Fraunhofer Institut Graphische Datenverarbeitung

Press Release 46/2006

Darmstadt, Germany
June 28, 2006

The Third Dimension of Security

Since April 2006, a consortium of 12 partners has been developing 3D face recognition systems for border control within the *3D Face* project funded by the EU. The project has a volume of 12 million Euro and a 36-month term. The Fraunhofer Institute for Computer Graphics Research IGD is heading the sub-project »Research and Technology« and is thereby also responsible for the prototype development.

Since November of last year biometric features have been integrated into all newly issued European passports. Presently, two-dimensional face data are used for identification, and fingerprint data will be included in passport applications soon. 2D face recognition, however, shows some shortcomings. Above all, the recognition performance of the two-dimensional face scanners is not yet fully satisfactory. For example the condition of 2D face acquisition like pose or illumination may have an influence on the recognition performance. Furthermore, the detection of fake attempts, for example by using printed photographs, is now a time consuming process, which needs to be improved.

Adding a three-dimensional approach will provide significant performance improvement for access and border control. The availability of accurate shape information in combination with texture information will allow for face recognition approaches to cope better with pose changes and difficult lightning. The difference between a real person and a photographic image is also immediately evident for such a system. Combined with classical 2D face recognition, this makes the method more reliable and robust than the only two-dimensional face recognition.

INI-GraphicsNet
Corporate Communications
Bernad Lukacin
Fraunhoferstraße 5
64283 Darmstadt, Germany

Phone +49 (0) 6151 / 155-146
Fax +49 (0) 6151 / 155-446
E-mail: bernad.lukacin@inigraphics.net
URL: http://www.inigraphics.net/press

...

International and interdisciplinary project team

In order to explore the potential of 3D face recognition and its commercial viability, the project *3D Face* funded by the Sixth Framework Programme of the European Commission started in April 2006. The project aims to develop a 3D face recognition system, which can be applied to strengthen the border controls. The scope of the project not only includes development of systems with a considerably better recognition performance but also novel forgery-proof sensor techniques. At the same time *3D Face* researchers are developing new technologies for an enhanced protection of private data stored in biometric systems.

Under the direction of the consortium and project manager Sagem Défense Sécurité, France, a total of twelve partners from five European countries work in the project, including the Fraunhofer Institute for Computer Graphics Research IGD and the Computer Graphics Center Darmstadt. The department »Security Technology for Graphic and Communication Systems« of the Fraunhofer IGD is in charge of the sub-project »Research and Technology«. Within this sub-project the biometrics experts of Fraunhofer IGD are further developing recognition algorithms and are responsible for the development of the prototype. Moreover, the Fraunhofer scientists, together with Philips Research, are working on the enhancement of privacy protection within the system. They aim at ensuring that the biometric data stored in the system are protected against fraudulent use. In addition, scientists working with Alexander Nouak, Department Head, are contributing to the final performance tests of the developed systems. »In the scope of the project series Bioface, which we carried out for the Federal Office for Information Security (BSI), we have already gained substantial experience in developing three dimensional recognition algorithms as well as in testing biometric systems, and we can now use and extend them in the *3D Face* project, « said Nouak.

...

INI-GraphicsNet
Corporate Communications
Bernad Lukacin
Fraunhoferstraße 5
64283 Darmstadt, Germany

Phone +49 (0) 6151 / 155-146
Fax +49 (0) 6151 / 155-446
E-mail: bernad.lukacin@inigraphics.net
URL: http://www.inigraphics.net/press

Press Release 46/2006

The project partners:

- *Sagem Défense Sécurité*, France – consortium manager and project coordinator
- *Fraunhofer Institute for Computer Graphics Research IGD*, Germany – sub-project management research, testing of the performance and security of the system, privacy protection, algorithm development
- *Philips Research*, Netherlands – privacy protection
- *Bundesdruckerei GmbH*, Germany – quality assurance
- *Cognitec Systems GmbH*, Germany – face recognition
- *Viisage Technology AG*, Germany – face recognition
- *Polygon Technology GmbH*, Germany – 3D scanner
- *Computer Graphics Center,* Germany – 3D data acquisition and algorithm development
- *University of Kent*, Great-Britain – multimodal facial features and fusion
- *University Twente*, Netherlands – 3D data acquisition and algorithm development
- *Institute of Bio-structure and Bio-images of the National Research Council of Italy (CNR)* – Standardization, cross-jurisdictional and societal aspects
- *Flughafen Berlin Schönefeld GmbH*, Germany – demand analysis, validation, and demonstration

For further information on the *3D Face* project please contact:

Fraunhofer Institute for Computer Graphics Research IGD
Department Security Technology for Graphics and Communication Systems
Alexander Nouak
Phone: +49 (0)6151/155-147
E-mail: alexander.nouak@igd.fraunhofer.de.

INI-GraphicsNet
Corporate Communications
Bernad Lukacin
Fraunhoferstraße 5
64283 Darmstadt, Germany

Phone +49 (0) 6151 / 155-146
Fax +49 (0) 6151 / 155-446
E-mail: bernad.lukacin@inigraphics.net
URL: http://www.inigraphics.net/press

...

INI-GraphicsNet

Press Release 46/2006

Darmstadt, Germany
June 28, 2006

The international network for Computer Graphics (INI-GraphicsNet) consists of the Fraunhofer Institute for Computer Graphics IGD, the Computer Graphics Centre ZGDV, both in Darmstadt and Rostock, Germany, and the Interactive Graphics Systems Group (GRIS) of the Technische Universität Darmstadt, as well as eight further institutions in six countries: the Centre for Advanced Media Technology (CAMTech), the Centre for Graphics and Media Technology (CGMT), both in Singapore, the Centro de Computação Gráfica (CCG) in Guimarães and Coimbra (Portugal), the IMEDIA Academy and IMEDIA, Inc. in Providence, Rhode Island (USA), the Omaha Graphics and Media Laboratories (OGM) in Nebraska (USA), the Centre for Visual Interaction and Communication Technologies (VICOMTech) in San Sebastian (Spain), the Institute for Graphic Interfaces (IGI) in Seoul (Korea) and the Center for Advanced Computer Graphics Technologies (GraphiTech) in Trento (Italy).
These institutions form the largest and most competitive research network for Computer Graphics worldwide. Their core competence is the visualization and interactive use of data, information and knowledge. They research and develop new forms of interaction and dialogue for digital media and realize innovative systems for communication and graphic-interactive cooperation via research networks. More than 300 employees as well as over 500 scientific assistants are working at the research network's ten locations. In 2005, the budget exceeded 38 million Euro.

INI-GraphicsNet
Corporate Communications
Bernad Lukacin
Fraunhoferstraße 5
64283 Darmstadt, Germany

Phone +49 (0) 6151/155-146
Fax +49 (0) 6151/155-446
E-mail: bernad.lukacin@inigraphics.net
URL: http://www.inigraphics.net/press