

In May I had the pleasure of visiting CeBIT Australia 2004 in Darling Harbour, Sydney. Indicators of the recovery of the IT industry were a 20% increase in the number of exhibitors and an 11% increase in visitor numbers. The Minister of Communications, Information, Technology and the Arts, Daryl Williams, announced at CeBIT that the Federal Government will invest \$308 million to boost innovation in ICT. The investment will include a \$251 million extension of funding for the ICT Centre of Excellence – National ICT Australia, (NICTA), and a \$57 million extension for the ICT Incubators and Advanced Networks programs. Also at CeBIT there was a report of the European Worldwide Observatory (EITO) which predicted 4.3% growth in 2004 of the world-wide ICT market and 6% in 2005. Meanwhile, computer giant IBM continued to report strong earnings and employment growth internationally, while IBM Australia reported an 11% increase in revenue. So the outlook is improving.

Now what does this issue of JRPIT have in store? The first article is by Jinyan Li and Hwee-Leng Ong and is titled “Feature space transformation for better understanding biological and medical classifications”. In the authors’ words “Recently published gene expression profiles and proteomic mass/charge ratios are extremely high-dimensional data ... we study the problem of feature space transformation for easy interpretability of classification results. Each new feature is a combination of multiple original features provided that the new feature captures a large percentage of one class of data, but sharply discriminates the data in the other class. Under the description of new features, training or test data are clearly class separable.”

The second paper is by Nam Hee Lee and Sung Deok Cha and is entitled “Generating reduced finite state machine from concurrent scenarios using partial order method”. Testing of embedded software in today’s electronic devices has to be automated as much as possible. “Finite State Machine (FSM) has long been a popular notation in capturing intended system behaviour, identifying potential flaws in the model, and automatically generating test cases. However, modelling of large and complex systems with ... FSM is impractical, and high-level specification languages” such as Message Sequence Charts (MSCs) is a frequent choice. A “brute-force approach of translating MSCs into FSMs is impractical”. In this paper the authors “describe how to identify a sequence of message exchanges that are semantically equivalent and apply a partial order method to reduce the number of transitions into the FSM.”

The third article is by Gorlam Sorwar, Manzur Murshed and Laurence Dooley and is called “Fast block-based true motion estimation using distance dependent thresholds”. “With advances in both communication and multimedia technologies, there is a critical need to have visual management systems or user-friendly tools to assist in information retrieval from digital multimedia databases.” “... motion is the most obvious and effective feature to provide global and local information as well as describing the dynamic content from a video sequence.” “Motion in video sequences may generally be categorised by: camera movement, the movement of objects within a frame, and movement of both camera and objects.” “A fast motion estimation algorithm, called distance-dependent thresholding search is presented for block-based true motion estimation applications, and introduces the novel concept of variable distance dependent thresholds.”

The fourth paper is by Namgyu Kim, Songchun Moon and Yonglak Sohn called “Application of unique view consistency for elimination of covert channels in real-time secure transaction processing systems”. “To prevent data being accessed by unauthorized users, it is necessary for Credit Card Transaction Processing (CCTP) systems to use multilevel secure database management systems to control concurrent execution among multiple transactions. In CCTP systems, analytical transactions as well as mission critical transactions executed concurrently, which causes difficulties in using traditional secure real-time transaction management schemes in the systems.” In this paper

the authors “propose a read-down secure single snapshot scheme (RS4) that is devised for secure real-time transaction management systems”.

The final paper is by Yan Jin, Charles Lakos and Robert Esser and is titled “Modular consistency analysis of component-based designs”. “In recent years, component-based software development has become more popular for the production of large-scale software applications.” However, “system complexity, and hence the likely number of design errors, grows exponentially with the number of interacting system components.” The authors “present a practical analysis approach that makes use of the modular nature of component-based designs to alleviate the state space explosion problem, a well-known obstacle to system verification”.

I am delighted to say that the November issue of JRPIT will include a Special Collection of papers on Requirements Engineering. The Guest Editor for that Special Collection is Associate Professor Didar Zowghi. I wish to thank Didar publicly for the superb and professional job she has done.

Finally I intend to indulge myself a little. I think back 30 years when I had an operation in a Sydney hospital. I was there for several days for what is today done without even requiring one night in hospital. I then spent several weeks recuperating whereas, today, two days recuperation is all that is needed. In hospital, I passed my time writing a chapter of a book using pen and paper. Today I write this editorial on my laptop while tied to my bed by an intravenous drip as I am a patient receiving excellent treatment/service in Melbourne’s Cabrini Hospital. The laptop is connected to the internet. I check my emails, reply to some of them including from my coauthor in Germany, and chat on MSN to my daughter and colleagues 120 km away. And I email my editorial to the publisher. Times do change! And 30 years from today?



*Professor Sidney A. Morris
Editor-in-Chief
University of Ballarat*

<http://uob-community.ballarat.edu.au/~smorris/>