Fraunhofer
IGD

# Second Workshop Future Internet

# Use case scenarios


## Fraunhofer IGD

**Volker Hahn (volker.hahn@igd.fraunhofer.de)**



Fraunhofer
IGD

# Fraunhofer IGD - Background

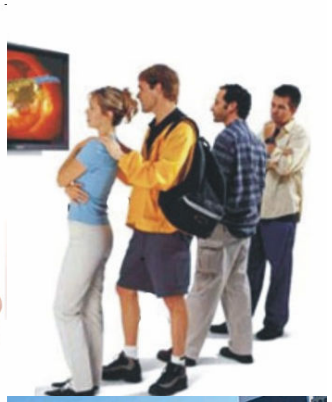
- Institute for applied research in visual computing
- 4 locations with 200 researchers:
  - Darmstadt, Rostock, Singapore, Graz
- Close collaboration with local universities for transfer of basic research results
- Strategic research areas: semantic modeling, fusion of graphics and vision, generalized digital documents
- Realization of prototypes, concepts, models, and solutions based on visual computing
- Adaptation to specific application areas: media, industrial workflows, health, cultural heritage, security, etc.




Fraunhofer IGD

# Appropriate usage scenarios representative for large scale testing

- User centric services allowing pervasive and ubiquitous access to content
- Public information terminals, nomadic devices, home
- Provide the right content at the right place/time
- Adapt, deliver, present content dependent on user context
- Fusion of real world and artificial content (3D, media, text) in a mixed reality environment
- Smart search, retrieval and presentation of content
- Application areas: Content sharing/consumption, sightseeing, smart advertisement, location-based services, gaming, e-learning



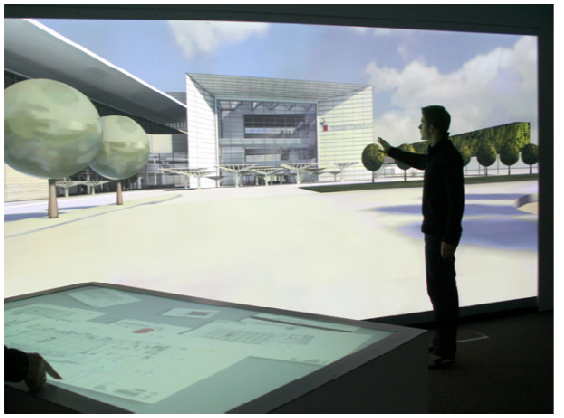


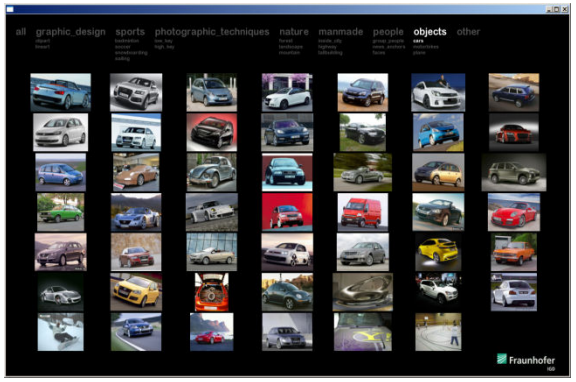


Fraunhofer IGD

# Innovative technologies important for usage scenario

- Content filtering, personalization
- Robust automatic semantic analysis of content, capable to generate semantic metadata fast and reliable
- Automatic content summarization to condense information to its essence
- Multimodal user interfaces, enabling natural human machine interaction, and recognition of human intention
- Simulated and mixed reality technologies fusing the real world with content of all kind









Fraunhofer IGD

# Which functionalities should the Fututure internet platform provide to support usage scenario

- Open, harmonized content distribution platform
  - Open (cross) media formats -> Interplay of associated metadata models
  - Open application platforms, exploiting cloud and grid computing infrastructure services for information processing and storage
  - Efficient coding and transmission at different levels of quality
  - Dynamic network adaptation for advanced caching and streaming of content
  - Network interoperability and service platform convergence
- Advanced identity management for secure user authentication and authorization

# Experimentation environment

- Large scale use case (in number of devices, users, content items)
  - Public displays, nomadic, home environment
- Large scale test beds of networked home environments, providing cloud/grid resources and cross device content sharing.
- Large-scale distributed content repositories and computing environments to e.g. enable grid-based automatic content analysis, cross device content sharing, real-time content services.
- Content aggregation from different providers and real-time composition/adaptation

  -> smart content objects (adaptive advertisement, consumption, learning, gaming)

# Potential role of Fraunhofer IGD in the FI-PPP - Usage Areas

- 3D internet standardisation
  - X3DOM: Seamless integration of 3D content into the Web, Plug-In free, also mobile applications, Web GL, Javascript embedding, X3D backbone
- Augmented / mixed reality technologies:
  - Instant reality: cross platform/ distributed 3D rendering platform from immersive environments to mobile 3D
- Media analysis, search and retrieval, meta-data generation and processing, content visualization, multimodal user interfaces, workflow optimization in content production
- Distributed /parallel processing for real-time content processing (3D rendering, computer vision, media analysis)