ehud Sharlin, University of Calgary

# MR UIs – a considerable diversity



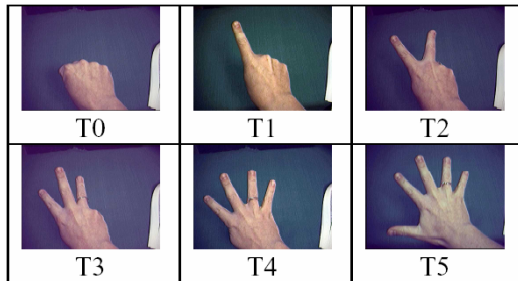
MARA  
[<http://www.fit.fraunhofer.de>]



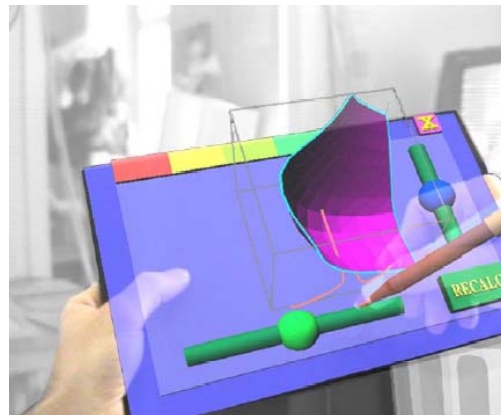
Ring menu  
[Liang and Green 1994]  
[Dachsel and Hinz 2005]



CirculaFloor  
[<http://intron.kz.tsukuba.ac.jp>]



Gesture recognition  
[<http://www.fit.fraunhofer.de/projekte/arthur/>]



Personal Interaction Panel  
[<http://www.cg.tuwien.ac.at/research/vr/pip/>]



Universal Keyboard Using Chording Gloves  
[<http://iesys.skku.ac.kr/~human/>]

# Motivation and Overview

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- Problems
  - Creation process
  - Diversity of context and hardware setups
  - Informal description of MR UIs
  - Lack of development rules and reusable byproducts
- Workshop topics and focus
  - Development approaches and frameworks
  - Universal Implementations of 3D User Interaction Techniques
  - Models, guidelines, and HCI principles applied to MR
  - Examples

## MRUI – Specification

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- How to consistently and unambiguously specify interfaces?
- What is the design space of MR applications?
- Which models are suitable to specify MR user interfaces?
- Which requirements should novel languages in MR development fulfill?
- How to achieve reusability of MR user interfaces?
- How to achieve independence from existing frameworks and specific formats?
- Do we require standards for MR development?

# MRUI – Authoring

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- Why is MRUI different from the “original” disciplines?
- Which novel tools or authoring systems are required to facilitate the work of MR developers?
- What types of developers are targeted by MR authoring tool?
- How do we envision the production cycle of MR applications? How to support the whole development cycle from an abstract model to a specific implementation?
- What type of compile time configuration issues and runtime changes should we take into consideration in the development of MRUIs?
- Which novel concepts and tools are needed for quickly building and testing adaptive MRUIs?
- How to abstract current frameworks into a unifying MR architecture?
- How to integrate current frameworks into MR development?

# MRUI – Adaptation

- How to achieve personalization of MRUIs?
- How do varying contexts influence spatial interaction, i.e. interacting in different spatial contexts?
- How can a MRUI be adapted to better support certain tasks in certain situations (e.g. switch from a 3D to a 2D interface; use audio input instead of gestures etc.)?
- How can the rendering of MRUIs be adjusted to environmental influences (such as a closed Cave, a lab with good lighting conditions, an open space urban situation etc.)?
- How can 3D interfaces be better integrated into our surroundings?
- How do they help us in supporting the idea of pervasive computing? How do they relate to other smart and intelligent items?

# Agenda

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- **8:30-9:00**      **Workshop organizers' welcome and introduction**
  
- **9:00-11:00**      **Session 1: Development Approaches & Frameworks**
  - 9:00-9:30      Model-Driven & Framework-Supported Augmented Reality Development
  - 9:30-10:00      Towards a Universal Implementation of 3D User Interaction Technique
  - 10:00-10:30      Coffee break
  - 10:30-11:00      Visual Programming for Hybrid User Interfaces
  
- **11:00-12:00**      **Session 2: Models, Guidelines & HCI Principles**
  - 11:00-11:20      A Model for Scalable Mixed Reality
  - 11:20-11:40      Applying HCI principles to AR systems design
  - 11:40-12:00      MRUI Adaptation in the Presence of Uncertainty
  
- **12:00-1:30**      Lunch break

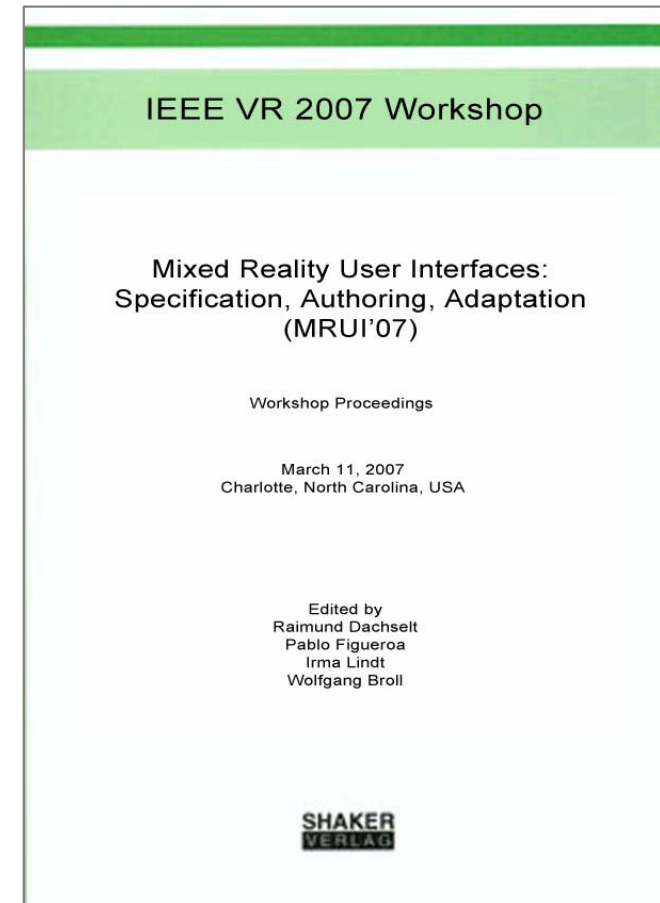
# Agenda

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- **1:30-2:20**    **Session 3: Interaction Devices & Rendering**
  - 1:30-2:00    One-Dimensional Force Feedback Slider: Digital platform
  - 2:00-2:20    Enhancing the mapping between Real and Virtual World on Mobile Devices through efficient Rendering
  
- **2:20-4:45**    **Group Work**
  - 2:20-2:40    Discussion on topics and group organization
  - 2:40-3:15    Group work and discussions (part I)
  - 3:15-3:45    Coffee break
  - 3:45-4:15    Group work and discussions (part II)
  - 4:15-4:45    Short group presentations
  
- **4:45-5:00**    **Workshop summary and wrap-up**

# MRUI 2007 Proceedings

- Not included in IEEE VR registration fee
- Free copies for presenters
  - Sponsored by us 😊
- Copies are available on a cost share basis
  - Purchasable for \$ 20 (15 €) during the workshop breaks
- Online proceedings available on conference DVD



# Participants

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# Thanks!

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- Thanks for your participation!