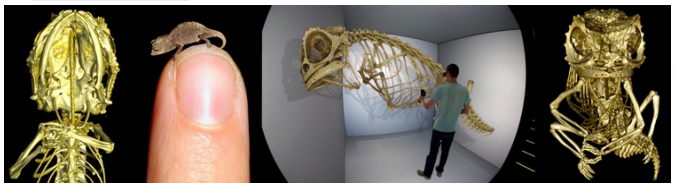
Advanced Visualisation

Enhanced display of complex data sets, in order to make important information contained in the data more easily visible for the human eye

Visualisation

Virtual Reality

Describes the simulation of an artificial environment by stimulating the user's senses

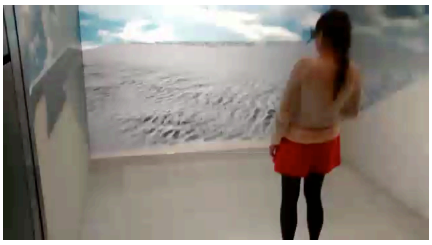


Zoology
Bernhard Ruthensteiner, ZSM
Benedikt Geier, ZSM
Frank Glaw, ZSM

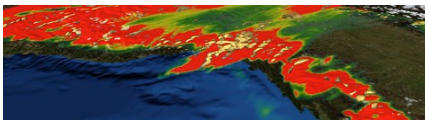
Motivation

- Investigate the use of advanced visualisation to support disaster mitigation

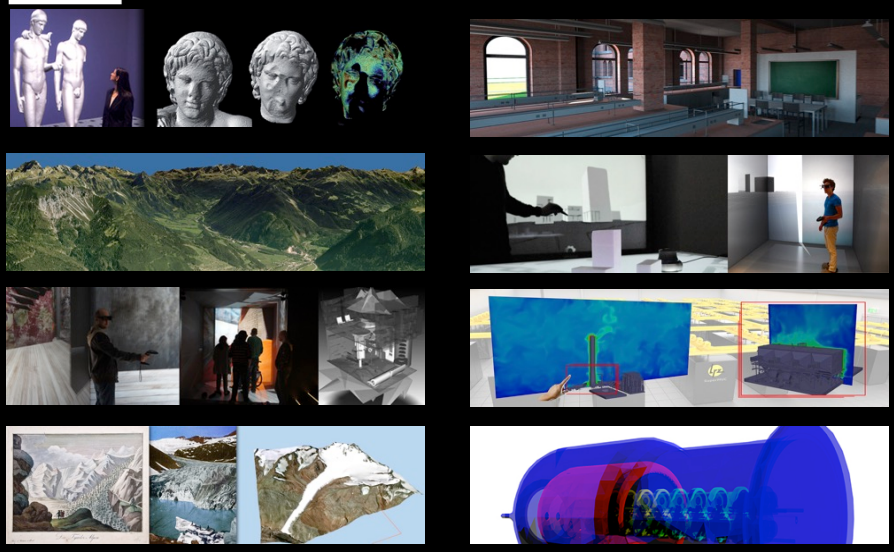
Collaboration effort by INGV (Rome) & LRZ in EU Project VERCE



Collaboration effort by CIMA, LMU & LRZ in EU Project DRIHM



Virtual Reality and Visualisation Centre (V2C)



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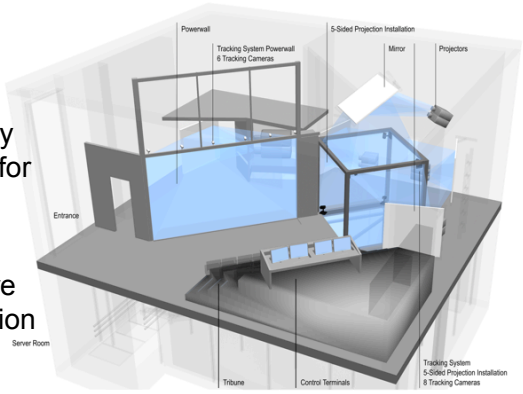
Technology

- Stereoscopic Display
  - Perceive real 3D impressions in virtual environments
  - Scene has to be displayed from slightly different perspective for the right and left eye
- Tracking
  - To gain user's posture and position information in the physical environment

5-sided Projection Installation



leong@lrz.de

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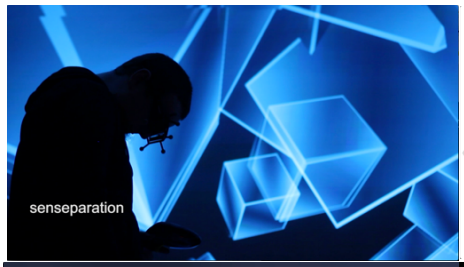

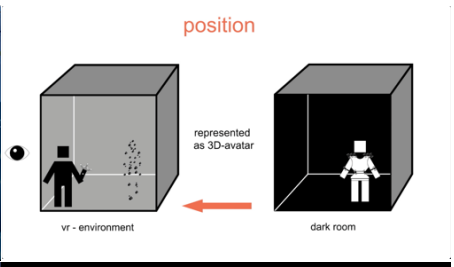

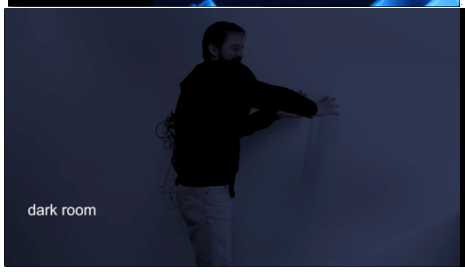

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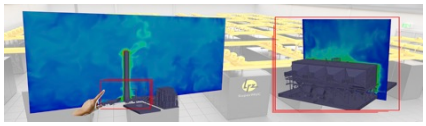

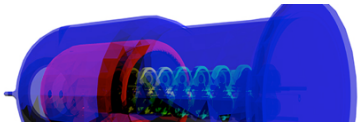

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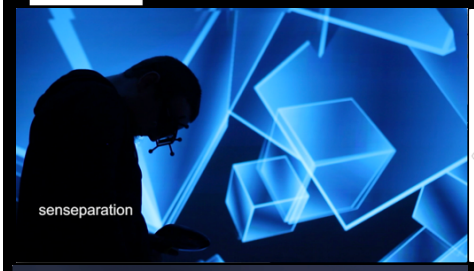
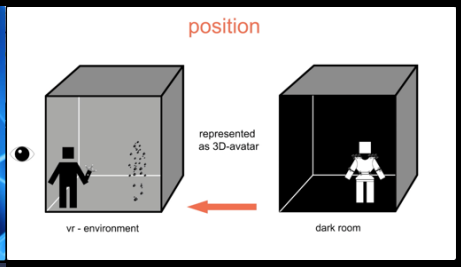
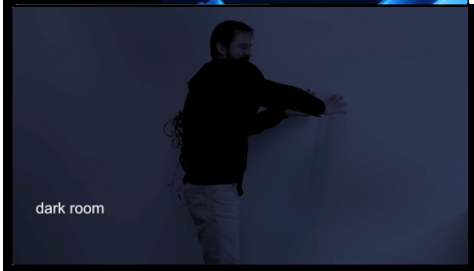
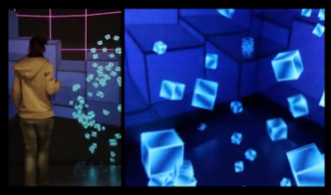






cave



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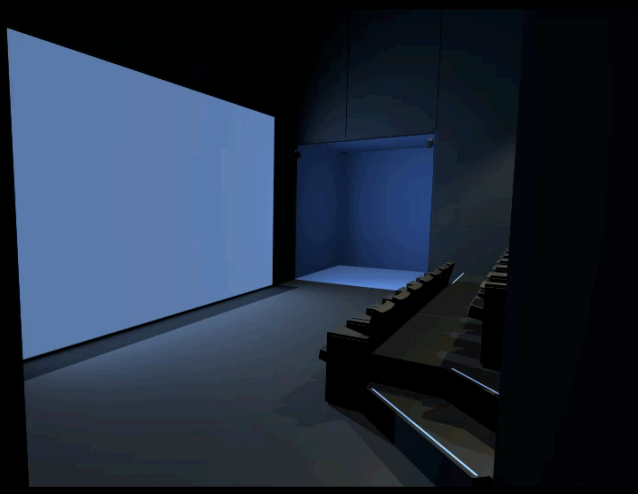

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Plan

- **Initial exchange of Information (August 2015)**
  - Advanced Visualisation and Scientific Use Cases
- **Initial selection of case study and Setting up of Working Group (September 2015)**
  - LRZ: Markus Weidemann, Christoph Anthes, Siew Hoon Leong (Cerlane) and Dieter Kranzlmüller
  - NCU: Chun-Wei Lin (Zara) and Tso-Ren Wu
- **Exchange of data (October 2015)**
- **Evaluation of data (October - November 2015)**
- **Visualisation of data in 2D (November - December 2015)**
- ***Porting data to CAVE-like infrastructure (January - March 2016)***
- Demonstration at ISGC 2016 (13 March 2016) - http://event.twgrid.org/isgc2016/cfp.html

13-18 March, Taipei

ISGC 2016
Ubiquitous e-infrastructures and Applications

Scour use case from Asst. Prof. Dr. Tso-Ren Wu (NCU)

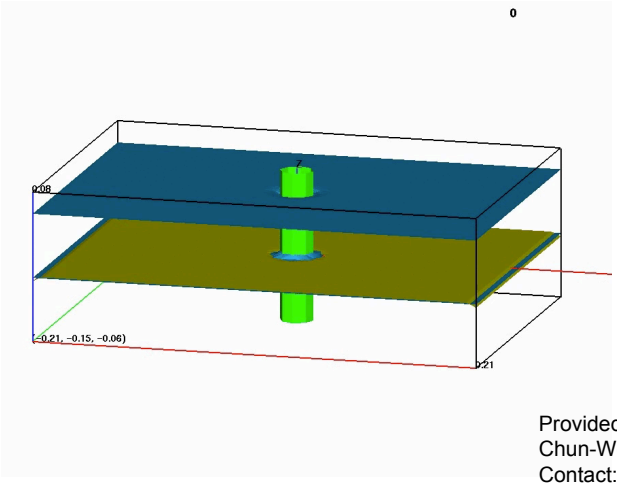
Selected case study: Scour

- Scour is a natural phenomenon caused by the erosive action of flowing stream on alluvial beds

Failure of bridges

Examples of Scour related Bridge Failures

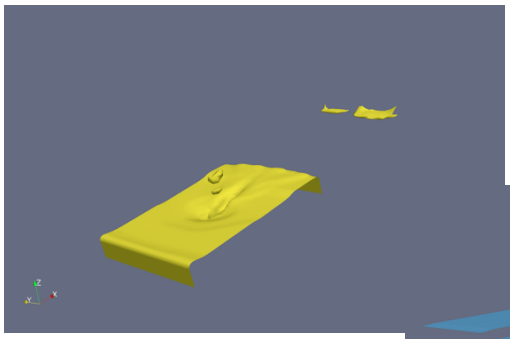
Chosen Case Study: Dey and Barbhuiya, 2005



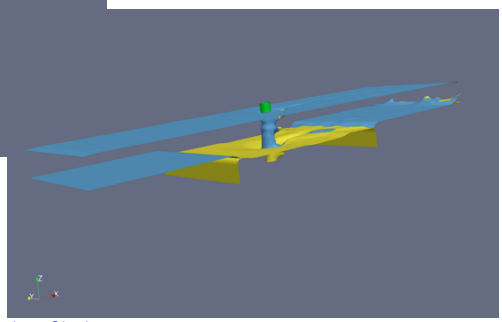
- Compute domain: 1.1m by 0.3m by 0.14m
- Abutment model: Circular
- Column radius: 0.015m
- Uniform sediments
- Mud: 6cm thick
  Clean water: 6cm thick

Provided by:
Chun-Wei Lin & Tso-Ren Wu (NCU)
Contact: tsoren@ncu.edu.tw

Previous State



November 2015

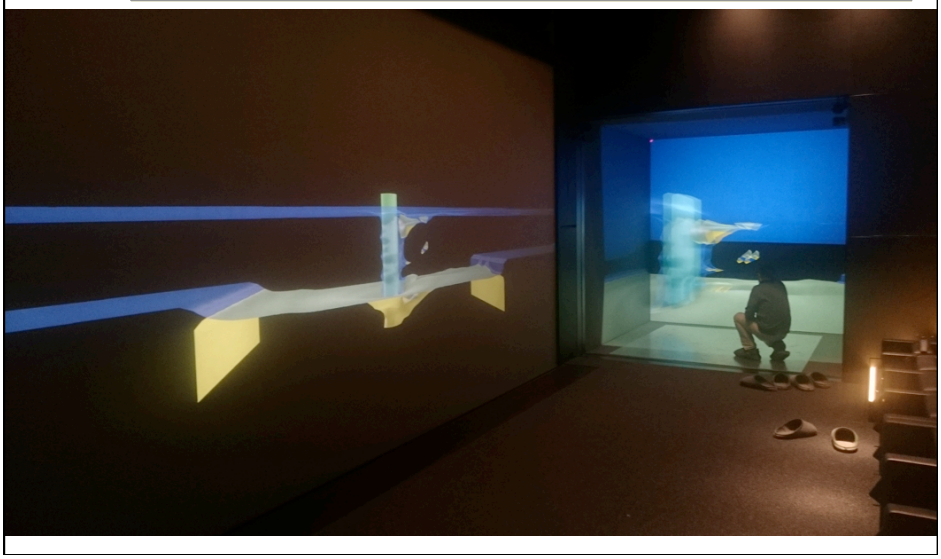


Provided by:
Markus Wiedemann

leong@lrz.de

Current State

Provided by:
Markus Wiedemann



Current State

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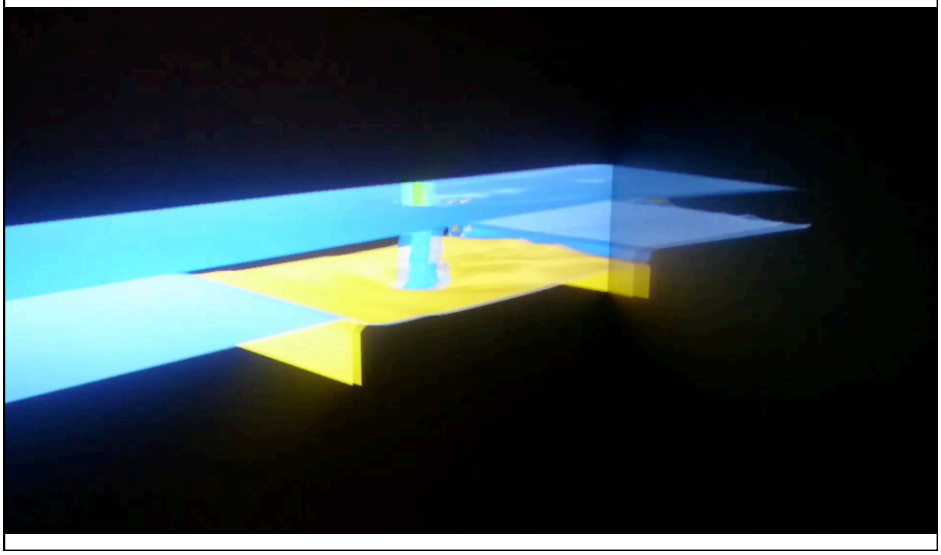

Conclusion

FROM PHYSICAL TO VIRTUAL

COLLABORATIVE DESIGN PLATFORM

“Everything you can imagine is real.” - Pabio Picasso

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Conclusion

"Everything you can imagine is real." - Pabio Picasso

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Visualization at ISGC 2016, Taipei, Taiwan