

工業器材 WORLD INDUSTRY NEWS ONLINE

Magazine Contents (4/2009) Advertisements Latest News Annual Directory Quick Search Enquiry About Us Response Box

繁 簡 Eng

Back To: [Info Centre](#)

雅琪集團

Energy-efficient



CUHK invents two technologies for vascular intervention simulation and Manga computation

The Chinese University of Hong Kong (CUHK) presented a number of technological projects at the coming International ICT Expo 2009 at the Hong Kong Convention and Exhibition Centre from 13 to 16 April. Two projects displayed for the first time are the 'Vascular Intervention Simulation System' for training doctors in vascular and interventional radiology (VIR) operations, and the 'Computational Manga System' for improving the efficiency of manga production.

'Vascular Intervention Simulation System'

Common killer diseases, such as blood vessel blockage, cerebral aneurysm and cancer, were previously great challenges for doctors. Surgery was considered the only treatment option. With the development of VIR, doctors can perform image-guided and minimally-invasive therapeutic operations by using medical imaging devices and high-technology medical equipment through tiny pin-hole punctures on patients' bodies. VIR operation has become an indispensable standard component in the modern medical arsenal and the demand in Hong Kong has increased rapidly in recent years. However, safe and effective performance of precise VIR procedures requires highly skilled doctors with specialized training. The restrictions of the traditional training mode through hands-on practice on animals and real cases call for the development of a comprehensive computerized training system in this regard.

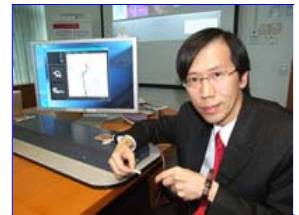
Simulation systems for VIR training currently available in the West have been developed on the data of local clients, focusing on the treatment of diseases common in the West, and thus may not be applicable to the Asian region. Since the end of 2006, Professor Heng Pheng-Ann of the Department of Computer Science and Engineering, Faculty of Engineering, CUHK and Professor Simon C H Yu of the Department of Diagnostic Radiology and Organ Imaging, Faculty of Medicine, CUHK, have jointly developed a 'Vascular Intervention Simulation System' for treating common diseases in Asia. The system makes use of patients' data to reconstruct the 3D anatomic model of organs and vascular network, and simulate the whole VIR procedures and patients' bodily responses, including the slight resistance to the leading wires and micro-catheter, and patients' respiration and blood flow. The system can greatly enhance the effectiveness of VIR training and can also be used for education and evaluation of medical personnel.

'Computational Manga System'

Manga (Japanese comics) is popular worldwide and itself a significant creative industry. The production procedures are nevertheless highly complicated, time-consuming and labour-intensive. Coloured and black/white (b/w) mangas are usually produced separately, leading to inconsistency in styles between the two versions. Professor Heng Pheng-Ann and Professor Wong Tien-Tsin of the Department of Computer Science and Engineering, CUHK, have been developing a 'Computational Manga System' since 2005 for efficiency and consistency enhancement, and cost reduction of manga production. It comes with two functions - 'Manga Colourization' and 'Manga Screening', enabling easy colourization and de-colourization.

'Manga Colourization'

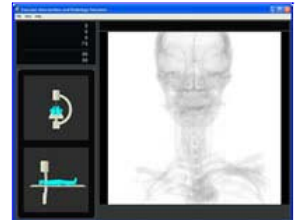
Colourization is the most time-consuming procedure in manga production. Using the existing software to colourize regions without enclosed boundaries will result



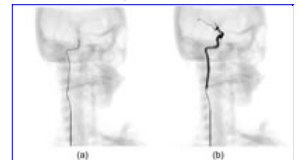
Professor Simon C H Yu of the Department of Diagnostic Radiology and Organ Imaging, Faculty of Medicine, CUHK, demonstrates the 'Vascular Intervention Simulation System'.



Professor Wong Tien-Tsin of the Department of Computer Science and Engineering, Faculty of Engineering, CUHK, introduces the 'Computational Manga System'.



'Vascular Intervention Simulation System'



'Manga Colourization': 'Manga Colourization' (right) helps avoid colour leakage (left 1-3).



Coloured pictures can be turned into manga by 'Manga Screening' (right), with a much more promising result than the traditional halftone technique

東源精密機械有限公司



安達儀器(香港)有限公司

恒暉氣動工程

 美國铝业公司
ALCOA
香港及中國市場
授權經銷商

 Tat Ming
Technology
達明科技有限公司
達明儀器(東莞)有限公司

北祥五金機械

噴油車間自動
噴塗生產線

 良智機器廠
LEUNG CHI MACHINE FACTORY

 ADEKOM
Kompressoren

 MASTER
SONIC POWER
日本電聲科技聲波有限公司
亞洲超聲波有限公司

in leakage, as computers cannot identify the specific perimeter for colourization. 'Manga Colourization' can automatically identify and simulate hand-drawn hatching and printed screening patterns, and fill up different regions with the right colours quickly.

'Manga Screening'

It can mimic the way a cartoonist lays screens with different patterns to transform coloured images into b/w manga, with a much more promising result than the traditional halftone technique. The new technology help cartoonists substantially reduce their time spent on preparing the background, and focus more on the design of characters.

(middle).



The Chinese University of Hong Kong (CUHK)
www.cse.cuhk.edu.hk/~ttwong/papers/manga/manga.html

[Go Back](#)

Publish Date: 2009/4/15

[Market Panorama](#) | [Global Industrial News](#) | [Readers' Service](#) |

Copyright © 2005-2007 B & I PUBLICATIONS LTD. Unit A2, 14/F, Mai On Industrial Building, No. 17-21 Kung Yip St., Kwai Chung NT, Hong Kong
 Tel: (852) 2785 6622 Fax: (852) 2866 7732 E-Mail: hkmm@hkmaschine.com.hk | [Contact Us](#) | [Editorial Contributions](#) | [Enquiry on Advertisement](#)

Powered by UniSmart Asia Ltd