GERMANY Rostock

Fraunhofer IGD Rostock

Fraunhofer Institute for Computer Graphics Rostock (IGD Rostock)
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Core Competence

eLearning, Internet Technologies, Agent Technologies, Virtual Reality, Innovative Interaction Techniques, 3D-Internet Applications, Computer Vision, Mobile Information Systems, Situation Aware Assistance, Mobile Multimedia, Intelligent Environments, Multimodal Interaction, Game Based Interfaces, User Tracking, Intelligent Systems, Media Asset Management

Head of the Institute Bodo Urban

History

Fraunhofer IGD Rostock was founded in 1992 as an external branch of Fraunhofer IGD Darmstadt. Scientific research staff came from institutes of the former GDR academy and from different departments of the University of Rostock. Today, Fraunhofer IGD Rostock is a self-contained division of Fraunhofer IGD and a full member of INI-GraphicsNet. It has a budget of 2.7 Million Euro, a staff of 29 scientists and more than 45 students doing research or practical training. The Fraunhofer IGD Rostock organized several scientific workshops, e.g. three International Workshops on Mobile Computing (IMC) and DSV-IS in 2002.

Financing

Fraunhofer IGD Rostock is financed by Fraunhofer Society to about 20 percent. The remaining budget comes from industrial as well as public funding (BMBF, EC, regional programs) as the institute is working on contract research projects with partners from both industry and government.

Rooms and Locations

The Fraunhofer IGD Rostock building is a former school building with three floors and about 1600 square meters offices, several seminar and lecture rooms and four labs. The building was bought by Fraunhofer Society in 1994 and restructured according to the institutes requirements.

Staff

Head of division: Prof. Dr.-Ing. Bodo Urban.
4 Heads of department: Prof. Dr.-Ing. Bodo Urban, Dipl.-Ing. Jörg Voskamp, Dr.-Ing. Thomas Kirste, Dipl.-Math. Holger Diener.
25 Scientists: Erhard Berndt, Gerald Bieber, Michael Blech, Dennis Brekhman, Mirko Ebert, Martin Giersich, Christian Götze, Kay-Uwe Graw, Sybille Hambach, Thomas Heider, Oliver Hein, Claudia Herzig, Brit Hockauf, Rüdiger Ide, Malte Korten, Volker Leck, Martin Löffler, Nailja Luth, Steffen Mader, Mathias Mainka, Christian Peter, Hagen Schumacher, Rene Stahl, Christian Tominski, Jörn Wallstabe
3 Technicians: Torsten Will, Oliver Friedrich, Manfred Schmidt.
2 Secretaries: Gerlinde Schuldt, Anne Wendt.

Current Structure and Important Partners

Fraunhofer IGD Rostock consists of four departments: Multimedia Communication, Visualization and Interaction Techniques, Mobile Multimedia Technologies, and Entertainment Technologies. It is full member of the International Network of Institutions for Computer Graphics (INI-GraphicsNet) with branches in Darmstadt, Rostock, Frankfurt (Germany), San Sebastian (Spain), Guimaraes (Portugal), Providence (USA), Seoul (South Korea) and Singapore and has a close cooperation with the Center for Research in Computer Graphics, Inc. Rostock, and the Institute of Computer Graphics at the University of Rostock.

Current Research

Fraunhofer IGD Rostock's recent advancements in the fields of Mixed Reality have been culminating in a major role within a current European framework project (Virtual Showcases). We are currently focusing on the completion of a first "upside-down" prototype. Intermediate images, which have been inherent to former prototypes are now moved out of the visual field of the viewer. An eye tracking study explored eye movements and eye fixation patterns containing relevant information for the design of user interfaces. Based on this we provide a novel test environment for detailed usability analyses. In the area of agent technology, our current research activities are focused on the deployment of agents to support the filling-in and processing of forms in the context of an e-government application. In the field of eLearning our aim is to support self-contained learning in a personalized and adaptive virtual learning environment based on multimedia content and didactic mediation. Further research and development is directed towards authoring support for multimedia eLearning courses and developing methods and tools for assessing student learning progress. Main focus of Mobile Multimedia Technologies (MMT) is the development of intelligent, situation-aware personal assistants for the seamless integration of computing support in individual daily business. MMT's XyberScout platform aims at providing an infrastructure for the efficient creation mobile assistants such as personal guides for fairs, exhibitions, conferences, personal shopping guides, mobile facility management, and other applications. XyberScout-based systems have been the official mobile guides for fairs such as CeBIT, Systems, EXPO'2000, IFA'2001 and EuroShop'2002. Within the project MAP, MMT is developing a personal agenda management assistant that helps users in keeping track of their dailiy activities in an intelligent and context-aware way. In the project EMBASSI, we aim at creating intelligent environments that support multimodal interaction and that can autonmously plan strategies for achieveing the users goals --such as giving a multimedia presentation -- based on the available devices. Within Entertainment Technologies we concentrate on innovative technologies for entertainment and edutainment systems and its application to engineering and educational applications. New task oriented Game Based Interfaces are developed for daily work application and information retrieval using new aspects of user interfaces of computer games.

Important Recent Industrial Partners

Robert Bosch GmbH, Alcatel SEL AG, Daimler Chrysler AG, Deutsche Messe AG, Grundig GmbH, Loewe Opta GmbH, Siemens AG, Aker MTW Werft GmbH, Peene-Werft GmbH, Sony International (Europe) GmbH, BARCO

Important Recent Project Participations

- "Virtual Showcases", EU-IST project, www.virtualshowcases.com
- "EMBASSI", funded by the Federal Ministry of Education and Research (BMBF), www.embassi.de
- "MAP", funded by the Federal Ministry of Economics and Technology (BMWT), www.map21.de
- "SAiMotion", funded by the Federal Ministry of Education and Research (BMBF), www.saimotion.de
- "VOCAL", funded by the Federal Ministry of Education and Research (BMBF), www.vocal-info.de

Future of the Lab

Future research areas include intelligent personalization, walk-up VR, mixed reality, ambient intelligence, perceptual user interfaces, personal task management, personal intelligent user interfaces, adaptive learning, multimedia learning environments, authoring support systems, portal services, agent technology. The institute will continue to expand its international contacts and its cooperation with German partners from industry, research institutes and the government.