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Welcome to the final issue of »computer graphik topics« in 2001. This issue will focus on activities of the Centre for Advanced Media Technology (CAMTech) in Singapore and will be complemented by contributions from Darmstadt for the areas of medical visualization and television broadcast applications.

Since the last CAMTech issue, CAMTech has experienced a year of growth and transition once again. It has been an exciting year with notable personnel changes. Dr. Wolfgang Felger, CAMTech's inaugural director, stepped down in January 2001 to pursue opportunities back in Germany. Dr. Wolfgang Felger was instrumental in the creation and launch of CAMTech. His energy and dedication have helped to make this institute an internationally recognized landmark in advanced media technology. CAMTech, especially his successor Wolfgang Müller-Wittig, would like to thank him for his great work.

Moreover, in June 2001, CAMTech's former manager Christine Kruczynski left for a new position in Germany. She played a decisive role for the successful implementation of all business administrative areas. Finally, Grace Tan shifted to a Singaporean IT company to gain some experience in the industry. We would like to take this opportunity to thank them all for their dedication.

At the same time, CAMTech extends a warm welcome to the following new staff members, our new manager Marcus Poicke, research fellow Dr. Yongmin Zhong, project leader Gerrit Voss and more valuable personnel. In addition, CAMTech is proud to hire two former students, Zhu Chao and

Thomas Elias, who will join the research team. CAMTech is looking forward to working with them in the coming years. These new positions mark the extent of CAMTech's growth in recent months.

In this issue, a selection of project achievements covering some of CAMTech's competencies is highlighted as individual technical contributions within this publication.

The use of Virtual Reality technology opens up new possibilities in cultural heritage. Meehae Song is currently developing a concept from a Singaporean perspective.

Moreover, the progress and current status of the project »Virtual Factory« is presented aiming at the improvement of the electronics assembly industry competitiveness through better integration of factory and logistics operations.

Due to the extensive expertise of the new staff members in medical simulation, two articles in this issue address this research topic of CAMTech.

One article introduces the »Urolo-Trainer« a VR based medical training system for fluorescence endoscopy in urology providing new opportunities in medical education.

In addition, the work of Thomas Elias focuses on the real time simulation of surgical manipulations in terms of coagulation.

To overcome current drawbacks while interacting with virtual objects, Dr. Yongmin Zhong introduces a method to realize constraint-based 3D direct manipulations.

The work of new staff member Zhu Chao explores the potential of VRML to represent large-scale areas for real-time navigation by using selective visualization methods.

Also, a novel data mining neural network is described to predict

price changes in a stock market.

CAMTech facilitates the student exchange between Darmstadt University of Technology and Nanyang Technological University (NTU). From the beginning of this year, Fraunhofer-IGD has participated in the industrial attachment program of NTU offering students the opportunity to gain hands-on experience in Darmstadt. A brief report on the R&D topics pursued by exchange students completes CAMTech's contributions to this publication.

The department »Cognitive Computing & Medical Imaging« of Fraunhofer-IGD introduces the following research works in this issue.

A system for free hand navigation in brachytherapy is described increasing effectiveness of treatment by fusing image data with the real patient.

Moreover, a robust and fast method for surface reconstruction derived from medical image data is presented.

The European project GLAUCAD explores the glaucoma disease regarding appropriate geometric characterizations. A module for automatic 3D-reconstruction of the ocular fundus based on uncalibrated stereo images is presented.

The project PISTE covers the end-to-end chain for the creation, transmission and reception of enhanced content during sports broadcasts. Novel methods for the realistic reconstruction of 3D geometric features are introduced.

Finally, an interactive TV system which can supply the viewer with information regarding the program, only based on the low-level visual content of the scene is presented.