

**Title: IT in Industry: A Tale of Three Studies**

**Speaker:**

Professor Alvis Fong  
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**Date:** Friday, 11 February 2011

**Time:** 11:00 am - 12:00 noon

**Venue:** Room 603, Chow Yei Ching

**Abstract:**

Information Technology has become an integral part of industry and commerce for a multitude of applications not just for day-to-day operations such as MRO, but also for forecasting and decision support. With the advent of the semantic web, more and more data will become available and will likely fuel further growth in the use of IT in industry. In this presentation, I shall describe three completed projects that resulted from a long standing collaboration with a multi-international company in the electronics industry. The three projects are “intelligent machine fault diagnosis”, “knowledge discovery for decision support” and “semantic helpdesk”. With a wealth of data stored as service records collected over a decade, we developed a customized expert system to assist field service engineers with effective machine fault diagnosis. This resulted in a significant reduction in the time and effort required to perform onsite repairs. In the second project, we performed data mining on the data to discover hidden knowledge to facilitate decision support. The management team was pleasantly surprised when we presented the findings to them. Lastly, we developed a process to automate the generation of fuzzy ontology to support semantic helpdesk operations. Ontology, of course, is the standard knowledge representation in a semantic web environment. Through an appropriate use of fuzzy logic, we aimed to better model real-life situations in the ontology. The three studies demonstrate that adaptation of existing technologies, when integrated with new research, can be very beneficial in practical situations and can potentially give companies a competitive edge over their rivals.

**Biography of the speaker:**

A.C.M. Fong is professor of information engineering in the Faculty of Design and Creative Technologies at Auckland University of Technology. He was formerly an associate professor in the School of Computer Engineering, Nanyang Technological University. Prior to that, he began his professional career as an engineer with the Motorola Corporate Research & Technology Center and (later) Global Software Division. His research interests include information processing and management, multimedia and communications. His work has appeared in leading international journals and conferences, e.g. IEEE T-KDE, IEEE T-MM, IEEE T-EC, IEEE T-ITB, IEEE T-II, etc. He is the lead author of the book *Multimedia Engineering* (Wiley 2006), and co-authored the book *IT in Medicine and Telehealth* (Wiley 2010). He serves on the editorial boards of several international journals, including *Journal of Software* and *Journal of Advances in IT*. In 2010, Dr. Fong received the NZ-China Exchange Scientist award from the respective government ministries (MOST and MORST) to visit Tsinghua University, and the William Mong Visiting Research Fellowship to visit the University of Hong Kong in 2011. Dr. Fong holds four degrees in EE and CS. He is a fellow of IET and a chartered engineer registered in the UK.

**Organizer:** Prof. V.O.K. Li