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“What benefits does an applied research institute expect from graduates that have experience in transdisciplinary work?”

What kind of Applied Research Institute?



Fraunhofer
Institut
Graphische
Datenverarbeitung



TECHNISCHE
UNIVERSITÄT
DARMSTADT



Business Area Matrix



Challenging areas

- **Mechanical Engineering / Planning / Production**
- **Design**
- **Architecture**
- **Cultural Heritage**
- **Knowledge Management ... Visual Analytics**
- **Safety & Security**
- **Medical Computing** (hard to impossible)

Software for Product and Production Planning

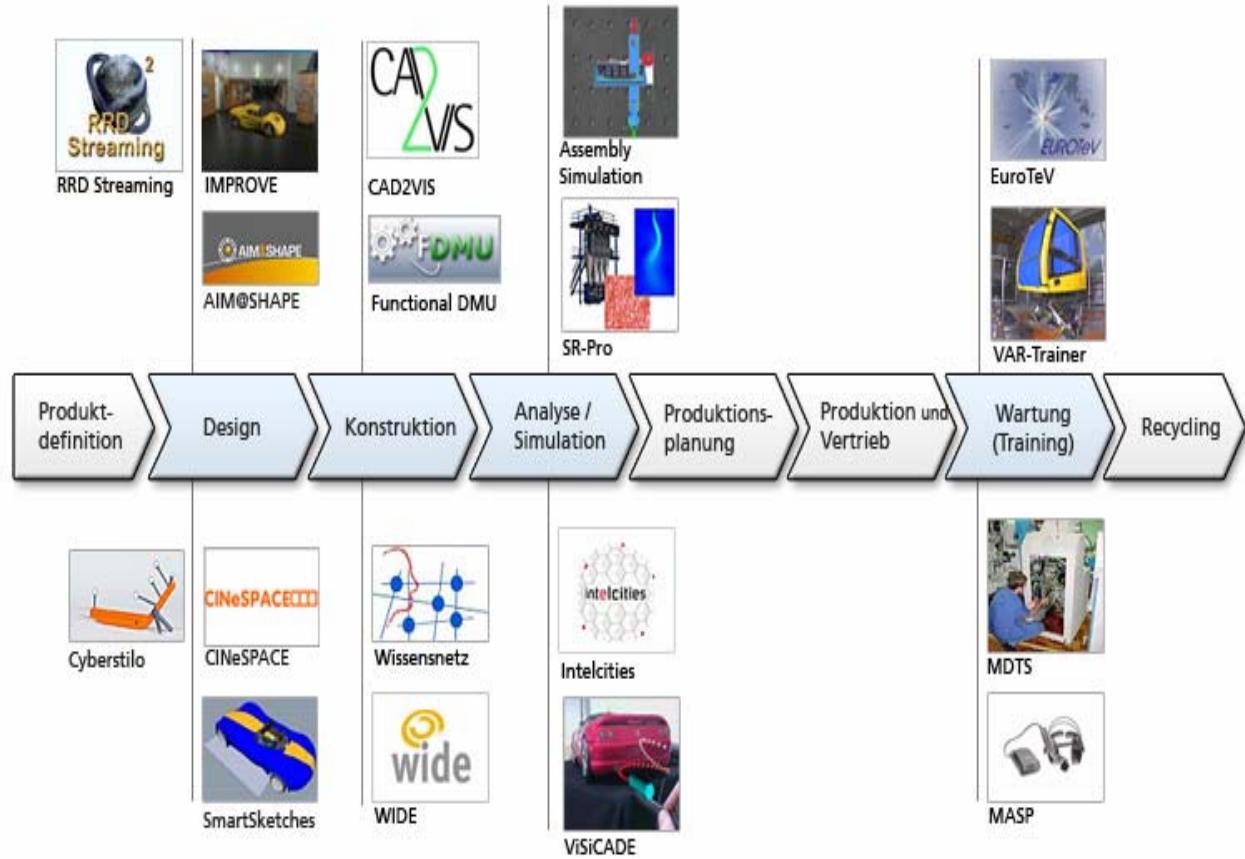
3D Flow Visualization

CAD/VR Interfaces

Virtual Reality

Augmented Reality

Simulated Reality

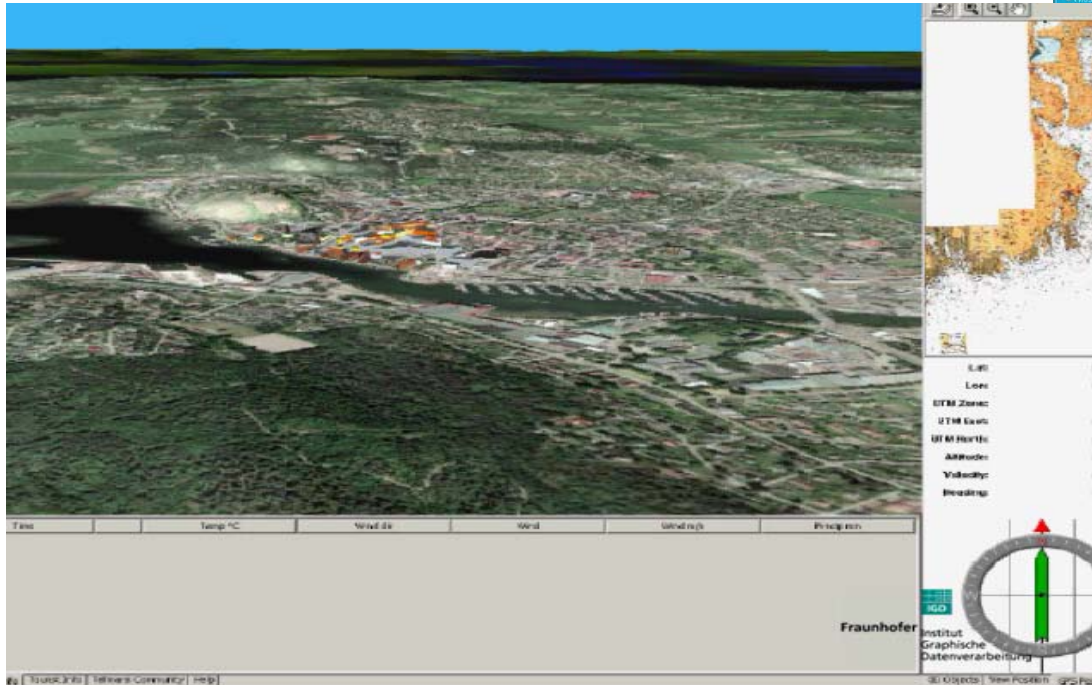
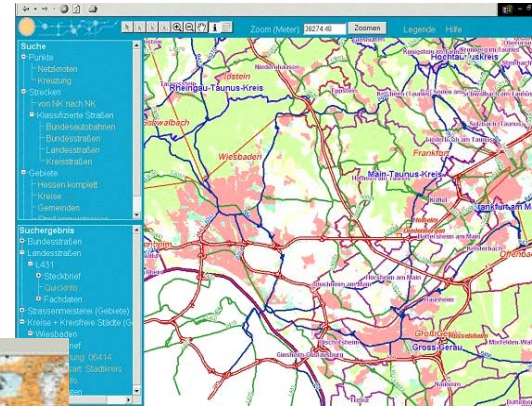


Visualization and Interaction for Traffic and Telematics

Location based services

Planning tools

(Mobile) 3D GIS services



Ambient Intelligence



- Situation
- User Profile
- Context



Audio Warning

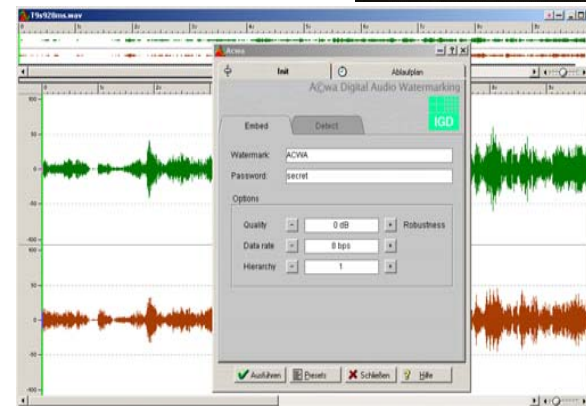
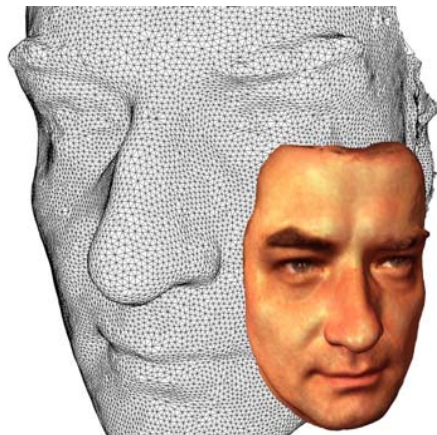
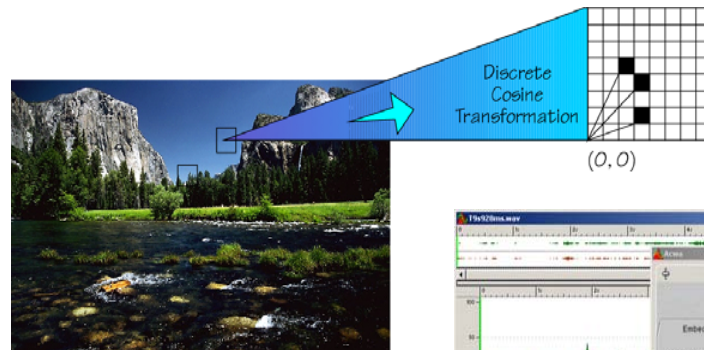


IT Security

Biometry – 3D face recognition

Security of content, document and product

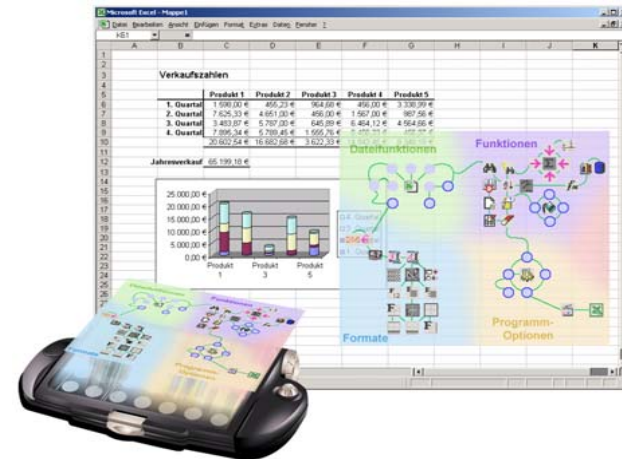
Secure mobile systems



Edutainment

Game based interfaces

Augmented Reality telescope



e-Applications, e-Services und e-Business

e-learning and e-training systems

Knowledge management and visualization

Visual analytics



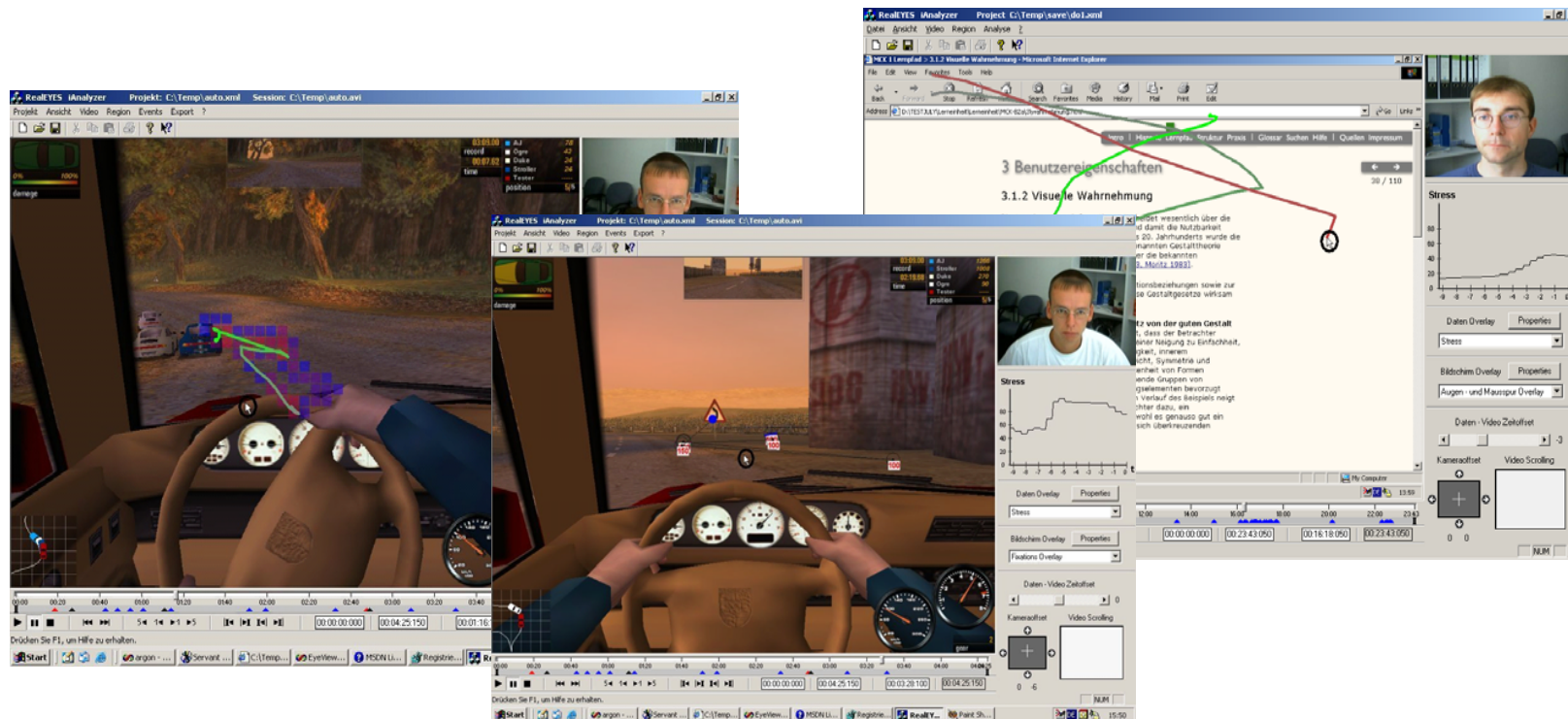
This block contains a collage of several software interfaces and data visualizations. On the left, there is a window titled 'VAH Virtuelles Autohaus' with a 3D virtual car dealership scene. To its right is a 'Kunde' (Customer) information panel with fields for 'Arbeitsplatz', 'Spielzeit', and 'Prozess: Service'. Below this is an 'INVENTAR' (Inventory) section showing a car and a '10.00' price tag, and a 'BESCHREIBUNG' (Description) section with a text block. In the center, there is a large heatmap visualization with a grid of colored squares. To the right of the heatmap is a scatter plot titled 'Annotated Data Analyzer' showing a distribution of blue and red points. Below the heatmap and scatter plot are several smaller charts, including a bar chart and a network graph. A hand holding a mobile phone is visible in the foreground, partially overlapping the scatter plot.

Usability and Utility Engineering

User tracking (e.g. with Eye-Gaze-Tracker or Emotion Glove)

Evaluation of usability and user friendliness

„the software thinks too“ – self-adaptive and intuitive user interfaces

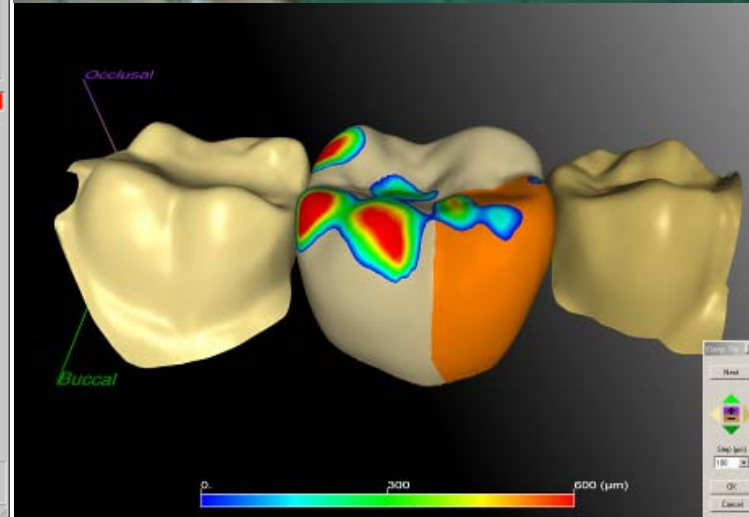
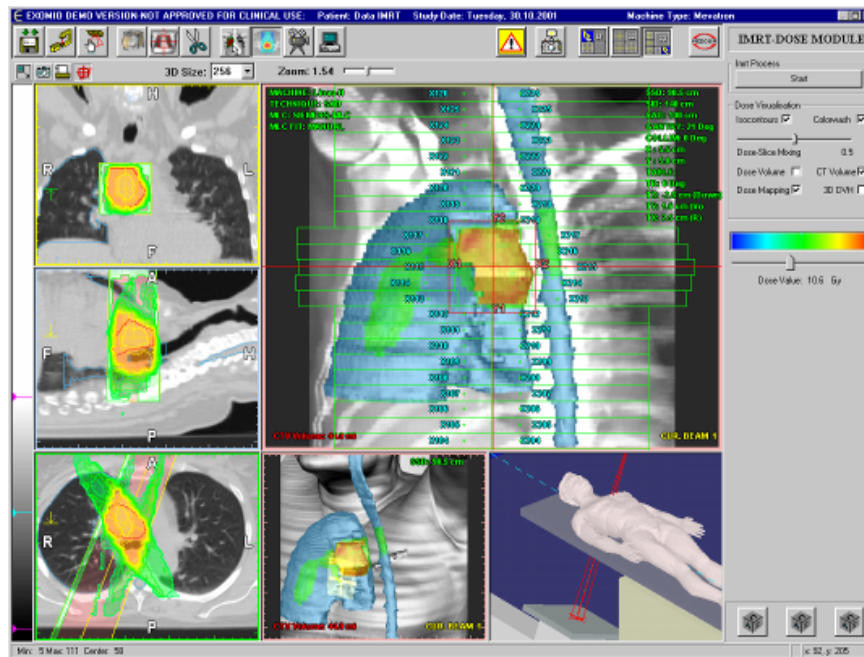


IT for Medical Applications

Radiation treatment planning

Intra-operative support

Dentistry: dental reconstruction and visualization



Transdisciplinary Workers – what do/should I expect ?

Multi-disciplinary: being respected as a peer in your core areas

Inter-disciplinary: being respected as a peer in your area &
you can work with peers from other areas

Trans-disciplinary: being respected as a peer at both sides
of the 'fence'

Problems experienced

- Limits on duration of education results in thinner spread
- It takes time to become accepted as a peer in more than one discipline
- Particular colleges aim at broad training – resulting in a deficit in the home discipline ...