



## Prizes and Awards

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### The HKIE Innovation Awards for Young Members 2008

With an aim to encourage our young members to develop their creativity through innovative application of engineering knowledge, and to inspire upon them to develop their intellectual and career interests in engineering, the Institution is pleased to launch the HKIE Innovation Awards for Young Members 2008, a new initiative with the generous support of the family of the late Ir Kenneth Au-yeung. The entry can focus on any areas of engineering disciplines within the context of the HKIE. There are two main categories, namely Category I - An Invention and Category II !V An Innovative Application of Engineering Theories. The innovativeness of the Design will be assessed based on its originality and creativity. This year, the two Grand Prizes go to Ir Dr Raymond K T Tong (Category I) and Mr Steven Y M Lui (Category II).

#### *PolyJbot – Intention-driven Rehabilitation Robotic System by Ir Dr Raymond Tong*

Ir Dr Raymond Tong received his PhD in Bioengineering from the University of Strathclyde, Glasgow, UK in 1998. He joined the Hong Kong Polytechnic University in 1999 and as an associate professor in the Department of Health Technology and Informatics in 2008. His research interests include rehabilitation robot and functional electrical stimulation system for persons after stroke.

Ir Dr Tong's award winning PolyJbot is targeted for rehabilitation of people with disability and elderly. The active rehabilitation requires patients motivation during exercise training on upper limb and lower limb. An assistive force from a servomotor is applied directly to the affected limb to assist motion based on the user's own intention. The intention is captured through electrical signals measured from muscle activities. Training regime can be selected for different combinations of assistive and resistive forces during the exercise. User can train different joints, ie Wrist, elbow, knee or ankle with the same system. Moreover, clinician can use the PolyJbot to monitor the patient!|s progress and provide useful information to tailor-made an appropriate training protocol for the patient.

#### *Automatic Traffic Optimisation System (For Intelligent Transport Systems) by Mr Steven Lui*

Mr Steven Y M Lui studied a MEng degree in Electrical and Electronic Engineering at Imperial College London and graduated in 2003. After completed the 2-year Structured Training Programme in Transport for London (TfL), he is now a Senior Traffic Control Engineer, working in the Directorate of Traffic Operations !V Urban Traffic Control (DTO-UTC) Specialist Services Team.

The Automatic Traffic Optimisation System automates the very time-consuming manual iterative process between two of the most widely used, industry-standard traffic modelling packages (namely TRANSYT and VISSIM) in the world. This enables signal timings in complicated traffic models to be optimised with ease. The system provides savings in time, resources and money

and minimises the data-transfer errors between models. It improves consistency between models and requires less technical knowledge to operate than the existing technology. The system improves the traffic condition in London, and has received huge interest from traffic engineers and modellers all around UK and other European countries.

This year, Certificate of Merit of Category II was presented to IntroVis, which aims to enable people with vision disability to "read" information more effectively by using an easy-to-use device which utilises RFID or 2D matrix code conversion technology to read, convert and store information, by Miss HUI Chi-yan and Miss Agatha Y T CHAN who both are now studying at IVE (Tsing Yi).



Ir Dr Raymond Tong (R) received the HKIE Innovation Awards for Young Members – Category I from President Ir Dr Lo Wai-kwok



Mr Steven Lui (R) received the HKIE Innovation Awards for Young Members – Category II from President Ir Dr Lo Wai-kwok