

Multi-view analysis and depth reconstruction for 3D videoconferencing

Dr. David Marimon, Telefonica R&D

EU FP7 3D Presence Project

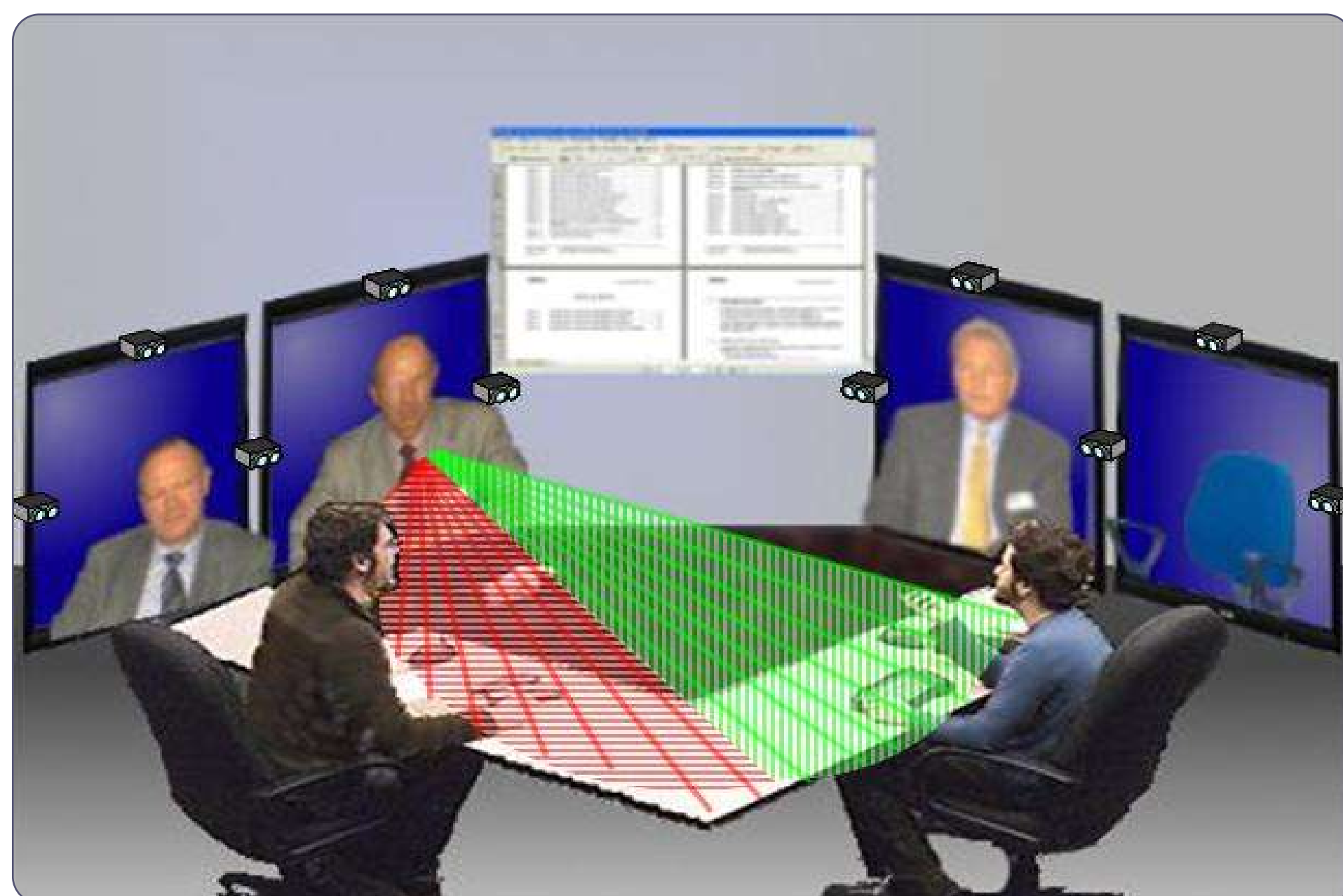
Start January 2008

Duration 30 months

Goal Implement a multi-party, high-end 3D videoconferencing concept that will tackle the problem of transmitting the feeling of physical presence in real-time to multiple remote locations in a transparent and natural way.

Challenge Achieve natural non-verbal communication

- Reproduce human-human interaction (pointing gestures, eye-gaze awareness, etc.)
- Reduced latency
- Real-time



Approach

- 3D acquisition of the geometry and pose of the participants (tracking of gestures).

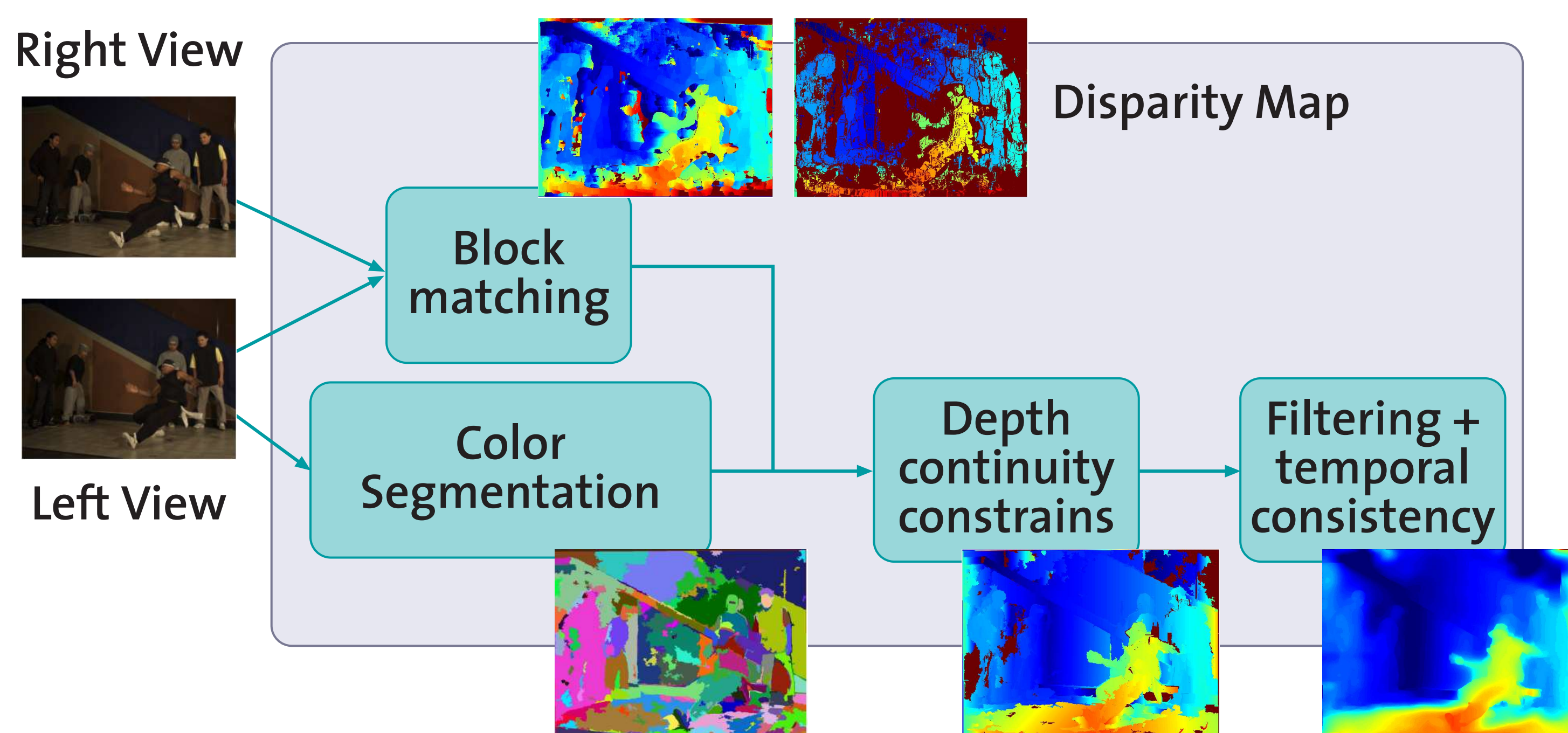


- 3D video coding and communication signalling. Real-time streaming of video+depth and audio to remote sites.
- 3D rendering considering participants in local sites. Design of a specific 3D display.
- 3D GUI. Interaction with a shared display using hand gestures.

Partners



3D acquisition of the disparity / depth estimation



Ongoing research:

- Improve local results
 - Adaptive aggregation window
 - Better cost functions
- Enforce temporal consistency
- Assist depth estimation with a Visual Hull.

