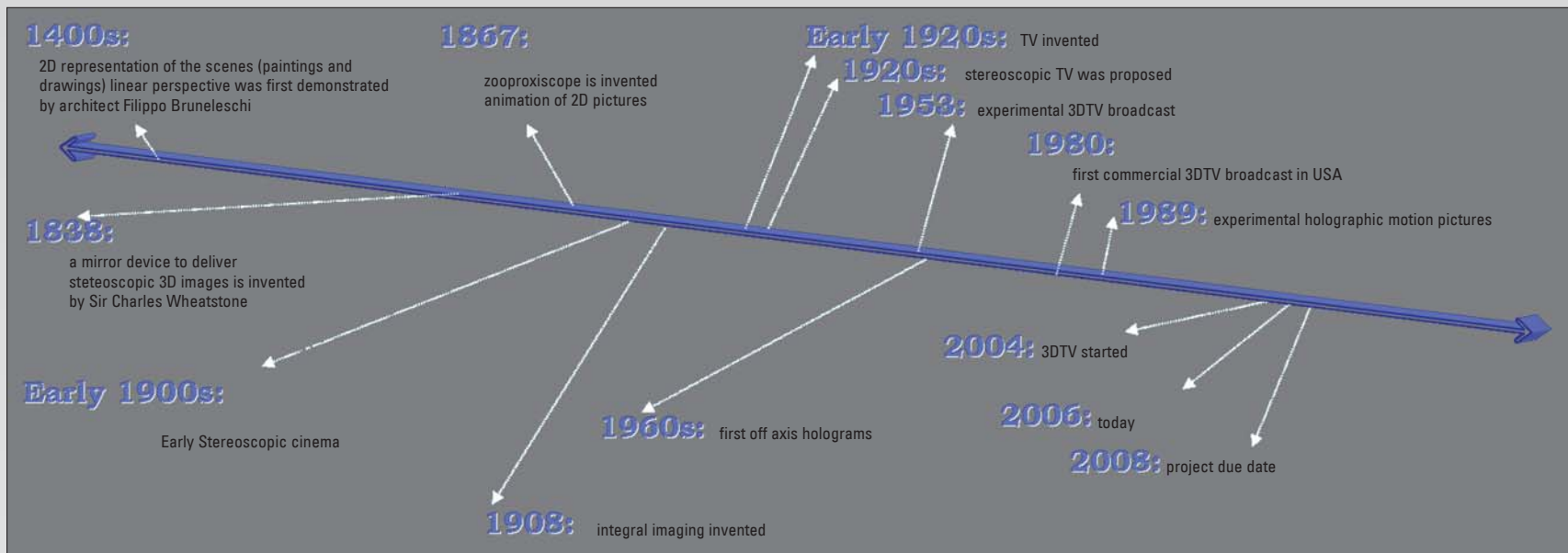


3DTV The True Vision

- A new European consortium, formed as a Network of Excellence, funded by EC under the FP6 thematic area 'Information Society Technologies' will last 48 months. Technical focus on 3DTV with all aspects except audio.
- **Project objective:** Being a NoE, the primary efforts of the 3DTV project are targeted to long lasting integration of European researchers working in distinct, yet complementary areas in order to integrate 3DTV research efforts in Europe. So the project identifies the primary vehicle for a successful integration as the well-defined technical focus of the consortium.



- **Scene Capture:** Capture 3D scene to provide input to 3DTV system
- **Scene Representation:** Abstract representation of captured 3D scene information in digital form
- **Coding:** Specify the exchange format of the data
- **Transmission:** Transmitted data
- **Signal Processing:** Conversion of 3DTV data to suitable forms for holographic and other displays
- **Display:** Equipment to decode and display 3DTV signal

INTERMEDIATE PROJECT RESULTS

Scene Capture:

- Many experimental multi-camera capture systems are designed and tested. Synchronization among the cameras is achieved.
- A robot equipped with a laser scanner and an omnidirectional camera captures 3D structure of the environments as it travels.
- Signal processing methods are developed for automated detection of face, facial parts, facial features and facial motion in recorded video.
- A method for generating and animating a 3D model of a human face is developed.

Scene Representation:

- A method to represent 3D objects using multiresolution tetrahedral meshes is developed.
- A technique is developed to recognize head and hand gestures; the method is then used to synthesize speech-synchronized gestures.
- A method for representing scalable 3D image-based video objects is developed.

Coding and Compression:

- A full end-to-end multi-view video codec is implemented and tested.
- A storage format for 3D video is developed.
- A proposal submitted to MPEG for multiview video coding by a partner of our project was performed best in subjective tests among eight other proposals.
- Various 3D mesh compression, watermarking, hologram compression techniques, and methods for coding and rendering free-view point video are developed.

Transmission:

- An optimal cross-layer scheduling for video streaming is developed.
- An optimal streaming strategy under rate and quality constraints are developed.
- Different approaches for error concealment in stereoscopic images are developed.

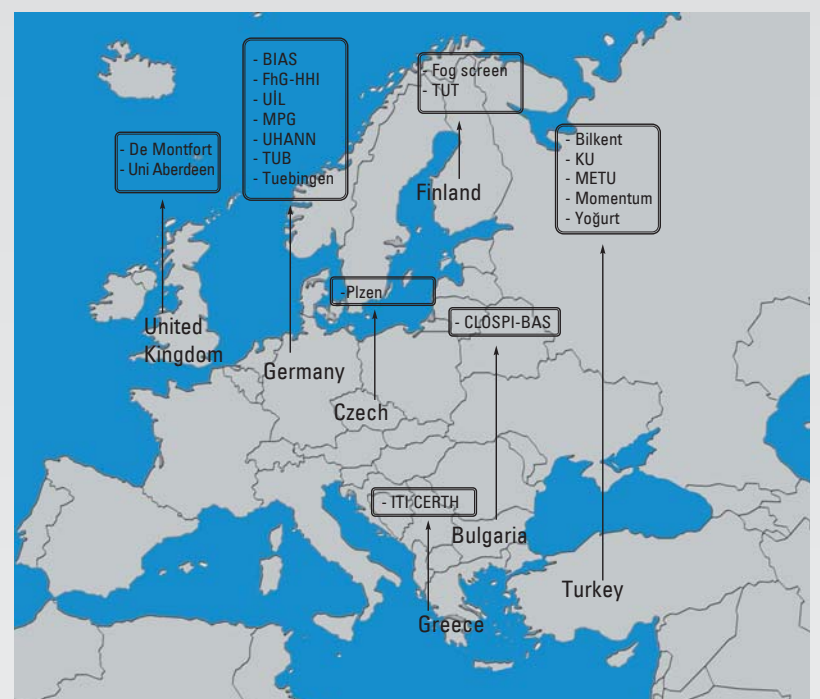
Signal Processing Issues in Diffraction and Holography:

- Analytical solutions for complex coherent light field generation by a DMAD are developed.
- Fast methods to compute diffraction between tilted planes are developed.
- Algorithms to compute 3D optical fields from data distributed over 3D space are developed.

Display:

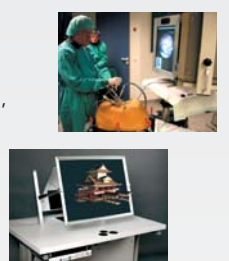
- Autostereoscopic displays for 3DTV are further developed.
- Viewer tracking autostereoscopic displays are further developed.
- Characterization and calibration techniques for various SLM based holographic displays are developed.

For more information, look at: www.3dtv-research.org



Potential Application Areas:

Haptics, Telepresence, Medical Imaging, Dentistry Museums, Instruments Entertainment, Video Games and More



www.3dtv-research.org

